T-reX

Example of terminal output

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Details

* Beginning with ecoinvent 3.9.1 cutoff
* 34 prospective databases were produced using 'premise'
* These were then manipulated with T-reX
* This took around 20 hours using a Dell Latitude 5521
    * CPU - 11th Gen Intel(R) Core(TM) i5-11500H @ 2.90GHz
    * OS - Ubuntu 23.10
    * RAM - 62GB

* Note that premise became stuck after around 27 databases
  (due to a known memory problem) and had to be restarted.
  T-reX is designed to handle this, and (as long as the 'delete_premise_project = False')
  the user can simply re-run the main script to finish the remaining databases

```
stew@SC-McD:~$ venv trex
(trex) stew@SC-McD:~$ trex
(trex) stew@SC-McD:~/code/gh/T-reX$ python src/T-reX/
config/              CustomConfig.py      ExchangeEditor.py    FutureScenarios.py   main.py              MethodEditor.py      Sea
config_backup/       data/                ExplodeDatabase.py   __init__.py          MakeCustomDatabase.py  __pycache__/
(trex) stew@SC-McD:~/code/gh/T-reX$ python src/T-reX/main.py
Using environment variable BRIGHTWAY2_DIR for data directory:
/home/stew/brightway2data

================================================================================
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
                 ** Starting the T-reX tool **
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
================================================================================

                  _____________________
                 /                     \
                | Arrrgh!!! a T-reX!!! |
                | Run away!!!          |
                 \                     /
                  ====================
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                                  |     |  \~~~\.'                    `./~~~/
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                                (_____,    `._.'                |         }  \/~~~/
                                 `----.          /       }     |        /    \__/
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------------------------------------------------------------

*** Starting FutureScenarios.py ***
        Using premise version (2, 0, 2)
Deleted existing project premise-SSP2-cutoff
Created new project premise-SSP2-cutoff from default
Cache folder cleared!

** Using: ecoinvent-3.9.1-cutoff**


 ** Processing scenario set 1 of 7, batch size 5 **
- Extracting source database
Cannot find cached database. Will create one now for next time...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|
Set missing location of datasets to global scope.
Set missing location of production exchanges to scope of dataset.
Correct missing location of technosphere exchanges.
Correct missing flow categories for biosphere exchanges
Remove empty exchanges.
- Extracting inventories
Cannot find cached inventories. Will create them now for next time...
Importing default inventories...
```

```
Extracted 1 worksheets in 0.07 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.02 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.01 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.01 seconds
Extracted 1 worksheets in 0.01 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.01 seconds
Extracted 7 worksheets in 0.02 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.03 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.01 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.02 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.02 seconds
Extracted 1 worksheets in 0.27 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
The following datasets to import already exist in the source database. They will not be imported
+------------------------------+------------------------------+----------+------------+
|             Name             |      Reference product       | Location |    File    |
```

```
+-------------------------------+-------------------------------+----------+-------------+
| fluorspar production, 97% puri |     fluorspar, 97% purity     |   GLO    | lci-PV.xlsx |
| metallization paste production | metallization paste, back side |   RER    | lci-PV.xlsx |
| metallization paste production | metallization paste, back side |   RER    | lci-PV.xlsx |
| metallization paste production | metallization paste, front sid |   RER    | lci-PV.xlsx |
| photovoltaic module production | photovoltaic module, building- |   RER    | lci-PV.xlsx |
| photovoltaic module production | photovoltaic module, building- |   RER    | lci-PV.xlsx |
| photovoltaic mounting system p | photovoltaic mounting system,  |   RER    | lci-PV.xlsx |
| photovoltaic mounting system p | photovoltaic mounting system,  |   RER    | lci-PV.xlsx |
| photovoltaic mounting system p | photovoltaic mounting system,  |   RER    | lci-PV.xlsx |
| photovoltaic panel factory con |   photovoltaic panel factory   |   GLO    | lci-PV.xlsx |
|  polyvinylfluoride production  |       polyvinylfluoride       |    US    | lci-PV.xlsx |
| polyvinylfluoride production,  | polyvinylfluoride, dispersion  |    US    | lci-PV.xlsx |
| polyvinylfluoride, film produc |    polyvinylfluoride, film     |    US    | lci-PV.xlsx |
| silicon production, metallurgi |  silicon, metallurgical grade  |    NO    | lci-PV.xlsx |
|   vinyl fluoride production    |         vinyl fluoride         |    US    | lci-PV.xlsx |
|   wafer factory construction   |          wafer factory         |    DE    | lci-PV.xlsx |
+-------------------------------+-------------------------------+----------+-------------+
Extracted 1 worksheets in 0.04 seconds
Extracted 1 worksheets in 0.01 seconds
Extracted 1 worksheets in 0.01 seconds
Extracted 1 worksheets in 0.01 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.02 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
The following datasets to import already exist in the source database. They will not be imported
+-------------------------------+-------------------------------+----------+-------------------------------+
|             Name              |       Reference product       | Location |              File             |
+-------------------------------+-------------------------------+----------+-------------------------------+
| carbon dioxide, captured at ce | carbon dioxide, captured and r |   RER    | lci-synfuels-from-methanol-fro |
+-------------------------------+-------------------------------+----------+-------------------------------+
Extracted 1 worksheets in 0.01 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.01 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
The following datasets to import already exist in the source database. They will not be imported
+-------------------------------+----------------------+----------+-------------------------------+
|             Name              |  Reference product   | Location |              File             |
+-------------------------------+----------------------+----------+-------------------------------+
| methanol distillation, hydroge |  methanol, purified  |   RER    | lci-synfuels-from-methanol-fro |
| methanol synthesis, hydrogen f | methanol, unpurified |   RER    | lci-synfuels-from-methanol-fro |
+-------------------------------+----------------------+----------+-------------------------------+
Extracted 1 worksheets in 0.01 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
```

```
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.02 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.02 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.01 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.01 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.00 seconds
Extracted 1 worksheets in 0.01 seconds
Extracted 1 worksheets in 0.01 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
The following datasets to import already exist in the source database. They will not be imported
+-------------------------------+-------------------------------+----------+-------------------------------+
|             Name              |       Reference product       | Location |             File              |
+-------------------------------+-------------------------------+----------+-------------------------------+
| methanol production facility, | methanol production facility, |   RER    | lci-synfuels-from-methanol-fro |
+-------------------------------+-------------------------------+----------+-------------------------------+
Extracted 1 worksheets in 0.01 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 5 worksheets in 0.11 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.01 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
```

```
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.01 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.01 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.01 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.01 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.01 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.02 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.01 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.05 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.01 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.01 seconds
```

```
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.02 seconds
Extracted 1 worksheets in 0.01 seconds
Extracted 2 worksheets in 0.01 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Extracted 1 worksheets in 0.01 seconds
Extracted 1 worksheets in 0.02 seconds
Extracted 1 worksheets in 0.01 seconds
Extracted 1 worksheets in 0.03 seconds
Extracted 1 worksheets in 0.02 seconds
Extracted 1 worksheets in 0.01 seconds
Migrating to 3.8 first
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Applying strategy: migrate_datasets
Applying strategy: migrate_exchanges
Data cached. It is advised to restart your workflow at this point.
This allows premise to use the cached data instead, which results in
a faster workflow.
- Fetching IAM data
Done!

***** Updating sectors... *****

`update()` will skip the following sectors: 'buses', 'cars', 'two_wheelers'.
If you want to update these sectors, please run them separately afterwards.
Updating: trucks: 100%|████████████████████| 9/9 [07:48<00:00, 52.06s/it]
Done!

Updating: cars: 100%|████████████████████████| 1/1 [00:48<00:00, 48.38s/it]
Done!

Successfully updated cars

****************************************
Updating: buses: 100%|████████████████████| 1/1 [00:40<00:00, 40.27s/it]
Done!

Successfully updated buses

****************************************
Updating: two_wheelers:   0%|                | 0/1 [00:00<?, ?it/s]No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
Updating: two_wheelers: 100%|████████████| 1/1 [00:38<00:00, 38.79s/it]
Done!

Successfully updated two_wheelers

****************************************
Write new database(s) to Brightway.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
```

```
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:25
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 15:37:04
  Finished: 03/21/2024 15:37:29
  Total time elapsed: 00:00:25
  CPU %: 99.90
  Memory %: 18.78
Created database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2020
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:26
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 15:38:37
  Finished: 03/21/2024 15:39:04
  Total time elapsed: 00:00:26
  CPU %: 99.90
  Memory %: 18.81
Created database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2025
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:25
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 15:40:21
  Finished: 03/21/2024 15:40:47
  Total time elapsed: 00:00:25
  CPU %: 99.80
  Memory %: 18.83
Created database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2030
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:29
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 15:42:04
  Finished: 03/21/2024 15:42:33
  Total time elapsed: 00:00:29
  CPU %: 99.90
  Memory %: 18.86
Created database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2035
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:26
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 15:43:54
  Finished: 03/21/2024 15:44:20
  Total time elapsed: 00:00:26
  CPU %: 99.90
  Memory %: 18.95
Created database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2040
Generate scenario report.
Report saved under /home/stew/code/gh/T-reX/data/premise/export/scenario_report.
Generate change report.
Report saved under /home/stew/code/gh/T-reX/data/premise.

 ** Processing scenario set 2 of 7, batch size 5 **
- Extracting source database
- Extracting inventories
- Fetching IAM data
Done!

***** Updating sectors... *****

`update()` will skip the following sectors: 'buses', 'cars', 'two_wheelers'.
If you want to update these sectors, please run them separately afterwards.
Updating: trucks: 100%|████████████████████| 9/9 [07:59<00:00, 53.25s/it]
Done!

Updating: cars: 100%|████████████████████| 1/1 [00:48<00:00, 48.48s/it]
Done!
```

```
Successfully updated cars

****************************************
Updating: buses: 100%|████████████████████| 1/1 [00:52<00:00, 52.19s/it]
Done!

Successfully updated buses

****************************************
Updating: two_wheelers:   0%|                    | 0/1 [00:00<?, ?it/s]No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
Updating: two_wheelers: 100%|████████████| 1/1 [00:32<00:00, 32.68s/it]
Done!

Successfully updated two_wheelers

****************************************
Write new database(s) to Brightway.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:26
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 15:58:17
  Finished: 03/21/2024 15:58:43
  Total time elapsed: 00:00:26
  CPU %: 99.80
  Memory %: 27.01
Created database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2045
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:32
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 16:00:13
  Finished: 03/21/2024 16:00:46
  Total time elapsed: 00:00:32
  CPU %: 100.00
  Memory %: 27.01
Created database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2050
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:27
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 16:02:22
  Finished: 03/21/2024 16:02:50
  Total time elapsed: 00:00:27
  CPU %: 99.90
  Memory %: 27.02
Created database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2055
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:26
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 16:04:28
  Finished: 03/21/2024 16:04:54
  Total time elapsed: 00:00:26
  CPU %: 99.90
  Memory %: 27.04
Created database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2060
```

```
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:26
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 16:06:38
  Finished: 03/21/2024 16:07:04
  Total time elapsed: 00:00:26
  CPU %: 99.80
  Memory %: 27.08
Created database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2065
Generate scenario report.
Report saved under /home/stew/code/gh/T-reX/data/premise/export/scenario_report.
Generate change report.
Report saved under /home/stew/code/gh/T-reX/data/premise.

 ** Processing scenario set 3 of 7, batch size 5 **
- Extracting source database
- Extracting inventories
- Fetching IAM data
Done!

***** Updating sectors... *****

`update()` will skip the following sectors: 'buses', 'cars', 'two_wheelers'.
If you want to update these sectors, please run them separately afterwards.
Updating: trucks: 100%|████████████████████| 9/9 [08:54<00:00, 59.44s/it]
Done!

Updating: cars: 100%|████████████████████| 1/1 [00:52<00:00, 52.53s/it]
Done!

Successfully updated cars

****************************************
Updating: buses: 100%|████████████████████| 1/1 [00:43<00:00, 43.53s/it]
Done!

Successfully updated buses

****************************************
Updating: two_wheelers:   0%|                    | 0/1 [00:00<?, ?it/s]No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
Updating: two_wheelers: 100%|████████████| 1/1 [00:27<00:00, 27.39s/it]
Done!

Successfully updated two_wheelers

****************************************
Write new database(s) to Brightway.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:26
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 16:23:02
  Finished: 03/21/2024 16:23:29
  Total time elapsed: 00:00:26
  CPU %: 99.90
  Memory %: 31.35
```

```
Created database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2070
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:26
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 16:25:16
  Finished: 03/21/2024 16:25:42
  Total time elapsed: 00:00:26
  CPU %: 99.80
  Memory %: 31.35
Created database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2075
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:26
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 16:27:33
  Finished: 03/21/2024 16:28:00
  Total time elapsed: 00:00:26
  CPU %: 99.90
  Memory %: 31.35
Created database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2080
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:28
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 16:30:00
  Finished: 03/21/2024 16:30:28
  Total time elapsed: 00:00:28
  CPU %: 99.90
  Memory %: 31.36
Created database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2085
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:26
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 16:32:28
  Finished: 03/21/2024 16:32:54
  Total time elapsed: 00:00:26
  CPU %: 99.80
  Memory %: 31.39
Created database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2090
Generate scenario report.
Report saved under /home/stew/code/gh/T-reX/data/premise/export/scenario_report.
Generate change report.
Report saved under /home/stew/code/gh/T-reX/data/premise.

 ** Processing scenario set 4 of 7, batch size 5 **
- Extracting source database
- Extracting inventories
- Fetching IAM data
Done!

***** Updating sectors... *****

`update()` will skip the following sectors: 'buses', 'cars', 'two_wheelers'.
If you want to update these sectors, please run them separately afterwards.
Updating: trucks: 100%|████████████████████| 9/9 [08:07<00:00, 54.18s/it]
Done!

Updating: cars: 100%|████████████████████| 1/1 [00:50<00:00, 50.17s/it]
Done!

Successfully updated cars

****************************************
Updating: buses: 100%|████████████████████| 1/1 [00:41<00:00, 41.41s/it]
Done!

Successfully updated buses

****************************************
```

```
Updating: two_wheelers:   0%|                    | 0/1 [00:00<?, ?it/s]No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
Updating: two_wheelers: 100%|████████████| 1/1 [00:35<00:00, 35.86s/it]
Done!

Successfully updated two_wheelers

****************************************
Write new database(s) to Brightway.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:26
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 16:49:06
  Finished: 03/21/2024 16:49:33
  Total time elapsed: 00:00:26
  CPU %: 99.70
  Memory %: 32.40
Created database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2095
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:27
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 16:51:37
  Finished: 03/21/2024 16:52:04
  Total time elapsed: 00:00:27
  CPU %: 99.80
  Memory %: 32.40
Created database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2100
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:25
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 16:54:12
  Finished: 03/21/2024 16:54:37
  Total time elapsed: 00:00:25
  CPU %: 99.80
  Memory %: 32.41
Created database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2020
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:26
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 16:56:51
  Finished: 03/21/2024 16:57:17
  Total time elapsed: 00:00:26
  CPU %: 99.80
  Memory %: 32.43
Created database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2025
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:25
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 16:59:27
  Finished: 03/21/2024 16:59:53
  Total time elapsed: 00:00:25
  CPU %: 99.90
  Memory %: 32.50
```

```
Created database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2030
Generate scenario report.
Report saved under /home/stew/code/gh/T-reX/data/premise/export/scenario_report.
Generate change report.
Report saved under /home/stew/code/gh/T-reX/data/premise.

 ** Processing scenario set 5 of 7, batch size 5 **
- Extracting source database
- Extracting inventories
- Fetching IAM data
Done!

***** Updating sectors... *****

`update()` will skip the following sectors: 'buses', 'cars', 'two_wheelers'.
If you want to update these sectors, please run them separately afterwards.
Updating: trucks: 100%|████████████████████| 9/9 [09:19<00:00, 62.11s/it]
Done!

Updating: cars: 100%|████████████████████| 1/1 [00:45<00:00, 45.04s/it]
Done!

Successfully updated cars

****************************************
Updating: buses: 100%|████████████████████| 1/1 [02:21<00:00, 141.08s/it]
Done!

Successfully updated buses

****************************************
Updating: two_wheelers:   0%|                    | 0/1 [00:00<?, ?it/s]No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
Updating: two_wheelers: 100%|████████████| 1/1 [00:39<00:00, 39.36s/it]
Done!

Successfully updated two_wheelers

****************************************
Write new database(s) to Brightway.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:28
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 17:19:49
  Finished: 03/21/2024 17:20:18
  Total time elapsed: 00:00:28
  CPU %: 99.00
  Memory %: 33.54
Created database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2035
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:36
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 17:23:01
  Finished: 03/21/2024 17:23:37
  Total time elapsed: 00:00:36
  CPU %: 99.90
```

```
  Memory %: 33.58
Created database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2040
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:28
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 17:26:34
  Finished: 03/21/2024 17:27:03
  Total time elapsed: 00:00:28
  CPU %: 99.80
  Memory %: 33.60
Created database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2045
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:28
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 17:29:59
  Finished: 03/21/2024 17:30:28
  Total time elapsed: 00:00:28
  CPU %: 99.60
  Memory %: 33.62
Created database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2050
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:28
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 17:33:32
  Finished: 03/21/2024 17:34:00
  Total time elapsed: 00:00:28
  CPU %: 99.80
  Memory %: 33.65
Created database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2055
Generate scenario report.
Report saved under /home/stew/code/gh/T-reX/data/premise/export/scenario_report.
Generate change report.
Report saved under /home/stew/code/gh/T-reX/data/premise.

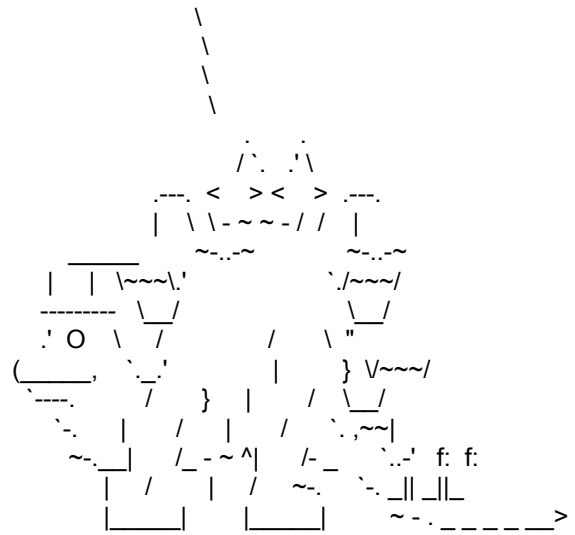
 ** Processing scenario set 6 of 7, batch size 5 **
- Extracting source database
- Extracting inventories
- Fetching IAM data
Done!

***** Updating sectors... *****

`update()` will skip the following sectors: 'buses', 'cars', 'two_wheelers'.
If you want to update these sectors, please run them separately afterwards.
Updating: trucks:  89%|████████████████  | 8/9 [11:12<01:20, 80.33s/it]Killed
(trex) stew@SC-McD:~/code/gh/T-reX$  sudo nice -n -5 python src/T-reX/main.py
[sudo] password for stew:
Traceback (most recent call last):
  File "/home/stew/code/gh/T-reX/src/T-reX/main.py", line 34, in <module>
    import bw2data as bd
ModuleNotFoundError: No module named 'bw2data'
(trex) stew@SC-McD:~/code/gh/T-reX$ nice -n -5 python src/T-reX/main.py
nice: cannot set niceness: Permission denied
Using environment variable BRIGHTWAY2_DIR for data directory:
/home/stew/brightway2data

    ================================================================================
    ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
                      ** Starting the T-reX tool **
    ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
    ================================================================================


                       _____________________
                      /                     \
                     | Arrrgh!!! a T-reX!!! |
                     | Run away!!!          |
                      \                     /
                        =====================
```



Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-Base_2020...
Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-Base_2025...
Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-Base_2030...
Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-Base_2035...
Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-Base_2040...
Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-Base_2045...
Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-Base_2050...
Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-Base_2055...
Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-Base_2060...
Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-Base_2065...
Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-Base_2070...
Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-Base_2075...
Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-Base_2080...
Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-Base_2085...
Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-Base_2090...
Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-Base_2095...
Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-Base_2100...
Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2020...
Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2025...
Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2030...
Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2035...
Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2040...
Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2045...
Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2050...
Skipping existing ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2055...
Creating 9 new future databases...
{'model': 'remind', 'pathway': 'SSP2-PkBudg500', 'year': 2060}
{'model': 'remind', 'pathway': 'SSP2-PkBudg500', 'year': 2065}
{'model': 'remind', 'pathway': 'SSP2-PkBudg500', 'year': 2070}
{'model': 'remind', 'pathway': 'SSP2-PkBudg500', 'year': 2075}
{'model': 'remind', 'pathway': 'SSP2-PkBudg500', 'year': 2080}
{'model': 'remind', 'pathway': 'SSP2-PkBudg500', 'year': 2085}
{'model': 'remind', 'pathway': 'SSP2-PkBudg500', 'year': 2090}
{'model': 'remind', 'pathway': 'SSP2-PkBudg500', 'year': 2095}
{'model': 'remind', 'pathway': 'SSP2-PkBudg500', 'year': 2100}
*** Starting FutureScenarios.py ***
Using premise version (2, 0, 2)
Project premise-SSP2-cutoff already exists, we will use it

** Using: ecoinvent-3.9.1-cutoff**

** Processing scenario set 1 of 3, batch size 3 **
- Extracting source database
- Extracting inventories
- Fetching IAM data
Done!

***** Updating sectors... *****

`update()` will skip the following sectors: 'buses', 'cars', 'two_wheelers'.
If you want to update these sectors, please run them separately afterwards.
Updating: trucks: 100%|████████████████████| 9/9 [06:00<00:00, 40.09s/it]
Done!

Updating: cars: 100%|████████████████████| 1/1 [00:37<00:00, 37.13s/it]
Done!

Successfully updated cars

****
Updating: buses: 100%|████████████████████| 1/1 [00:26<00:00, 26.09s/it]
Done!

Successfully updated buses

****
Updating: two_wheelers: 0%| | 0/1 [00:00<?, ?it/s]No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
Updating: two_wheelers: 100%|████████████| 1/1 [00:22<00:00, 22.25s/it]
Done!

Successfully updated two_wheelers

****
Write new database(s) to Brightway.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:26
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 19:12:11
  Finished: 03/21/2024 19:12:37
  Total time elapsed: 00:00:26
  CPU %: 99.40
  Memory %: 13.61
Created database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2060
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:26
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 19:15:21
  Finished: 03/21/2024 19:15:47
  Total time elapsed: 00:00:26
  CPU %: 99.80
  Memory %: 13.73
Created database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2065
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:26
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 19:18:34
  Finished: 03/21/2024 19:19:00
  Total time elapsed: 00:00:26
  CPU %: 99.80
  Memory %: 13.75
Created database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2070
Generate scenario report.
Report saved under /home/stew/code/gh/T-reX/data/premise/export/scenario_report.
Generate change report.
Report saved under /home/stew/code/gh/T-reX/data/premise.

```
 ** Processing scenario set 2 of 3, batch size 3 **
- Extracting source database
- Extracting inventories
- Fetching IAM data
Done!

***** Updating sectors... *****

`update()` will skip the following sectors: 'buses', 'cars', 'two_wheelers'.
If you want to update these sectors, please run them separately afterwards.
Updating: trucks: 100%|████████████████████| 9/9 [06:06<00:00, 40.71s/it]
Done!

Updating: cars: 100%|████████████████████| 1/1 [00:33<00:00, 33.07s/it]
Done!

Successfully updated cars

****************************************
Updating: buses: 100%|████████████████████| 1/1 [00:25<00:00, 25.57s/it]
Done!

Successfully updated buses

****************************************
Updating: two_wheelers:   0%|                    | 0/1 [00:00<?, ?it/s]No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
Updating: two_wheelers: 100%|████████████| 1/1 [00:26<00:00, 26.39s/it]
Done!

Successfully updated two_wheelers

****************************************
Write new database(s) to Brightway.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:26
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 19:30:33
  Finished: 03/21/2024 19:30:59
  Total time elapsed: 00:00:26
  CPU %: 100.00
  Memory %: 16.76
Created database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2075
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:29
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 19:33:55
  Finished: 03/21/2024 19:34:24
  Total time elapsed: 00:00:29
  CPU %: 99.80
  Memory %: 16.79
Created database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2080
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:28
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 19:37:20
  Finished: 03/21/2024 19:37:49
  Total time elapsed: 00:00:28
  CPU %: 99.90
  Memory %: 16.81
Created database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2085
```

```
Generate scenario report.
Report saved under /home/stew/code/gh/T-reX/data/premise/export/scenario_report.
Generate change report.
Report saved under /home/stew/code/gh/T-reX/data/premise.

 ** Processing scenario set 3 of 3, batch size 3 **
- Extracting source database
- Extracting inventories
- Fetching IAM data
Done!

***** Updating sectors... *****

`update()` will skip the following sectors: 'buses', 'cars', 'two_wheelers'.
If you want to update these sectors, please run them separately afterwards.
Updating: trucks: 100%|████████████████████| 9/9 [06:18<00:00, 42.09s/it]
Done!

Updating: cars: 100%|████████████████████████| 1/1 [00:33<00:00, 33.57s/it]
Done!

Successfully updated cars

****************************************
Updating: buses: 100%|███████████████████████| 1/1 [00:27<00:00, 27.27s/it]
Done!

Successfully updated buses

****************************************
Updating: two_wheelers:   0%|                  | 0/1 [00:00<?, ?it/s]No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
No markets found for two wheeler in IAM data. Skipping.
Updating: two_wheelers: 100%|████████████| 1/1 [00:22<00:00, 22.99s/it]
Done!

Successfully updated two_wheelers

****************************************
Write new database(s) to Brightway.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Running all checks...
Anomalies found: check the change report.
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:27
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 19:50:08
  Finished: 03/21/2024 19:50:36
  Total time elapsed: 00:00:27
  CPU %: 98.50
  Memory %: 19.43
Created database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2090
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:29
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 19:53:45
  Finished: 03/21/2024 19:54:14
  Total time elapsed: 00:00:29
  CPU %: 99.90
  Memory %: 19.43
Created database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2095
Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:00
Total time elapsed: 00:00:26
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 19:57:27
```

```
  Finished: 03/21/2024 19:57:54
  Total time elapsed: 00:00:26
  CPU %: 99.80
  Memory %: 19.46
Created database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2100
Generate scenario report.
Report saved under /home/stew/code/gh/T-reX/data/premise/export/scenario_report.
Generate change report.
Report saved under /home/stew/code/gh/T-reX/data/premise.
Adding ('IPCC 2021', 'climate change', 'GWP 100a, incl. H')
Applying strategy: csv_restore_tuples
Applying strategy: csv_numerize
Applying strategy: csv_drop_unknown
Applying strategy: set_biosphere_type
Applying strategy: drop_unspecified_subcategories
Applying strategy: link_iterable_by_fields
Applying strategy: drop_falsey_uncertainty_fields_but_keep_zeros
Applying strategy: convert_uncertainty_types_to_integers
Applied 8 strategies in 0.06 seconds
Wrote 1 LCIA methods with 248 characterization factors
Adding ('IPCC 2021', 'climate change', 'GWP 20a, incl. H and bio CO2')
Applying strategy: csv_restore_tuples
Applying strategy: csv_numerize
Applying strategy: csv_drop_unknown
Applying strategy: set_biosphere_type
Applying strategy: drop_unspecified_subcategories
Applying strategy: link_iterable_by_fields
Applying strategy: drop_falsey_uncertainty_fields_but_keep_zeros
Applying strategy: convert_uncertainty_types_to_integers
Applied 8 strategies in 0.07 seconds
Wrote 1 LCIA methods with 255 characterization factors
Adding ('IPCC 2021', 'climate change', 'GWP 20a, incl. H')
Applying strategy: csv_restore_tuples
Applying strategy: csv_numerize
Applying strategy: csv_drop_unknown
Applying strategy: set_biosphere_type
Applying strategy: drop_unspecified_subcategories
Applying strategy: link_iterable_by_fields
Applying strategy: drop_falsey_uncertainty_fields_but_keep_zeros
Applying strategy: convert_uncertainty_types_to_integers
Applied 8 strategies in 0.07 seconds
Wrote 1 LCIA methods with 248 characterization factors
Adding ('IPCC 2021', 'climate change', 'GWP 100a, incl. H and bio CO2')
Applying strategy: csv_restore_tuples
Applying strategy: csv_numerize
Applying strategy: csv_drop_unknown
Applying strategy: set_biosphere_type
Applying strategy: drop_unspecified_subcategories
Applying strategy: link_iterable_by_fields
Applying strategy: drop_falsey_uncertainty_fields_but_keep_zeros
Applying strategy: convert_uncertainty_types_to_integers
Applied 8 strategies in 0.06 seconds
Wrote 1 LCIA methods with 255 characterization factors
***** Done! *****

Starting T-reX for 35/35 databases in project premise-SSP2-cutoff
---------------------------------------------------
    ecoinvent-3.9.1-cutoff
    ecoinvent_cutoff_3.9_remind_SSP2-Base_2020
    ecoinvent_cutoff_3.9_remind_SSP2-Base_2025
    ecoinvent_cutoff_3.9_remind_SSP2-Base_2030
    ecoinvent_cutoff_3.9_remind_SSP2-Base_2035
    ecoinvent_cutoff_3.9_remind_SSP2-Base_2040
    ecoinvent_cutoff_3.9_remind_SSP2-Base_2045
    ecoinvent_cutoff_3.9_remind_SSP2-Base_2050
    ecoinvent_cutoff_3.9_remind_SSP2-Base_2055
    ecoinvent_cutoff_3.9_remind_SSP2-Base_2060
    ecoinvent_cutoff_3.9_remind_SSP2-Base_2065
    ecoinvent_cutoff_3.9_remind_SSP2-Base_2070
    ecoinvent_cutoff_3.9_remind_SSP2-Base_2075
    ecoinvent_cutoff_3.9_remind_SSP2-Base_2080
```

```
        ecoinvent_cutoff_3.9_remind_SSP2-Base_2085
        ecoinvent_cutoff_3.9_remind_SSP2-Base_2090
        ecoinvent_cutoff_3.9_remind_SSP2-Base_2095
        ecoinvent_cutoff_3.9_remind_SSP2-Base_2100
        ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2020
        ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2025
        ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2030
        ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2035
        ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2040
        ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2045
        ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2050
        ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2055
        ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2060
        ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2065
        ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2070
        ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2075
        ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2080
        ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2085
        ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2090
        ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2095
        ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2100

 * Project premise-SSP2-cutoff will be copied to a new project: TreX-premise-SSP2-cutoff

 ----------------------------------------------------------------------------

 ** Pre-processing database (1/35): ecoinvent-3.9.1-cutoff**

 {'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent-3.9.1-cutoff', 'db_T_re

 ============================================================================================================
         Starting T-reX for ecoinvent-3.9.1-cutoff
 ============================================================================================================

 *** Starting ExplodeDatabase ***
 ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

 ** db: ecoinvent-3.9.1-cutoff, in project: TreX-premise-SSP2-cutoff will be processed

 ** Opening the sausage...
 Getting activity data
 100%|
 Adding exchange data to activities
 100%|
 Filling out exchange data
 100%|

 *** Extracting activities from db...

 *** Exploding exchanges from activities...

 *** Pickling...

  Pickle is: 51 MB

 *** The sausage <ecoinvent-3.9.1-cutoff> was exploded and pickled. Rejoice!

 *** Starting SearchWaste ***
 *** Loading pickle to dataframe ***
 *** Searching for waste exchanges ***
        WasteFootprint_digestion       | kilogram        |      4
        WasteFootprint_composting      | kilogram        |     14
        WasteFootprint_open burning        | kilogram        |    535
        WasteFootprint_incineration    | kilogram        |   1687
        WasteFootprint_recycling       | kilogram        |     63
        WasteFootprint_landfill    | kilogram        |   1430
        WasteFootprint_hazardous     | kilogram        |   1498
              ** No results for WasteFootprint_radioactive-kilogram
              ** No results for WasteFootprint_carbon dioxide-kilogram
        WasteFootprint_total       | kilogram        |  27830
        WasteFootprint_digestion       | cubic meter           |      6
```

```
        ** No results for WasteFootprint_composting-cubic meter
        ** No results for WasteFootprint_open burning-cubic meter
    WasteFootprint_incineration   | cubic meter          |     2
        ** No results for WasteFootprint_recycling-cubic meter
    WasteFootprint_landfill   | cubic meter          |     2
    WasteFootprint_hazardous    | cubic meter          |   295
    WasteFootprint_radioactive    | cubic meter          |   295
        ** No results for WasteFootprint_carbon dioxide-cubic meter
    WasteFootprint_total      | cubic meter          |  3838
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent-3.9.1-cutoff
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
    ('market for aluminium', 'aluminium')
    ('market for antimony', 'antimony')
    ('market for bauxite', 'bauxite')
    ('market for beryllium', 'beryllium')
    ('market for bismuth', 'bismuth')
    ('market for cadmium', 'cadmium')
    ('market for calcium borates', 'borates')
    ('market for cement', 'cement')
    ('market for cerium', 'cerium')
    ('market for chromium', 'chromium')
    ('market for cobalt', 'cobalt')
    ('market for coke', 'coke')
    ('market for copper', 'copper')
    ('market for dysprosium', 'dysprosium')
    ('market for erbium', 'erbium')
    ('market for europium', 'europium')
    ('market for electricity,', 'electricity')
    ('market for ferroniobium,', 'niobium')
    ('market for fluorspar,', 'fluorspar')
    ('market for gadolinium', 'gadolinium')
    ('market for gallium', 'gallium')
    ('market for gold', 'gold')
    ('market for graphite', 'graphite')
    ('market for hafnium', 'hafnium')
    ('market for hard coal', 'coal(black)')
    ('market for helium', 'helium')
    ('market for holmium', 'holmium')
    ('market for hydrogen,', 'hydrogen')
    ('market for indium', 'indium')
    ('market for latex', 'latex')
    ('market for lead', 'lead')
    ('market for lignite', 'coal(brown)')
    ('market for lithium', 'lithium')
    ('market for magnesium', 'magnesium')
    ('market for natural gas,', 'natural gas')
    ('market for nickel', 'nickel')
    ('market for palladium', 'palladium')
    ('market for petroleum', 'petroleum')
    ('market for phosphate', 'phosphate rock')
    ('market for platinum', 'platinum')
    ('market for rare earth', 'rare earth')
    ('market for rhodium', 'rhodium')
    ('market for sand', 'sand')
    ('market for selenium', 'selenium')
    ('market for scandium', 'scandium')
    ('market for silicon', 'silicon')
    ('market for silver', 'silver')
    ('market for sodium borates', 'borates')
    ('market for strontium', 'strontium')
    ('market for tantalum', 'tantalum')
    ('market for tellurium', 'tellurium')
    ('market for tin', 'tin')
```

```
        ('market for titanium', 'titanium')
        ('market for uranium', 'uranium')
        ('market for tungsten', 'tungsten')
        ('market for vanadium', 'vanadium')
        ('market for vegetable oil,', 'vegetable oil')
        ('market for tap water', 'water')
        ('market for water,', 'water')
        ('market for zinc', 'zinc')
        ('market for zirconium', 'zirconium')

 * 1070 material markets were found:
                                          name material_group location
 849                market for aluminium alloy, AlLi      aluminium      GLO
 242               market for aluminium alloy, AlMg3      aluminium      GLO
 37   market for aluminium alloy, metal matrix compo...      aluminium      GLO
 1003  market for aluminium around steel bi-metal str...      aluminium      GLO
 1068  market for aluminium around steel bi-metal wir...      aluminium      GLO
 ...                                        ...           ...      ...
 624                        market for zinc slag          zinc      GLO
 703                       market for zinc sulfide          zinc      GLO
 633                     market for zirconium oxide      zirconium      GLO
 489       market for zirconium sponge, nuclear-grade      zirconium      GLO
 1001              market for zirconium tetrachloride      zirconium      GLO

 [1070 rows x 3 columns]

 * Extracting classifications...


 Saved activities list to csv:
 /home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent-3.9.1-cutoff/material_activities.csv

 *** Searching for material exchanges in ecoinvent-3.9.1-cutoff ***

 *** Loading pickle to dataframe ***

 There were 52480 matching exchanges found in ecoinvent-3.9.1-cutoff

 Saved material exchanges to csv:
 /home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent-3.9.1-cutoff/material_exchanges.csv

 *** Grouping material exchanges by material group

         1822 : aluminium
           26 : antimony
           24 : bauxite
            1 : beryllium
           15 : borates
           17 : cadmium
         2575 : cement
            2 : cerium
          410 : chromium
         1556 : coal(black)
          499 : coal(brown)
          166 : cobalt
           68 : coke
          915 : copper
            1 : dysprosium
        23823 : electricity
            1 : erbium
            1 : europium
           22 : fluorspar
            1 : gadolinium
            3 : gallium
           10 : gold
           30 : graphite
           43 : helium
            1 : holmium
          377 : hydrogen
           13 : indium
           49 : latex
```

```
   184 : lead
    43 : lithium
   250 : magnesium
  5804 : natural gas
   342 : nickel
    22 : palladium
   503 : petroleum
   207 : phosphate rock
   164 : platinum
    37 : rare earth
    11 : rhodium
   553 : sand
     1 : scandium
     9 : selenium
   358 : silicon
    46 : silver
    27 : strontium
     3 : tantalum
     2 : tellurium
   103 : tin
   454 : titanium
     5 : tungsten
   136 : uranium
    34 : vegetable oil
 10145 : water
   557 : zinc
     9 : zirconium

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** Pre-processing database (2/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2020**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2020
================================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-Base_2020, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 80 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-Base_2020> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
      WasteFootprint_digestion      | kilogram      |     4
      WasteFootprint_composting     | kilogram      |    14
      WasteFootprint_open burning       | kilogram      |   535
      WasteFootprint_incineration   | kilogram      |  2637
      WasteFootprint_recycling      | kilogram      |    84
```

```
        WasteFootprint_landfill   | kilogram        |  1712
        WasteFootprint_hazardous     | kilogram        |  1878
              ** No results for WasteFootprint_radioactive-kilogram
        WasteFootprint_carbon dioxide      | kilogram        |  1135
        WasteFootprint_total      | kilogram        | 30759
        WasteFootprint_digestion       | cubic meter          |     6
              ** No results for WasteFootprint_composting-cubic meter
              ** No results for WasteFootprint_open burning-cubic meter
        WasteFootprint_incineration   | cubic meter          |     2
              ** No results for WasteFootprint_recycling-cubic meter
        WasteFootprint_landfill   | cubic meter          |     2
        WasteFootprint_hazardous     | cubic meter          |   308
        WasteFootprint_radioactive    | cubic meter          |   308
              ** No results for WasteFootprint_carbon dioxide-cubic meter
        WasteFootprint_total      | cubic meter          |  4695
  *** Finished searching for waste exchanges ***

  *** Starting SearchMaterial ***
  *** Loading pickle to dataframe ***

  *** Loading activities
  from database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2020
  in project: TreX-premise-SSP2-cutoff

  ** Materials (61) | (activity, group)
        ('market for aluminium', 'aluminium')
        ('market for antimony', 'antimony')
        ('market for bauxite', 'bauxite')
        ('market for beryllium', 'beryllium')
        ('market for bismuth', 'bismuth')
        ('market for cadmium', 'cadmium')
        ('market for calcium borates', 'borates')
        ('market for cement', 'cement')
        ('market for cerium', 'cerium')
        ('market for chromium', 'chromium')
        ('market for cobalt', 'cobalt')
        ('market for coke', 'coke')
        ('market for copper', 'copper')
        ('market for dysprosium', 'dysprosium')
        ('market for erbium', 'erbium')
        ('market for europium', 'europium')
        ('market for electricity,', 'electricity')
        ('market for ferroniobium,', 'niobium')
        ('market for fluorspar,', 'fluorspar')
        ('market for gadolinium', 'gadolinium')
        ('market for gallium', 'gallium')
        ('market for gold', 'gold')
        ('market for graphite', 'graphite')
        ('market for hafnium', 'hafnium')
        ('market for hard coal', 'coal(black)')
        ('market for helium', 'helium')
        ('market for holmium', 'holmium')
        ('market for hydrogen,', 'hydrogen')
        ('market for indium', 'indium')
        ('market for latex', 'latex')
        ('market for lead', 'lead')
        ('market for lignite', 'coal(brown)')
        ('market for lithium', 'lithium')
        ('market for magnesium', 'magnesium')
        ('market for natural gas,', 'natural gas')
        ('market for nickel', 'nickel')
        ('market for palladium', 'palladium')
        ('market for petroleum', 'petroleum')
        ('market for phosphate', 'phosphate rock')
        ('market for platinum', 'platinum')
        ('market for rare earth', 'rare earth')
        ('market for rhodium', 'rhodium')
        ('market for sand', 'sand')
        ('market for selenium', 'selenium')
        ('market for scandium', 'scandium')
        ('market for silicon', 'silicon')
```

```
        ('market for silver', 'silver')
        ('market for sodium borates', 'borates')
        ('market for strontium', 'strontium')
        ('market for tantalum', 'tantalum')
        ('market for tellurium', 'tellurium')
        ('market for tin', 'tin')
        ('market for titanium', 'titanium')
        ('market for uranium', 'uranium')
        ('market for tungsten', 'tungsten')
        ('market for vanadium', 'vanadium')
        ('market for vegetable oil,', 'vegetable oil')
        ('market for tap water', 'water')
        ('market for water,', 'water')
        ('market for zinc', 'zinc')
        ('market for zirconium', 'zirconium')

  * 1646 material markets were found:
                                        name material_group location
  1322                market for aluminium alloy, AlLi      aluminium      GLO
  843                 market for aluminium alloy, AlMg3     aluminium      GLO
  224   market for aluminium alloy, metal matrix compo...     aluminium      GLO
  1228  market for aluminium around steel bi-metal str...     aluminium      GLO
  462   market for aluminium around steel bi-metal wir...     aluminium      GLO
  ...                                      ...          ...      ...
  1150                    market for zinc slag          zinc      GLO
  831                    market for zinc sulfide          zinc      GLO
  57                   market for zirconium oxide      zirconium      GLO
  420        market for zirconium sponge, nuclear-grade      zirconium      GLO
  784               market for zirconium tetrachloride      zirconium      GLO

  [1646 rows x 3 columns]

  * Extracting classifications...

        Error for activity: market for lithium carbonate, battery grade, classification: nan
              Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
        Error for activity: market for graphite, battery grade, classification: nan
              Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
        Error for activity: market for lithium hydroxide, battery grade, classification: nan
              Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
        Error for activity: market for hard coal power plant, classification: nan
              Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p

  Saved activities list to csv:
  /home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2020/material_activities.csv

  *** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-Base_2020 ***

  *** Loading pickle to dataframe ***

  There were 48530 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-Base_2020

  Saved material exchanges to csv:
  /home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2020/material_exchanges.cs

  *** Grouping material exchanges by material group

        2101 : aluminium
          27 : antimony
          28 : bauxite
           1 : beryllium
          15 : borates
          17 : cadmium
        1555 : cement
           3 : cerium
         473 : chromium
        1738 : coal(black)
         589 : coal(brown)
         166 : cobalt
         110 : coke
        1244 : copper
```

```
    1 : dysprosium
19360 : electricity
    1 : erbium
    1 : europium
   29 : fluorspar
    1 : gadolinium
    4 : gallium
   11 : gold
   33 : graphite
   46 : helium
    1 : holmium
  686 : hydrogen
   13 : indium
   50 : latex
  260 : lead
   52 : lithium
  312 : magnesium
 4105 : natural gas
  436 : nickel
   35 : palladium
  508 : petroleum
  207 : phosphate rock
  171 : platinum
   37 : rare earth
   11 : rhodium
  611 : sand
    1 : scandium
    9 : selenium
  375 : silicon
   50 : silver
   28 : strontium
    3 : tantalum
    2 : tellurium
  124 : tin
  457 : titanium
    5 : tungsten
  140 : uranium
   37 : vegetable oil
11569 : water
  670 : zinc
   11 : zirconium

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** Pre-processing database (3/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2025**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2025
================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-Base_2025, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...
```

```
*** Pickling...

 Pickle is: 83 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-Base_2025> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
      WasteFootprint_digestion       | kilogram        |     4
      WasteFootprint_composting   | kilogram        |    14
      WasteFootprint_open burning        | kilogram        |   535
      WasteFootprint_incineration   | kilogram        |  2637
      WasteFootprint_recycling       | kilogram        |    84
      WasteFootprint_landfill   | kilogram        |  1712
      WasteFootprint_hazardous     | kilogram        |  1878
            ** No results for WasteFootprint_radioactive-kilogram
      WasteFootprint_carbon dioxide      | kilogram        |  1135
      WasteFootprint_total       | kilogram        | 30759
      WasteFootprint_digestion       | cubic meter          |     6
            ** No results for WasteFootprint_composting-cubic meter
            ** No results for WasteFootprint_open burning-cubic meter
      WasteFootprint_incineration   | cubic meter          |     2
            ** No results for WasteFootprint_recycling-cubic meter
      WasteFootprint_landfill   | cubic meter          |     2
      WasteFootprint_hazardous     | cubic meter          |   308
      WasteFootprint_radioactive    | cubic meter          |   308
            ** No results for WasteFootprint_carbon dioxide-cubic meter
      WasteFootprint_total       | cubic meter          |  4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2025
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
      ('market for aluminium', 'aluminium')
      ('market for antimony', 'antimony')
      ('market for bauxite', 'bauxite')
      ('market for beryllium', 'beryllium')
      ('market for bismuth', 'bismuth')
      ('market for cadmium', 'cadmium')
      ('market for calcium borates', 'borates')
      ('market for cement', 'cement')
      ('market for cerium', 'cerium')
      ('market for chromium', 'chromium')
      ('market for cobalt', 'cobalt')
      ('market for coke', 'coke')
      ('market for copper', 'copper')
      ('market for dysprosium', 'dysprosium')
      ('market for erbium', 'erbium')
      ('market for europium', 'europium')
      ('market for electricity,', 'electricity')
      ('market for ferroniobium,', 'niobium')
      ('market for fluorspar,', 'fluorspar')
      ('market for gadolinium', 'gadolinium')
      ('market for gallium', 'gallium')
      ('market for gold', 'gold')
      ('market for graphite', 'graphite')
      ('market for hafnium', 'hafnium')
      ('market for hard coal', 'coal(black)')
      ('market for helium', 'helium')
      ('market for holmium', 'holmium')
      ('market for hydrogen,', 'hydrogen')
      ('market for indium', 'indium')
      ('market for latex', 'latex')
      ('market for lead', 'lead')
      ('market for lignite', 'coal(brown)')
```

```
        ('market for lithium', 'lithium')
        ('market for magnesium', 'magnesium')
        ('market for natural gas,', 'natural gas')
        ('market for nickel', 'nickel')
        ('market for palladium', 'palladium')
        ('market for petroleum', 'petroleum')
        ('market for phosphate', 'phosphate rock')
        ('market for platinum', 'platinum')
        ('market for rare earth', 'rare earth')
        ('market for rhodium', 'rhodium')
        ('market for sand', 'sand')
        ('market for selenium', 'selenium')
        ('market for scandium', 'scandium')
        ('market for silicon', 'silicon')
        ('market for silver', 'silver')
        ('market for sodium borates', 'borates')
        ('market for strontium', 'strontium')
        ('market for tantalum', 'tantalum')
        ('market for tellurium', 'tellurium')
        ('market for tin', 'tin')
        ('market for titanium', 'titanium')
        ('market for uranium', 'uranium')
        ('market for tungsten', 'tungsten')
        ('market for vanadium', 'vanadium')
        ('market for vegetable oil,', 'vegetable oil')
        ('market for tap water', 'water')
        ('market for water,', 'water')
        ('market for zinc', 'zinc')
        ('market for zirconium', 'zirconium')

 * 1646 material markets were found:
                                        name material_group location
725                market for aluminium alloy, AlLi      aluminium      GLO
51                 market for aluminium alloy, AlMg3      aluminium      GLO
717   market for aluminium alloy, metal matrix compo...      aluminium      GLO
1610  market for aluminium around steel bi-metal str...      aluminium      GLO
482   market for aluminium around steel bi-metal wir...      aluminium      GLO
...                                      ...           ...      ...
1587                       market for zinc slag          zinc      GLO
1422                     market for zinc sulfide          zinc      GLO
900                    market for zirconium oxide      zirconium      GLO
809       market for zirconium sponge, nuclear-grade      zirconium      GLO
280              market for zirconium tetrachloride      zirconium      GLO

 [1646 rows x 3 columns]

 * Extracting classifications...

        Error for activity: market for hard coal power plant, classification: nan
            Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
        Error for activity: market for lithium hydroxide, battery grade, classification: nan
            Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
        Error for activity: market for lithium carbonate, battery grade, classification: nan
            Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
        Error for activity: market for graphite, battery grade, classification: nan
            Inferring from reference product base: "graphite", from reference product "graphite, battery grade"

 Saved activities list to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2025/material_activities.csv

 *** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-Base_2025 ***

 *** Loading pickle to dataframe ***

 There were 48726 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-Base_2025

 Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2025/material_exchanges.cs

 *** Grouping material exchanges by material group
```

```
 2101 : aluminium
   27 : antimony
   28 : bauxite
    1 : beryllium
   15 : borates
   17 : cadmium
 1555 : cement
    3 : cerium
  473 : chromium
 1738 : coal(black)
  589 : coal(brown)
  166 : cobalt
  110 : coke
 1244 : copper
    1 : dysprosium
19360 : electricity
    1 : erbium
    1 : europium
   29 : fluorspar
    1 : gadolinium
    4 : gallium
   11 : gold
   33 : graphite
   46 : helium
    1 : holmium
  952 : hydrogen
   13 : indium
   50 : latex
  260 : lead
   52 : lithium
  312 : magnesium
 4035 : natural gas
  436 : nickel
   35 : palladium
  508 : petroleum
  207 : phosphate rock
  171 : platinum
   37 : rare earth
   11 : rhodium
  611 : sand
    1 : scandium
    9 : selenium
  375 : silicon
   50 : silver
   28 : strontium
    3 : tantalum
    2 : tellurium
  124 : tin
  457 : titanium
    5 : tungsten
  140 : uranium
   37 : vegetable oil
11569 : water
  670 : zinc
   11 : zirconium

------------------------------------------------------------------------------

------------------------------------------------------------------------------

** Pre-processing database (4/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2030**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2030
================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file
```

```
** db: ecoinvent_cutoff_3.9_remind_SSP2-Base_2030, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 82 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-Base_2030> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
      WasteFootprint_digestion       | kilogram        |     4
      WasteFootprint_composting   | kilogram        |    14
      WasteFootprint_open burning        | kilogram        |   535
      WasteFootprint_incineration   | kilogram        |  2637
      WasteFootprint_recycling       | kilogram        |    84
      WasteFootprint_landfill   | kilogram        |  1712
      WasteFootprint_hazardous     | kilogram        |  1878
            ** No results for WasteFootprint_radioactive-kilogram
      WasteFootprint_carbon dioxide      | kilogram        |  1135
      WasteFootprint_total       | kilogram        | 30759
      WasteFootprint_digestion       | cubic meter          |     6
            ** No results for WasteFootprint_composting-cubic meter
            ** No results for WasteFootprint_open burning-cubic meter
      WasteFootprint_incineration   | cubic meter          |     2
            ** No results for WasteFootprint_recycling-cubic meter
      WasteFootprint_landfill   | cubic meter          |     2
      WasteFootprint_hazardous     | cubic meter          |   308
      WasteFootprint_radioactive    | cubic meter          |   308
            ** No results for WasteFootprint_carbon dioxide-cubic meter
      WasteFootprint_total       | cubic meter          |  4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2030
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
      ('market for aluminium', 'aluminium')
      ('market for antimony', 'antimony')
      ('market for bauxite', 'bauxite')
      ('market for beryllium', 'beryllium')
      ('market for bismuth', 'bismuth')
      ('market for cadmium', 'cadmium')
      ('market for calcium borates', 'borates')
      ('market for cement', 'cement')
      ('market for cerium', 'cerium')
      ('market for chromium', 'chromium')
      ('market for cobalt', 'cobalt')
      ('market for coke', 'coke')
      ('market for copper', 'copper')
      ('market for dysprosium', 'dysprosium')
      ('market for erbium', 'erbium')
      ('market for europium', 'europium')
      ('market for electricity,', 'electricity')
      ('market for ferroniobium,', 'niobium')
```

```
('market for fluorspar,', 'fluorspar')
('market for gadolinium', 'gadolinium')
('market for gallium', 'gallium')
('market for gold', 'gold')
('market for graphite', 'graphite')
('market for hafnium', 'hafnium')
('market for hard coal', 'coal(black)')
('market for helium', 'helium')
('market for holmium', 'holmium')
('market for hydrogen,', 'hydrogen')
('market for indium', 'indium')
('market for latex', 'latex')
('market for lead', 'lead')
('market for lignite', 'coal(brown)')
('market for lithium', 'lithium')
('market for magnesium', 'magnesium')
('market for natural gas,', 'natural gas')
('market for nickel', 'nickel')
('market for palladium', 'palladium')
('market for petroleum', 'petroleum')
('market for phosphate', 'phosphate rock')
('market for platinum', 'platinum')
('market for rare earth', 'rare earth')
('market for rhodium', 'rhodium')
('market for sand', 'sand')
('market for selenium', 'selenium')
('market for scandium', 'scandium')
('market for silicon', 'silicon')
('market for silver', 'silver')
('market for sodium borates', 'borates')
('market for strontium', 'strontium')
('market for tantalum', 'tantalum')
('market for tellurium', 'tellurium')
('market for tin', 'tin')
('market for titanium', 'titanium')
('market for uranium', 'uranium')
('market for tungsten', 'tungsten')
('market for vanadium', 'vanadium')
('market for vegetable oil,', 'vegetable oil')
('market for tap water', 'water')
('market for water,', 'water')
('market for zinc', 'zinc')
('market for zirconium', 'zirconium')

* 1646 material markets were found:
                                        name material_group location
1150                market for aluminium alloy, AlLi      aluminium      GLO
815                market for aluminium alloy, AlMg3      aluminium      GLO
419   market for aluminium alloy, metal matrix compo...      aluminium      GLO
234   market for aluminium around steel bi-metal str...      aluminium      GLO
873   market for aluminium around steel bi-metal wir...      aluminium      GLO
...                                        ...           ...       ...
663                          market for zinc slag          zinc      GLO
626                         market for zinc sulfide          zinc      GLO
262                       market for zirconium oxide      zirconium      GLO
32          market for zirconium sponge, nuclear-grade      zirconium      GLO
1082               market for zirconium tetrachloride      zirconium      GLO

[1646 rows x 3 columns]

* Extracting classifications...

    Error for activity: market for graphite, battery grade, classification: nan
        Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
    Error for activity: market for hard coal power plant, classification: nan
        Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
    Error for activity: market for lithium hydroxide, battery grade, classification: nan
        Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
    Error for activity: market for lithium carbonate, battery grade, classification: nan
        Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
```

Saved activities list to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2030/material_activities.csv

*** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-Base_2030 ***

*** Loading pickle to dataframe ***

There were 48964 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-Base_2030

Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2030/material_exchanges.cs

*** Grouping material exchanges by material group

```
 2101 : aluminium
   27 : antimony
   28 : bauxite
    1 : beryllium
   15 : borates
   17 : cadmium
 1555 : cement
    3 : cerium
  473 : chromium
 1738 : coal(black)
  589 : coal(brown)
  166 : cobalt
  110 : coke
 1244 : copper
    1 : dysprosium
19360 : electricity
    1 : erbium
    1 : europium
   29 : fluorspar
    1 : gadolinium
    4 : gallium
   11 : gold
   33 : graphite
   46 : helium
    1 : holmium
 1204 : hydrogen
   13 : indium
   50 : latex
  260 : lead
   52 : lithium
  312 : magnesium
 4021 : natural gas
  436 : nickel
   35 : palladium
  508 : petroleum
  207 : phosphate rock
  171 : platinum
   37 : rare earth
   11 : rhodium
  611 : sand
    1 : scandium
    9 : selenium
  375 : silicon
   50 : silver
   28 : strontium
    3 : tantalum
    2 : tellurium
  124 : tin
  457 : titanium
    5 : tungsten
  140 : uranium
   37 : vegetable oil
11569 : water
  670 : zinc
   11 : zirconium
```

```
--------------------------------------------------------------------------------

** Pre-processing database (5/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2035**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2035
================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file v

** db: ecoinvent_cutoff_3.9_remind_SSP2-Base_2035, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 83 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-Base_2035> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
        WasteFootprint_digestion        | kilogram        |      4
        WasteFootprint_composting       | kilogram        |     14
        WasteFootprint_open burning         | kilogram        |    535
        WasteFootprint_incineration     | kilogram        |   2637
        WasteFootprint_recycling        | kilogram        |     84
        WasteFootprint_landfill     | kilogram        |   1712
        WasteFootprint_hazardous        | kilogram        |   1878
                ** No results for WasteFootprint_radioactive-kilogram
        WasteFootprint_carbon dioxide       | kilogram        |   1135
        WasteFootprint_total        | kilogram        |  30759
        WasteFootprint_digestion        | cubic meter           |      6
                ** No results for WasteFootprint_composting-cubic meter
                ** No results for WasteFootprint_open burning-cubic meter
        WasteFootprint_incineration     | cubic meter           |      2
                ** No results for WasteFootprint_recycling-cubic meter
        WasteFootprint_landfill     | cubic meter           |      2
        WasteFootprint_hazardous        | cubic meter           |    308
        WasteFootprint_radioactive      | cubic meter           |    308
                ** No results for WasteFootprint_carbon dioxide-cubic meter
        WasteFootprint_total        | cubic meter           |   4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2035
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
        ('market for aluminium', 'aluminium')
        ('market for antimony', 'antimony')
        ('market for bauxite', 'bauxite')
        ('market for beryllium', 'beryllium')
```

```
('market for bismuth', 'bismuth')
('market for cadmium', 'cadmium')
('market for calcium borates', 'borates')
('market for cement', 'cement')
('market for cerium', 'cerium')
('market for chromium', 'chromium')
('market for cobalt', 'cobalt')
('market for coke', 'coke')
('market for copper', 'copper')
('market for dysprosium', 'dysprosium')
('market for erbium', 'erbium')
('market for europium', 'europium')
('market for electricity,', 'electricity')
('market for ferroniobium,', 'niobium')
('market for fluorspar,', 'fluorspar')
('market for gadolinium', 'gadolinium')
('market for gallium', 'gallium')
('market for gold', 'gold')
('market for graphite', 'graphite')
('market for hafnium', 'hafnium')
('market for hard coal', 'coal(black)')
('market for helium', 'helium')
('market for holmium', 'holmium')
('market for hydrogen,', 'hydrogen')
('market for indium', 'indium')
('market for latex', 'latex')
('market for lead', 'lead')
('market for lignite', 'coal(brown)')
('market for lithium', 'lithium')
('market for magnesium', 'magnesium')
('market for natural gas,', 'natural gas')
('market for nickel', 'nickel')
('market for palladium', 'palladium')
('market for petroleum', 'petroleum')
('market for phosphate', 'phosphate rock')
('market for platinum', 'platinum')
('market for rare earth', 'rare earth')
('market for rhodium', 'rhodium')
('market for sand', 'sand')
('market for selenium', 'selenium')
('market for scandium', 'scandium')
('market for silicon', 'silicon')
('market for silver', 'silver')
('market for sodium borates', 'borates')
('market for strontium', 'strontium')
('market for tantalum', 'tantalum')
('market for tellurium', 'tellurium')
('market for tin', 'tin')
('market for titanium', 'titanium')
('market for uranium', 'uranium')
('market for tungsten', 'tungsten')
('market for vanadium', 'vanadium')
('market for vegetable oil,', 'vegetable oil')
('market for tap water', 'water')
('market for water,', 'water')
('market for zinc', 'zinc')
('market for zirconium', 'zirconium')

* 1646 material markets were found:
                                    name material_group location
1083                market for aluminium alloy, AlLi      aluminium      GLO
876                 market for aluminium alloy, AlMg3      aluminium      GLO
726   market for aluminium alloy, metal matrix compo...      aluminium      GLO
170   market for aluminium around steel bi-metal str...      aluminium      GLO
795   market for aluminium around steel bi-metal wir...      aluminium      GLO
...                                    ...           ...       ...
187                          market for zinc slag          zinc      GLO
1049                        market for zinc sulfide          zinc      GLO
194                      market for zirconium oxide      zirconium      GLO
550        market for zirconium sponge, nuclear-grade      zirconium      GLO
533               market for zirconium tetrachloride      zirconium      GLO
```

[1646 rows x 3 columns]

* Extracting classifications...

Error for activity: market for lithium carbonate, battery grade, classification: nan
Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
Error for activity: market for hard coal power plant, classification: nan
Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
Error for activity: market for graphite, battery grade, classification: nan
Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
Error for activity: market for lithium hydroxide, battery grade, classification: nan
Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"

Saved activities list to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2035/material_activities.csv

*** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-Base_2035 ***

*** Loading pickle to dataframe ***

There were 49062 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-Base_2035

Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2035/material_exchanges.cs

*** Grouping material exchanges by material group

2101 : aluminium
27 : antimony
28 : bauxite
1 : beryllium
15 : borates
17 : cadmium
1555 : cement
3 : cerium
473 : chromium
1738 : coal(black)
589 : coal(brown)
166 : cobalt
110 : coke
1244 : copper
1 : dysprosium
19360 : electricity
1 : erbium
1 : europium
29 : fluorspar
1 : gadolinium
4 : gallium
11 : gold
33 : graphite
46 : helium
1 : holmium
1302 : hydrogen
13 : indium
50 : latex
260 : lead
52 : lithium
312 : magnesium
4021 : natural gas
436 : nickel
35 : palladium
508 : petroleum
207 : phosphate rock
171 : platinum
37 : rare earth
11 : rhodium
611 : sand
1 : scandium
9 : selenium
375 : silicon

```
   50 : silver
   28 : strontium
    3 : tantalum
    2 : tellurium
  124 : tin
  457 : titanium
    5 : tungsten
  140 : uranium
   37 : vegetable oil
11569 : water
  670 : zinc
   11 : zirconium

--------------------------------------------------------------------------------

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** Pre-processing database (6/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2040**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2040
================================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-Base_2040, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 83 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-Base_2040> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
        WasteFootprint_digestion        | kilogram        |      4
        WasteFootprint_composting       | kilogram        |     14
        WasteFootprint_open burning         | kilogram        |    535
        WasteFootprint_incineration     | kilogram        |   2637
        WasteFootprint_recycling        | kilogram        |     84
        WasteFootprint_landfill     | kilogram        |   1712
        WasteFootprint_hazardous        | kilogram        |   1878
                ** No results for WasteFootprint_radioactive-kilogram
        WasteFootprint_carbon dioxide       | kilogram        |   1135
        WasteFootprint_total        | kilogram        |  30759
        WasteFootprint_digestion        | cubic meter           |      6
                ** No results for WasteFootprint_composting-cubic meter
                ** No results for WasteFootprint_open burning-cubic meter
        WasteFootprint_incineration     | cubic meter           |      2
                ** No results for WasteFootprint_recycling-cubic meter
        WasteFootprint_landfill     | cubic meter           |      2
        WasteFootprint_hazardous        | cubic meter           |    308
        WasteFootprint_radioactive      | cubic meter           |    308
                ** No results for WasteFootprint_carbon dioxide-cubic meter
        WasteFootprint_total        | cubic meter           |   4695
```

*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2040
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
('market for aluminium', 'aluminium')
('market for antimony', 'antimony')
('market for bauxite', 'bauxite')
('market for beryllium', 'beryllium')
('market for bismuth', 'bismuth')
('market for cadmium', 'cadmium')
('market for calcium borates', 'borates')
('market for cement', 'cement')
('market for cerium', 'cerium')
('market for chromium', 'chromium')
('market for cobalt', 'cobalt')
('market for coke', 'coke')
('market for copper', 'copper')
('market for dysprosium', 'dysprosium')
('market for erbium', 'erbium')
('market for europium', 'europium')
('market for electricity,', 'electricity')
('market for ferroniobium,', 'niobium')
('market for fluorspar,', 'fluorspar')
('market for gadolinium', 'gadolinium')
('market for gallium', 'gallium')
('market for gold', 'gold')
('market for graphite', 'graphite')
('market for hafnium', 'hafnium')
('market for hard coal', 'coal(black)')
('market for helium', 'helium')
('market for holmium', 'holmium')
('market for hydrogen,', 'hydrogen')
('market for indium', 'indium')
('market for latex', 'latex')
('market for lead', 'lead')
('market for lignite', 'coal(brown)')
('market for lithium', 'lithium')
('market for magnesium', 'magnesium')
('market for natural gas,', 'natural gas')
('market for nickel', 'nickel')
('market for palladium', 'palladium')
('market for petroleum', 'petroleum')
('market for phosphate', 'phosphate rock')
('market for platinum', 'platinum')
('market for rare earth', 'rare earth')
('market for rhodium', 'rhodium')
('market for sand', 'sand')
('market for selenium', 'selenium')
('market for scandium', 'scandium')
('market for silicon', 'silicon')
('market for silver', 'silver')
('market for sodium borates', 'borates')
('market for strontium', 'strontium')
('market for tantalum', 'tantalum')
('market for tellurium', 'tellurium')
('market for tin', 'tin')
('market for titanium', 'titanium')
('market for uranium', 'uranium')
('market for tungsten', 'tungsten')
('market for vanadium', 'vanadium')
('market for vegetable oil,', 'vegetable oil')
('market for tap water', 'water')
('market for water,', 'water')
('market for zinc', 'zinc')
('market for zirconium', 'zirconium')

```
* 1646 material markets were found:
                                        name material_group location
508                market for aluminium alloy, AlLi      aluminium      GLO
830               market for aluminium alloy, AlMg3      aluminium      GLO
1476  market for aluminium alloy, metal matrix compo...      aluminium      GLO
819   market for aluminium around steel bi-metal str...      aluminium      GLO
1464  market for aluminium around steel bi-metal wir...      aluminium      GLO
...                                          ...           ...      ...
1042                      market for zinc slag          zinc      GLO
38                       market for zinc sulfide          zinc      GLO
1167                   market for zirconium oxide      zirconium      GLO
607       market for zirconium sponge, nuclear-grade      zirconium      GLO
1189             market for zirconium tetrachloride      zirconium      GLO

[1646 rows x 3 columns]

* Extracting classifications...

    Error for activity: market for lithium carbonate, battery grade, classification: nan
        Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
    Error for activity: market for graphite, battery grade, classification: nan
        Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
    Error for activity: market for lithium hydroxide, battery grade, classification: nan
        Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
    Error for activity: market for hard coal power plant, classification: nan
        Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p

Saved activities list to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2040/material_activities.csv

*** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-Base_2040 ***

*** Loading pickle to dataframe ***

There were 49146 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-Base_2040

Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2040/material_exchanges.cs

*** Grouping material exchanges by material group

    2101 : aluminium
      27 : antimony
      28 : bauxite
       1 : beryllium
      15 : borates
      17 : cadmium
    1555 : cement
       3 : cerium
     473 : chromium
    1738 : coal(black)
     589 : coal(brown)
     166 : cobalt
     110 : coke
    1244 : copper
       1 : dysprosium
   19360 : electricity
       1 : erbium
       1 : europium
      29 : fluorspar
       1 : gadolinium
       4 : gallium
      11 : gold
      33 : graphite
      46 : helium
       1 : holmium
    1372 : hydrogen
      13 : indium
      50 : latex
     260 : lead
```

```
  52 : lithium
 312 : magnesium
4035 : natural gas
 436 : nickel
  35 : palladium
 508 : petroleum
 207 : phosphate rock
 171 : platinum
  37 : rare earth
  11 : rhodium
 611 : sand
   1 : scandium
   9 : selenium
 375 : silicon
  50 : silver
  28 : strontium
   3 : tantalum
   2 : tellurium
 124 : tin
 457 : titanium
   5 : tungsten
 140 : uranium
  37 : vegetable oil
11569 : water
 670 : zinc
  11 : zirconium

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** Pre-processing database (7/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2045**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2045
================================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-Base_2045, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 84 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-Base_2045> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
      WasteFootprint_digestion      | kilogram      |     4
      WasteFootprint_composting     | kilogram      |    14
      WasteFootprint_open burning       | kilogram      |   535
      WasteFootprint_incineration   | kilogram      |  2637
      WasteFootprint_recycling      | kilogram      |    84
      WasteFootprint_landfill   | kilogram      |  1712
```

```
        WasteFootprint_hazardous     | kilogram        |   1878
            ** No results for WasteFootprint_radioactive-kilogram
        WasteFootprint_carbon dioxide      | kilogram        |   1135
        WasteFootprint_total       | kilogram        |  30759
        WasteFootprint_digestion       | cubic meter          |     6
            ** No results for WasteFootprint_composting-cubic meter
            ** No results for WasteFootprint_open burning-cubic meter
        WasteFootprint_incineration    | cubic meter          |     2
            ** No results for WasteFootprint_recycling-cubic meter
        WasteFootprint_landfill    | cubic meter          |     2
        WasteFootprint_hazardous     | cubic meter          |   308
        WasteFootprint_radioactive     | cubic meter          |   308
            ** No results for WasteFootprint_carbon dioxide-cubic meter
        WasteFootprint_total       | cubic meter          |   4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2045
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
        ('market for aluminium', 'aluminium')
        ('market for antimony', 'antimony')
        ('market for bauxite', 'bauxite')
        ('market for beryllium', 'beryllium')
        ('market for bismuth', 'bismuth')
        ('market for cadmium', 'cadmium')
        ('market for calcium borates', 'borates')
        ('market for cement', 'cement')
        ('market for cerium', 'cerium')
        ('market for chromium', 'chromium')
        ('market for cobalt', 'cobalt')
        ('market for coke', 'coke')
        ('market for copper', 'copper')
        ('market for dysprosium', 'dysprosium')
        ('market for erbium', 'erbium')
        ('market for europium', 'europium')
        ('market for electricity,', 'electricity')
        ('market for ferroniobium,', 'niobium')
        ('market for fluorspar,', 'fluorspar')
        ('market for gadolinium', 'gadolinium')
        ('market for gallium', 'gallium')
        ('market for gold', 'gold')
        ('market for graphite', 'graphite')
        ('market for hafnium', 'hafnium')
        ('market for hard coal', 'coal(black)')
        ('market for helium', 'helium')
        ('market for holmium', 'holmium')
        ('market for hydrogen,', 'hydrogen')
        ('market for indium', 'indium')
        ('market for latex', 'latex')
        ('market for lead', 'lead')
        ('market for lignite', 'coal(brown)')
        ('market for lithium', 'lithium')
        ('market for magnesium', 'magnesium')
        ('market for natural gas,', 'natural gas')
        ('market for nickel', 'nickel')
        ('market for palladium', 'palladium')
        ('market for petroleum', 'petroleum')
        ('market for phosphate', 'phosphate rock')
        ('market for platinum', 'platinum')
        ('market for rare earth', 'rare earth')
        ('market for rhodium', 'rhodium')
        ('market for sand', 'sand')
        ('market for selenium', 'selenium')
        ('market for scandium', 'scandium')
        ('market for silicon', 'silicon')
        ('market for silver', 'silver')
```

```
        ('market for sodium borates', 'borates')
        ('market for strontium', 'strontium')
        ('market for tantalum', 'tantalum')
        ('market for tellurium', 'tellurium')
        ('market for tin', 'tin')
        ('market for titanium', 'titanium')
        ('market for uranium', 'uranium')
        ('market for tungsten', 'tungsten')
        ('market for vanadium', 'vanadium')
        ('market for vegetable oil,', 'vegetable oil')
        ('market for tap water', 'water')
        ('market for water,', 'water')
        ('market for zinc', 'zinc')
        ('market for zirconium', 'zirconium')

    * 1646 material markets were found:
                                        name material_group location
    380                market for aluminium alloy, AlLi      aluminium      GLO
    658               market for aluminium alloy, AlMg3      aluminium      GLO
    456   market for aluminium alloy, metal matrix compo...      aluminium      GLO
    870   market for aluminium around steel bi-metal str...      aluminium      GLO
    394   market for aluminium around steel bi-metal wir...      aluminium      GLO
    ...                                              ...           ...      ...
    787                        market for zinc slag           zinc      GLO
    864                      market for zinc sulfide          zinc      GLO
    1199                   market for zirconium oxide      zirconium      GLO
    453        market for zirconium sponge, nuclear-grade      zirconium      GLO
    391              market for zirconium tetrachloride      zirconium      GLO

    [1646 rows x 3 columns]

    * Extracting classifications...

        Error for activity: market for lithium carbonate, battery grade, classification: nan
            Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
        Error for activity: market for graphite, battery grade, classification: nan
            Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
        Error for activity: market for hard coal power plant, classification: nan
            Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
        Error for activity: market for lithium hydroxide, battery grade, classification: nan
            Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"

    Saved activities list to csv:
    /home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2045/material_activities.csv

    *** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-Base_2045 ***

    *** Loading pickle to dataframe ***

    There were 49146 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-Base_2045

    Saved material exchanges to csv:
    /home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2045/material_exchanges.cs

    *** Grouping material exchanges by material group

        2101 : aluminium
          27 : antimony
          28 : bauxite
           1 : beryllium
          15 : borates
          17 : cadmium
        1555 : cement
           3 : cerium
         473 : chromium
        1738 : coal(black)
         589 : coal(brown)
         166 : cobalt
         110 : coke
        1244 : copper
           1 : dysprosium
```

```
 19360 : electricity
     1 : erbium
     1 : europium
    29 : fluorspar
     1 : gadolinium
     4 : gallium
    11 : gold
    33 : graphite
    46 : helium
     1 : holmium
  1372 : hydrogen
    13 : indium
    50 : latex
   260 : lead
    52 : lithium
   312 : magnesium
  4035 : natural gas
   436 : nickel
    35 : palladium
   508 : petroleum
   207 : phosphate rock
   171 : platinum
    37 : rare earth
    11 : rhodium
   611 : sand
     1 : scandium
     9 : selenium
   375 : silicon
    50 : silver
    28 : strontium
     3 : tantalum
     2 : tellurium
   124 : tin
   457 : titanium
     5 : tungsten
   140 : uranium
    37 : vegetable oil
 11569 : water
   670 : zinc
    11 : zirconium

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** Pre-processing database (8/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2050**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

===============================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2050
===============================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-Base_2050, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...
```

```
 Pickle is: 84 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-Base_2050> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
      WasteFootprint_digestion      | kilogram      |     4
      WasteFootprint_composting     | kilogram      |    14
      WasteFootprint_open burning       | kilogram      |   535
      WasteFootprint_incineration   | kilogram      |  2637
      WasteFootprint_recycling      | kilogram      |    84
      WasteFootprint_landfill   | kilogram      |  1712
      WasteFootprint_hazardous      | kilogram      |  1878
            ** No results for WasteFootprint_radioactive-kilogram
      WasteFootprint_carbon dioxide     | kilogram      |  1135
      WasteFootprint_total      | kilogram      | 30759
      WasteFootprint_digestion      | cubic meter       |     6
            ** No results for WasteFootprint_composting-cubic meter
            ** No results for WasteFootprint_open burning-cubic meter
      WasteFootprint_incineration   | cubic meter       |     2
            ** No results for WasteFootprint_recycling-cubic meter
      WasteFootprint_landfill   | cubic meter       |     2
      WasteFootprint_hazardous      | cubic meter       |   308
      WasteFootprint_radioactive    | cubic meter       |   308
            ** No results for WasteFootprint_carbon dioxide-cubic meter
      WasteFootprint_total      | cubic meter       |  4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2050
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
      ('market for aluminium', 'aluminium')
      ('market for antimony', 'antimony')
      ('market for bauxite', 'bauxite')
      ('market for beryllium', 'beryllium')
      ('market for bismuth', 'bismuth')
      ('market for cadmium', 'cadmium')
      ('market for calcium borates', 'borates')
      ('market for cement', 'cement')
      ('market for cerium', 'cerium')
      ('market for chromium', 'chromium')
      ('market for cobalt', 'cobalt')
      ('market for coke', 'coke')
      ('market for copper', 'copper')
      ('market for dysprosium', 'dysprosium')
      ('market for erbium', 'erbium')
      ('market for europium', 'europium')
      ('market for electricity,', 'electricity')
      ('market for ferroniobium,', 'niobium')
      ('market for fluorspar,', 'fluorspar')
      ('market for gadolinium', 'gadolinium')
      ('market for gallium', 'gallium')
      ('market for gold', 'gold')
      ('market for graphite', 'graphite')
      ('market for hafnium', 'hafnium')
      ('market for hard coal', 'coal(black)')
      ('market for helium', 'helium')
      ('market for holmium', 'holmium')
      ('market for hydrogen,', 'hydrogen')
      ('market for indium', 'indium')
      ('market for latex', 'latex')
      ('market for lead', 'lead')
      ('market for lignite', 'coal(brown)')
      ('market for lithium', 'lithium')
```

```
        ('market for magnesium', 'magnesium')
        ('market for natural gas,', 'natural gas')
        ('market for nickel', 'nickel')
        ('market for palladium', 'palladium')
        ('market for petroleum', 'petroleum')
        ('market for phosphate', 'phosphate rock')
        ('market for platinum', 'platinum')
        ('market for rare earth', 'rare earth')
        ('market for rhodium', 'rhodium')
        ('market for sand', 'sand')
        ('market for selenium', 'selenium')
        ('market for scandium', 'scandium')
        ('market for silicon', 'silicon')
        ('market for silver', 'silver')
        ('market for sodium borates', 'borates')
        ('market for strontium', 'strontium')
        ('market for tantalum', 'tantalum')
        ('market for tellurium', 'tellurium')
        ('market for tin', 'tin')
        ('market for titanium', 'titanium')
        ('market for uranium', 'uranium')
        ('market for tungsten', 'tungsten')
        ('market for vanadium', 'vanadium')
        ('market for vegetable oil,', 'vegetable oil')
        ('market for tap water', 'water')
        ('market for water,', 'water')
        ('market for zinc', 'zinc')
        ('market for zirconium', 'zirconium')

 * 1646 material markets were found:
                                        name material_group location
1531                market for aluminium alloy, AlLi      aluminium      GLO
1072               market for aluminium alloy, AlMg3      aluminium      GLO
194   market for aluminium alloy, metal matrix compo...      aluminium      GLO
1021  market for aluminium around steel bi-metal str...      aluminium      GLO
117   market for aluminium around steel bi-metal wir...      aluminium      GLO
...                                        ...           ...      ...
78                          market for zinc slag          zinc      GLO
725                        market for zinc sulfide          zinc      GLO
951                      market for zirconium oxide      zirconium      GLO
1269       market for zirconium sponge, nuclear-grade      zirconium      GLO
1606              market for zirconium tetrachloride      zirconium      GLO

 [1646 rows x 3 columns]

 * Extracting classifications...

        Error for activity: market for graphite, battery grade, classification: nan
            Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
        Error for activity: market for lithium carbonate, battery grade, classification: nan
            Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
        Error for activity: market for lithium hydroxide, battery grade, classification: nan
            Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
        Error for activity: market for hard coal power plant, classification: nan
            Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p

 Saved activities list to csv:
 /home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2050/material_activities.csv

 *** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-Base_2050 ***

 *** Loading pickle to dataframe ***

 There were 49146 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-Base_2050

 Saved material exchanges to csv:
 /home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2050/material_exchanges.cs

 *** Grouping material exchanges by material group

         2101 : aluminium
```

```
   27 : antimony
   28 : bauxite
    1 : beryllium
   15 : borates
   17 : cadmium
 1555 : cement
    3 : cerium
  473 : chromium
 1738 : coal(black)
  589 : coal(brown)
  166 : cobalt
  110 : coke
 1244 : copper
    1 : dysprosium
19360 : electricity
    1 : erbium
    1 : europium
   29 : fluorspar
    1 : gadolinium
    4 : gallium
   11 : gold
   33 : graphite
   46 : helium
    1 : holmium
 1372 : hydrogen
   13 : indium
   50 : latex
  260 : lead
   52 : lithium
  312 : magnesium
 4035 : natural gas
  436 : nickel
   35 : palladium
  508 : petroleum
  207 : phosphate rock
  171 : platinum
   37 : rare earth
   11 : rhodium
  611 : sand
    1 : scandium
    9 : selenium
  375 : silicon
   50 : silver
   28 : strontium
    3 : tantalum
    2 : tellurium
  124 : tin
  457 : titanium
    5 : tungsten
  140 : uranium
   37 : vegetable oil
11569 : water
  670 : zinc
   11 : zirconium

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** Pre-processing database (9/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2055**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2055
================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-Base_2055, in project: TreX-premise-SSP2-cutoff will be processed
```

```
** Opening the sausage...
Getting activity data
100%|██████████████████████████████████████████████████
Adding exchange data to activities
100%|██████████████████████████████████████████████████
Filling out exchange data
100%|██████████████████████████████████████████████████

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 84 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-Base_2055> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
        WasteFootprint_digestion        | kilogram        |      4
        WasteFootprint_composting   | kilogram        |     14
        WasteFootprint_open burning         | kilogram        |    535
        WasteFootprint_incineration    | kilogram        |   2637
        WasteFootprint_recycling        | kilogram        |     84
        WasteFootprint_landfill    | kilogram        |   1712
        WasteFootprint_hazardous      | kilogram        |   1878
                ** No results for WasteFootprint_radioactive-kilogram
        WasteFootprint_carbon dioxide       | kilogram        |   1135
        WasteFootprint_total        | kilogram        |  30759
        WasteFootprint_digestion        | cubic meter           |      6
                ** No results for WasteFootprint_composting-cubic meter
                ** No results for WasteFootprint_open burning-cubic meter
        WasteFootprint_incineration    | cubic meter           |      2
                ** No results for WasteFootprint_recycling-cubic meter
        WasteFootprint_landfill    | cubic meter           |      2
        WasteFootprint_hazardous      | cubic meter           |    308
        WasteFootprint_radioactive     | cubic meter           |    308
                ** No results for WasteFootprint_carbon dioxide-cubic meter
        WasteFootprint_total        | cubic meter           |   4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2055
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
        ('market for aluminium', 'aluminium')
        ('market for antimony', 'antimony')
        ('market for bauxite', 'bauxite')
        ('market for beryllium', 'beryllium')
        ('market for bismuth', 'bismuth')
        ('market for cadmium', 'cadmium')
        ('market for calcium borates', 'borates')
        ('market for cement', 'cement')
        ('market for cerium', 'cerium')
        ('market for chromium', 'chromium')
        ('market for cobalt', 'cobalt')
        ('market for coke', 'coke')
        ('market for copper', 'copper')
        ('market for dysprosium', 'dysprosium')
        ('market for erbium', 'erbium')
        ('market for europium', 'europium')
        ('market for electricity,', 'electricity')
        ('market for ferroniobium,', 'niobium')
        ('market for fluorspar,', 'fluorspar')
```

```
('market for gadolinium', 'gadolinium')
('market for gallium', 'gallium')
('market for gold', 'gold')
('market for graphite', 'graphite')
('market for hafnium', 'hafnium')
('market for hard coal', 'coal(black)')
('market for helium', 'helium')
('market for holmium', 'holmium')
('market for hydrogen,', 'hydrogen')
('market for indium', 'indium')
('market for latex', 'latex')
('market for lead', 'lead')
('market for lignite', 'coal(brown)')
('market for lithium', 'lithium')
('market for magnesium', 'magnesium')
('market for natural gas,', 'natural gas')
('market for nickel', 'nickel')
('market for palladium', 'palladium')
('market for petroleum', 'petroleum')
('market for phosphate', 'phosphate rock')
('market for platinum', 'platinum')
('market for rare earth', 'rare earth')
('market for rhodium', 'rhodium')
('market for sand', 'sand')
('market for selenium', 'selenium')
('market for scandium', 'scandium')
('market for silicon', 'silicon')
('market for silver', 'silver')
('market for sodium borates', 'borates')
('market for strontium', 'strontium')
('market for tantalum', 'tantalum')
('market for tellurium', 'tellurium')
('market for tin', 'tin')
('market for titanium', 'titanium')
('market for uranium', 'uranium')
('market for tungsten', 'tungsten')
('market for vanadium', 'vanadium')
('market for vegetable oil,', 'vegetable oil')
('market for tap water', 'water')
('market for water,', 'water')
('market for zinc', 'zinc')
('market for zirconium', 'zirconium')

* 1646 material markets were found:
                                    name material_group location
797                market for aluminium alloy, AlLi      aluminium      GLO
204               market for aluminium alloy, AlMg3      aluminium      GLO
518  market for aluminium alloy, metal matrix compo...      aluminium      GLO
281  market for aluminium around steel bi-metal str...      aluminium      GLO
633  market for aluminium around steel bi-metal wir...      aluminium      GLO
...                                     ...           ...       ...
125                        market for zinc slag          zinc      GLO
502                      market for zinc sulfide          zinc      GLO
1236                  market for zirconium oxide      zirconium      GLO
22      market for zirconium sponge, nuclear-grade      zirconium      GLO
489            market for zirconium tetrachloride      zirconium      GLO

[1646 rows x 3 columns]

* Extracting classifications...

    Error for activity: market for lithium carbonate, battery grade, classification: nan
        Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
    Error for activity: market for lithium hydroxide, battery grade, classification: nan
        Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
    Error for activity: market for hard coal power plant, classification: nan
        Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
    Error for activity: market for graphite, battery grade, classification: nan
        Inferring from reference product base: "graphite", from reference product "graphite, battery grade"

Saved activities list to csv:
```

/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2055/material_activities.csv

*** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-Base_2055 ***

*** Loading pickle to dataframe ***

There were 49146 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-Base_2055

Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2055/material_exchanges.cs

*** Grouping material exchanges by material group

```
 2101 : aluminium
   27 : antimony
   28 : bauxite
    1 : beryllium
   15 : borates
   17 : cadmium
 1555 : cement
    3 : cerium
  473 : chromium
 1738 : coal(black)
  589 : coal(brown)
  166 : cobalt
  110 : coke
 1244 : copper
    1 : dysprosium
19360 : electricity
    1 : erbium
    1 : europium
   29 : fluorspar
    1 : gadolinium
    4 : gallium
   11 : gold
   33 : graphite
   46 : helium
    1 : holmium
 1372 : hydrogen
   13 : indium
   50 : latex
  260 : lead
   52 : lithium
  312 : magnesium
 4035 : natural gas
  436 : nickel
   35 : palladium
  508 : petroleum
  207 : phosphate rock
  171 : platinum
   37 : rare earth
   11 : rhodium
  611 : sand
    1 : scandium
    9 : selenium
  375 : silicon
   50 : silver
   28 : strontium
    3 : tantalum
    2 : tellurium
  124 : tin
  457 : titanium
    5 : tungsten
  140 : uranium
   37 : vegetable oil
11569 : water
  670 : zinc
   11 : zirconium
```

```
--------------------------------------------------------------------------------

** Pre-processing database (10/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2060**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2060
================================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-Base_2060, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 84 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-Base_2060> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
        WasteFootprint_digestion        | kilogram        |      4
        WasteFootprint_composting       | kilogram        |     14
        WasteFootprint_open burning         | kilogram        |    535
        WasteFootprint_incineration     | kilogram        |   2637
        WasteFootprint_recycling        | kilogram        |     84
        WasteFootprint_landfill     | kilogram        |   1712
        WasteFootprint_hazardous        | kilogram        |   1878
                ** No results for WasteFootprint_radioactive-kilogram
        WasteFootprint_carbon dioxide       | kilogram        |   1135
        WasteFootprint_total        | kilogram        |  30759
        WasteFootprint_digestion        | cubic meter           |      6
                ** No results for WasteFootprint_composting-cubic meter
                ** No results for WasteFootprint_open burning-cubic meter
        WasteFootprint_incineration     | cubic meter           |      2
                ** No results for WasteFootprint_recycling-cubic meter
        WasteFootprint_landfill     | cubic meter           |      2
        WasteFootprint_hazardous        | cubic meter           |    308
        WasteFootprint_radioactive      | cubic meter           |    308
                ** No results for WasteFootprint_carbon dioxide-cubic meter
        WasteFootprint_total        | cubic meter           |   4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2060
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
        ('market for aluminium', 'aluminium')
        ('market for antimony', 'antimony')
        ('market for bauxite', 'bauxite')
        ('market for beryllium', 'beryllium')
        ('market for bismuth', 'bismuth')
```

```
('market for cadmium', 'cadmium')
('market for calcium borates', 'borates')
('market for cement', 'cement')
('market for cerium', 'cerium')
('market for chromium', 'chromium')
('market for cobalt', 'cobalt')
('market for coke', 'coke')
('market for copper', 'copper')
('market for dysprosium', 'dysprosium')
('market for erbium', 'erbium')
('market for europium', 'europium')
('market for electricity,', 'electricity')
('market for ferroniobium,', 'niobium')
('market for fluorspar,', 'fluorspar')
('market for gadolinium', 'gadolinium')
('market for gallium', 'gallium')
('market for gold', 'gold')
('market for graphite', 'graphite')
('market for hafnium', 'hafnium')
('market for hard coal', 'coal(black)')
('market for helium', 'helium')
('market for holmium', 'holmium')
('market for hydrogen,', 'hydrogen')
('market for indium', 'indium')
('market for latex', 'latex')
('market for lead', 'lead')
('market for lignite', 'coal(brown)')
('market for lithium', 'lithium')
('market for magnesium', 'magnesium')
('market for natural gas,', 'natural gas')
('market for nickel', 'nickel')
('market for palladium', 'palladium')
('market for petroleum', 'petroleum')
('market for phosphate', 'phosphate rock')
('market for platinum', 'platinum')
('market for rare earth', 'rare earth')
('market for rhodium', 'rhodium')
('market for sand', 'sand')
('market for selenium', 'selenium')
('market for scandium', 'scandium')
('market for silicon', 'silicon')
('market for silver', 'silver')
('market for sodium borates', 'borates')
('market for strontium', 'strontium')
('market for tantalum', 'tantalum')
('market for tellurium', 'tellurium')
('market for tin', 'tin')
('market for titanium', 'titanium')
('market for uranium', 'uranium')
('market for tungsten', 'tungsten')
('market for vanadium', 'vanadium')
('market for vegetable oil,', 'vegetable oil')
('market for tap water', 'water')
('market for water,', 'water')
('market for zinc', 'zinc')
('market for zirconium', 'zirconium')

* 1646 material markets were found:
                                    name material_group location
698                 market for aluminium alloy, AlLi      aluminium      GLO
1313                market for aluminium alloy, AlMg3     aluminium      GLO
579   market for aluminium alloy, metal matrix compo...     aluminium      GLO
1619  market for aluminium around steel bi-metal str...     aluminium      GLO
362   market for aluminium around steel bi-metal wir...     aluminium      GLO
...                                    ...           ...       ...
152                    market for zinc slag          zinc      GLO
257                   market for zinc sulfide          zinc      GLO
1389                market for zirconium oxide      zirconium      GLO
471       market for zirconium sponge, nuclear-grade      zirconium      GLO
1118              market for zirconium tetrachloride      zirconium      GLO
```

[1646 rows x 3 columns]

* Extracting classifications...

Error for activity: market for lithium hydroxide, battery grade, classification: nan
Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
Error for activity: market for graphite, battery grade, classification: nan
Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
Error for activity: market for lithium carbonate, battery grade, classification: nan
Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
Error for activity: market for hard coal power plant, classification: nan
Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p

Saved activities list to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2060/material_activities.csv

*** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-Base_2060 ***

*** Loading pickle to dataframe ***

There were 49146 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-Base_2060

Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2060/material_exchanges.cs

*** Grouping material exchanges by material group

2101 : aluminium
27 : antimony
28 : bauxite
1 : beryllium
15 : borates
17 : cadmium
1555 : cement
3 : cerium
473 : chromium
1738 : coal(black)
589 : coal(brown)
166 : cobalt
110 : coke
1244 : copper
1 : dysprosium
19360 : electricity
1 : erbium
1 : europium
29 : fluorspar
1 : gadolinium
4 : gallium
11 : gold
33 : graphite
46 : helium
1 : holmium
1372 : hydrogen
13 : indium
50 : latex
260 : lead
52 : lithium
312 : magnesium
4035 : natural gas
436 : nickel
35 : palladium
508 : petroleum
207 : phosphate rock
171 : platinum
37 : rare earth
11 : rhodium
611 : sand
1 : scandium
9 : selenium
375 : silicon
50 : silver

```
   28 : strontium
    3 : tantalum
    2 : tellurium
  124 : tin
  457 : titanium
    5 : tungsten
  140 : uranium
   37 : vegetable oil
11569 : water
  670 : zinc
   11 : zirconium

--------------------------------------------------------------------------------

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** Pre-processing database (11/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2065**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2065
================================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-Base_2065, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 84 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-Base_2065> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
      WasteFootprint_digestion       | kilogram        |     4
      WasteFootprint_composting   | kilogram        |    14
      WasteFootprint_open burning        | kilogram        |   535
      WasteFootprint_incineration   | kilogram        |  2637
      WasteFootprint_recycling       | kilogram        |    84
      WasteFootprint_landfill   | kilogram        |  1712
      WasteFootprint_hazardous     | kilogram        |  1878
            ** No results for WasteFootprint_radioactive-kilogram
      WasteFootprint_carbon dioxide      | kilogram        |  1135
      WasteFootprint_total       | kilogram        | 30759
      WasteFootprint_digestion       | cubic meter          |     6
            ** No results for WasteFootprint_composting-cubic meter
            ** No results for WasteFootprint_open burning-cubic meter
      WasteFootprint_incineration   | cubic meter          |     2
            ** No results for WasteFootprint_recycling-cubic meter
      WasteFootprint_landfill   | cubic meter          |     2
      WasteFootprint_hazardous     | cubic meter          |   308
      WasteFootprint_radioactive    | cubic meter          |   308
            ** No results for WasteFootprint_carbon dioxide-cubic meter
      WasteFootprint_total       | cubic meter          |  4695
*** Finished searching for waste exchanges ***
```

```
*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2065
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
        ('market for aluminium', 'aluminium')
        ('market for antimony', 'antimony')
        ('market for bauxite', 'bauxite')
        ('market for beryllium', 'beryllium')
        ('market for bismuth', 'bismuth')
        ('market for cadmium', 'cadmium')
        ('market for calcium borates', 'borates')
        ('market for cement', 'cement')
        ('market for cerium', 'cerium')
        ('market for chromium', 'chromium')
        ('market for cobalt', 'cobalt')
        ('market for coke', 'coke')
        ('market for copper', 'copper')
        ('market for dysprosium', 'dysprosium')
        ('market for erbium', 'erbium')
        ('market for europium', 'europium')
        ('market for electricity,', 'electricity')
        ('market for ferroniobium,', 'niobium')
        ('market for fluorspar,', 'fluorspar')
        ('market for gadolinium', 'gadolinium')
        ('market for gallium', 'gallium')
        ('market for gold', 'gold')
        ('market for graphite', 'graphite')
        ('market for hafnium', 'hafnium')
        ('market for hard coal', 'coal(black)')
        ('market for helium', 'helium')
        ('market for holmium', 'holmium')
        ('market for hydrogen,', 'hydrogen')
        ('market for indium', 'indium')
        ('market for latex', 'latex')
        ('market for lead', 'lead')
        ('market for lignite', 'coal(brown)')
        ('market for lithium', 'lithium')
        ('market for magnesium', 'magnesium')
        ('market for natural gas,', 'natural gas')
        ('market for nickel', 'nickel')
        ('market for palladium', 'palladium')
        ('market for petroleum', 'petroleum')
        ('market for phosphate', 'phosphate rock')
        ('market for platinum', 'platinum')
        ('market for rare earth', 'rare earth')
        ('market for rhodium', 'rhodium')
        ('market for sand', 'sand')
        ('market for selenium', 'selenium')
        ('market for scandium', 'scandium')
        ('market for silicon', 'silicon')
        ('market for silver', 'silver')
        ('market for sodium borates', 'borates')
        ('market for strontium', 'strontium')
        ('market for tantalum', 'tantalum')
        ('market for tellurium', 'tellurium')
        ('market for tin', 'tin')
        ('market for titanium', 'titanium')
        ('market for uranium', 'uranium')
        ('market for tungsten', 'tungsten')
        ('market for vanadium', 'vanadium')
        ('market for vegetable oil,', 'vegetable oil')
        ('market for tap water', 'water')
        ('market for water,', 'water')
        ('market for zinc', 'zinc')
        ('market for zirconium', 'zirconium')
```

```
* 1646 material markets were found:
                                          name material_group location
2                  market for aluminium alloy, AlLi      aluminium      GLO
961                 market for aluminium alloy, AlMg3      aluminium      GLO
568   market for aluminium alloy, metal matrix compo...      aluminium      GLO
1389  market for aluminium around steel bi-metal str...      aluminium      GLO
1208  market for aluminium around steel bi-metal wir...      aluminium      GLO
...                                          ...           ...      ...
823                          market for zinc slag          zinc      GLO
519                         market for zinc sulfide          zinc      GLO
542                       market for zirconium oxide      zirconium      GLO
144         market for zirconium sponge, nuclear-grade      zirconium      GLO
152                market for zirconium tetrachloride      zirconium      GLO

[1646 rows x 3 columns]

* Extracting classifications...

    Error for activity: market for lithium carbonate, battery grade, classification: nan
        Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
    Error for activity: market for graphite, battery grade, classification: nan
        Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
    Error for activity: market for hard coal power plant, classification: nan
        Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
    Error for activity: market for lithium hydroxide, battery grade, classification: nan
        Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"

Saved activities list to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2065/material_activities.csv

*** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-Base_2065 ***

*** Loading pickle to dataframe ***

There were 49146 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-Base_2065

Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2065/material_exchanges.cs

*** Grouping material exchanges by material group

    2101 : aluminium
      27 : antimony
      28 : bauxite
       1 : beryllium
      15 : borates
      17 : cadmium
    1555 : cement
       3 : cerium
     473 : chromium
    1738 : coal(black)
     589 : coal(brown)
     166 : cobalt
     110 : coke
    1244 : copper
       1 : dysprosium
   19360 : electricity
       1 : erbium
       1 : europium
      29 : fluorspar
       1 : gadolinium
       4 : gallium
      11 : gold
      33 : graphite
      46 : helium
       1 : holmium
    1372 : hydrogen
      13 : indium
      50 : latex
     260 : lead
      52 : lithium
```

```
   312 : magnesium
  4035 : natural gas
   436 : nickel
    35 : palladium
   508 : petroleum
   207 : phosphate rock
   171 : platinum
    37 : rare earth
    11 : rhodium
   611 : sand
     1 : scandium
     9 : selenium
   375 : silicon
    50 : silver
    28 : strontium
     3 : tantalum
     2 : tellurium
   124 : tin
   457 : titanium
     5 : tungsten
   140 : uranium
    37 : vegetable oil
 11569 : water
   670 : zinc
    11 : zirconium

---------------------------------------------------------------------------

---------------------------------------------------------------------------

** Pre-processing database (12/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2070**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2070
================================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-Base_2070, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 84 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-Base_2070> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
        WasteFootprint_digestion        | kilogram        |      4
        WasteFootprint_composting       | kilogram        |     14
        WasteFootprint_open burning         | kilogram        |    535
        WasteFootprint_incineration     | kilogram        |   2637
        WasteFootprint_recycling        | kilogram        |     84
        WasteFootprint_landfill     | kilogram        |   1712
        WasteFootprint_hazardous        | kilogram        |   1878
```

```
        ** No results for WasteFootprint_radioactive-kilogram
    WasteFootprint_carbon dioxide      | kilogram        |  1135
    WasteFootprint_total       | kilogram        |  30759
    WasteFootprint_digestion       | cubic meter          |     6
        ** No results for WasteFootprint_composting-cubic meter
        ** No results for WasteFootprint_open burning-cubic meter
    WasteFootprint_incineration    | cubic meter          |     2
        ** No results for WasteFootprint_recycling-cubic meter
    WasteFootprint_landfill    | cubic meter          |     2
    WasteFootprint_hazardous     | cubic meter          |  308
    WasteFootprint_radioactive     | cubic meter          |  308
        ** No results for WasteFootprint_carbon dioxide-cubic meter
    WasteFootprint_total       | cubic meter          |  4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2070
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
    ('market for aluminium', 'aluminium')
    ('market for antimony', 'antimony')
    ('market for bauxite', 'bauxite')
    ('market for beryllium', 'beryllium')
    ('market for bismuth', 'bismuth')
    ('market for cadmium', 'cadmium')
    ('market for calcium borates', 'borates')
    ('market for cement', 'cement')
    ('market for cerium', 'cerium')
    ('market for chromium', 'chromium')
    ('market for cobalt', 'cobalt')
    ('market for coke', 'coke')
    ('market for copper', 'copper')
    ('market for dysprosium', 'dysprosium')
    ('market for erbium', 'erbium')
    ('market for europium', 'europium')
    ('market for electricity,', 'electricity')
    ('market for ferroniobium,', 'niobium')
    ('market for fluorspar,', 'fluorspar')
    ('market for gadolinium', 'gadolinium')
    ('market for gallium', 'gallium')
    ('market for gold', 'gold')
    ('market for graphite', 'graphite')
    ('market for hafnium', 'hafnium')
    ('market for hard coal', 'coal(black)')
    ('market for helium', 'helium')
    ('market for holmium', 'holmium')
    ('market for hydrogen,', 'hydrogen')
    ('market for indium', 'indium')
    ('market for latex', 'latex')
    ('market for lead', 'lead')
    ('market for lignite', 'coal(brown)')
    ('market for lithium', 'lithium')
    ('market for magnesium', 'magnesium')
    ('market for natural gas,', 'natural gas')
    ('market for nickel', 'nickel')
    ('market for palladium', 'palladium')
    ('market for petroleum', 'petroleum')
    ('market for phosphate', 'phosphate rock')
    ('market for platinum', 'platinum')
    ('market for rare earth', 'rare earth')
    ('market for rhodium', 'rhodium')
    ('market for sand', 'sand')
    ('market for selenium', 'selenium')
    ('market for scandium', 'scandium')
    ('market for silicon', 'silicon')
    ('market for silver', 'silver')
    ('market for sodium borates', 'borates')
```

```
('market for strontium', 'strontium')
('market for tantalum', 'tantalum')
('market for tellurium', 'tellurium')
('market for tin', 'tin')
('market for titanium', 'titanium')
('market for uranium', 'uranium')
('market for tungsten', 'tungsten')
('market for vanadium', 'vanadium')
('market for vegetable oil,', 'vegetable oil')
('market for tap water', 'water')
('market for water,', 'water')
('market for zinc', 'zinc')
('market for zirconium', 'zirconium')

* 1646 material markets were found:
                                    name material_group location
624                market for aluminium alloy, AlLi      aluminium      GLO
1113               market for aluminium alloy, AlMg3      aluminium      GLO
349   market for aluminium alloy, metal matrix compo...      aluminium      GLO
148   market for aluminium around steel bi-metal str...      aluminium      GLO
630   market for aluminium around steel bi-metal wir...      aluminium      GLO
...                                      ...           ...       ...
1313                    market for zinc slag           zinc      GLO
134                    market for zinc sulfide           zinc      GLO
370                  market for zirconium oxide      zirconium      GLO
845        market for zirconium sponge, nuclear-grade      zirconium      GLO
1291               market for zirconium tetrachloride      zirconium      GLO

[1646 rows x 3 columns]

* Extracting classifications...

    Error for activity: market for lithium hydroxide, battery grade, classification: nan
        Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
    Error for activity: market for lithium carbonate, battery grade, classification: nan
        Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
    Error for activity: market for graphite, battery grade, classification: nan
        Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
    Error for activity: market for hard coal power plant, classification: nan
        Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p

Saved activities list to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2070/material_activities.csv

*** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-Base_2070 ***

*** Loading pickle to dataframe ***

There were 49146 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-Base_2070

Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2070/material_exchanges.cs

*** Grouping material exchanges by material group

    2101 : aluminium
      27 : antimony
      28 : bauxite
       1 : beryllium
      15 : borates
      17 : cadmium
    1555 : cement
       3 : cerium
     473 : chromium
    1738 : coal(black)
     589 : coal(brown)
     166 : cobalt
     110 : coke
    1244 : copper
       1 : dysprosium
   19360 : electricity
```

```
    1 : erbium
    1 : europium
   29 : fluorspar
    1 : gadolinium
    4 : gallium
   11 : gold
   33 : graphite
   46 : helium
    1 : holmium
 1372 : hydrogen
   13 : indium
   50 : latex
  260 : lead
   52 : lithium
  312 : magnesium
 4035 : natural gas
  436 : nickel
   35 : palladium
  508 : petroleum
  207 : phosphate rock
  171 : platinum
   37 : rare earth
   11 : rhodium
  611 : sand
    1 : scandium
    9 : selenium
  375 : silicon
   50 : silver
   28 : strontium
    3 : tantalum
    2 : tellurium
  124 : tin
  457 : titanium
    5 : tungsten
  140 : uranium
   37 : vegetable oil
11569 : water
  670 : zinc
   11 : zirconium

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** Pre-processing database (13/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2075**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2075
================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-Base_2075, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...
```

```
Pickle is: 84 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-Base_2075> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
        WasteFootprint_digestion        | kilogram        |      4
        WasteFootprint_composting       | kilogram        |     14
        WasteFootprint_open burning         | kilogram        |    535
        WasteFootprint_incineration     | kilogram        |   2637
        WasteFootprint_recycling        | kilogram        |     84
        WasteFootprint_landfill     | kilogram        |   1712
        WasteFootprint_hazardous        | kilogram        |   1878
                ** No results for WasteFootprint_radioactive-kilogram
        WasteFootprint_carbon dioxide       | kilogram        |   1135
        WasteFootprint_total        | kilogram        |  30759
        WasteFootprint_digestion        | cubic meter           |      6
                ** No results for WasteFootprint_composting-cubic meter
                ** No results for WasteFootprint_open burning-cubic meter
        WasteFootprint_incineration     | cubic meter           |      2
                ** No results for WasteFootprint_recycling-cubic meter
        WasteFootprint_landfill     | cubic meter           |      2
        WasteFootprint_hazardous        | cubic meter           |    308
        WasteFootprint_radioactive      | cubic meter           |    308
                ** No results for WasteFootprint_carbon dioxide-cubic meter
        WasteFootprint_total        | cubic meter           |   4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2075
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
        ('market for aluminium', 'aluminium')
        ('market for antimony', 'antimony')
        ('market for bauxite', 'bauxite')
        ('market for beryllium', 'beryllium')
        ('market for bismuth', 'bismuth')
        ('market for cadmium', 'cadmium')
        ('market for calcium borates', 'borates')
        ('market for cement', 'cement')
        ('market for cerium', 'cerium')
        ('market for chromium', 'chromium')
        ('market for cobalt', 'cobalt')
        ('market for coke', 'coke')
        ('market for copper', 'copper')
        ('market for dysprosium', 'dysprosium')
        ('market for erbium', 'erbium')
        ('market for europium', 'europium')
        ('market for electricity,', 'electricity')
        ('market for ferroniobium,', 'niobium')
        ('market for fluorspar,', 'fluorspar')
        ('market for gadolinium', 'gadolinium')
        ('market for gallium', 'gallium')
        ('market for gold', 'gold')
        ('market for graphite', 'graphite')
        ('market for hafnium', 'hafnium')
        ('market for hard coal', 'coal(black)')
        ('market for helium', 'helium')
        ('market for holmium', 'holmium')
        ('market for hydrogen,', 'hydrogen')
        ('market for indium', 'indium')
        ('market for latex', 'latex')
        ('market for lead', 'lead')
        ('market for lignite', 'coal(brown)')
        ('market for lithium', 'lithium')
        ('market for magnesium', 'magnesium')
```

```
        ('market for natural gas,', 'natural gas')
        ('market for nickel', 'nickel')
        ('market for palladium', 'palladium')
        ('market for petroleum', 'petroleum')
        ('market for phosphate', 'phosphate rock')
        ('market for platinum', 'platinum')
        ('market for rare earth', 'rare earth')
        ('market for rhodium', 'rhodium')
        ('market for sand', 'sand')
        ('market for selenium', 'selenium')
        ('market for scandium', 'scandium')
        ('market for silicon', 'silicon')
        ('market for silver', 'silver')
        ('market for sodium borates', 'borates')
        ('market for strontium', 'strontium')
        ('market for tantalum', 'tantalum')
        ('market for tellurium', 'tellurium')
        ('market for tin', 'tin')
        ('market for titanium', 'titanium')
        ('market for uranium', 'uranium')
        ('market for tungsten', 'tungsten')
        ('market for vanadium', 'vanadium')
        ('market for vegetable oil,', 'vegetable oil')
        ('market for tap water', 'water')
        ('market for water,', 'water')
        ('market for zinc', 'zinc')
        ('market for zirconium', 'zirconium')

 * 1646 material markets were found:
                                        name material_group location
118                  market for aluminium alloy, AlLi      aluminium      GLO
722                 market for aluminium alloy, AlMg3      aluminium      GLO
895   market for aluminium alloy, metal matrix compo...      aluminium      GLO
674   market for aluminium around steel bi-metal str...      aluminium      GLO
93    market for aluminium around steel bi-metal wir...      aluminium      GLO
...                                        ...           ...      ...
185                          market for zinc slag          zinc      GLO
1283                        market for zinc sulfide          zinc      GLO
887                      market for zirconium oxide      zirconium      GLO
693         market for zirconium sponge, nuclear-grade      zirconium      GLO
395                market for zirconium tetrachloride      zirconium      GLO

 [1646 rows x 3 columns]

 * Extracting classifications...

      Error for activity: market for lithium hydroxide, battery grade, classification: nan
            Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
      Error for activity: market for hard coal power plant, classification: nan
            Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
      Error for activity: market for graphite, battery grade, classification: nan
            Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
      Error for activity: market for lithium carbonate, battery grade, classification: nan
            Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"

 Saved activities list to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2075/material_activities.csv

 *** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-Base_2075 ***

 *** Loading pickle to dataframe ***

 There were 49146 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-Base_2075

 Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2075/material_exchanges.cs

 *** Grouping material exchanges by material group

       2101 : aluminium
         27 : antimony
```

```
   28 : bauxite
    1 : beryllium
   15 : borates
   17 : cadmium
 1555 : cement
    3 : cerium
  473 : chromium
 1738 : coal(black)
  589 : coal(brown)
  166 : cobalt
  110 : coke
 1244 : copper
    1 : dysprosium
19360 : electricity
    1 : erbium
    1 : europium
   29 : fluorspar
    1 : gadolinium
    4 : gallium
   11 : gold
   33 : graphite
   46 : helium
    1 : holmium
 1372 : hydrogen
   13 : indium
   50 : latex
  260 : lead
   52 : lithium
  312 : magnesium
 4035 : natural gas
  436 : nickel
   35 : palladium
  508 : petroleum
  207 : phosphate rock
  171 : platinum
   37 : rare earth
   11 : rhodium
  611 : sand
    1 : scandium
    9 : selenium
  375 : silicon
   50 : silver
   28 : strontium
    3 : tantalum
    2 : tellurium
  124 : tin
  457 : titanium
    5 : tungsten
  140 : uranium
   37 : vegetable oil
11569 : water
  670 : zinc
   11 : zirconium

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** Pre-processing database (14/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2080**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2080
================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-Base_2080, in project: TreX-premise-SSP2-cutoff will be processed
```

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

Pickle is: 84 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-Base_2080> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
WasteFootprint_digestion | kilogram | 4
WasteFootprint_composting | kilogram | 14
WasteFootprint_open burning | kilogram | 535
WasteFootprint_incineration | kilogram | 2637
WasteFootprint_recycling | kilogram | 84
WasteFootprint_landfill | kilogram | 1712
WasteFootprint_hazardous | kilogram | 1878
** No results for WasteFootprint_radioactive-kilogram
WasteFootprint_carbon dioxide | kilogram | 1135
WasteFootprint_total | kilogram | 30759
WasteFootprint_digestion | cubic meter | 6
** No results for WasteFootprint_composting-cubic meter
** No results for WasteFootprint_open burning-cubic meter
WasteFootprint_incineration | cubic meter | 2
** No results for WasteFootprint_recycling-cubic meter
WasteFootprint_landfill | cubic meter | 2
WasteFootprint_hazardous | cubic meter | 308
WasteFootprint_radioactive | cubic meter | 308
** No results for WasteFootprint_carbon dioxide-cubic meter
WasteFootprint_total | cubic meter | 4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2080
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
('market for aluminium', 'aluminium')
('market for antimony', 'antimony')
('market for bauxite', 'bauxite')
('market for beryllium', 'beryllium')
('market for bismuth', 'bismuth')
('market for cadmium', 'cadmium')
('market for calcium borates', 'borates')
('market for cement', 'cement')
('market for cerium', 'cerium')
('market for chromium', 'chromium')
('market for cobalt', 'cobalt')
('market for coke', 'coke')
('market for copper', 'copper')
('market for dysprosium', 'dysprosium')
('market for erbium', 'erbium')
('market for europium', 'europium')
('market for electricity,', 'electricity')
('market for ferroniobium,', 'niobium')
('market for fluorspar,', 'fluorspar')
('market for gadolinium', 'gadolinium')

```
('market for gallium', 'gallium')
('market for gold', 'gold')
('market for graphite', 'graphite')
('market for hafnium', 'hafnium')
('market for hard coal', 'coal(black)')
('market for helium', 'helium')
('market for holmium', 'holmium')
('market for hydrogen,', 'hydrogen')
('market for indium', 'indium')
('market for latex', 'latex')
('market for lead', 'lead')
('market for lignite', 'coal(brown)')
('market for lithium', 'lithium')
('market for magnesium', 'magnesium')
('market for natural gas,', 'natural gas')
('market for nickel', 'nickel')
('market for palladium', 'palladium')
('market for petroleum', 'petroleum')
('market for phosphate', 'phosphate rock')
('market for platinum', 'platinum')
('market for rare earth', 'rare earth')
('market for rhodium', 'rhodium')
('market for sand', 'sand')
('market for selenium', 'selenium')
('market for scandium', 'scandium')
('market for silicon', 'silicon')
('market for silver', 'silver')
('market for sodium borates', 'borates')
('market for strontium', 'strontium')
('market for tantalum', 'tantalum')
('market for tellurium', 'tellurium')
('market for tin', 'tin')
('market for titanium', 'titanium')
('market for uranium', 'uranium')
('market for tungsten', 'tungsten')
('market for vanadium', 'vanadium')
('market for vegetable oil,', 'vegetable oil')
('market for tap water', 'water')
('market for water,', 'water')
('market for zinc', 'zinc')
('market for zirconium', 'zirconium')

* 1646 material markets were found:
                                        name material_group location
99                  market for aluminium alloy, AlLi      aluminium      GLO
1037                 market for aluminium alloy, AlMg3      aluminium      GLO
259   market for aluminium alloy, metal matrix compo...      aluminium      GLO
1539  market for aluminium around steel bi-metal str...      aluminium      GLO
1577  market for aluminium around steel bi-metal wir...      aluminium      GLO
...                                        ...           ...       ...
757                          market for zinc slag          zinc      GLO
573                         market for zinc sulfide          zinc      GLO
813                       market for zirconium oxide      zirconium      GLO
601         market for zirconium sponge, nuclear-grade      zirconium      GLO
919                market for zirconium tetrachloride      zirconium      GLO

[1646 rows x 3 columns]

* Extracting classifications...

    Error for activity: market for hard coal power plant, classification: nan
        Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
    Error for activity: market for lithium carbonate, battery grade, classification: nan
        Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
    Error for activity: market for lithium hydroxide, battery grade, classification: nan
        Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
    Error for activity: market for graphite, battery grade, classification: nan
        Inferring from reference product base: "graphite", from reference product "graphite, battery grade"

Saved activities list to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2080/material_activities.csv
```

*** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-Base_2080 ***

*** Loading pickle to dataframe ***

There were 49146 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-Base_2080

Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2080/material_exchanges.cs

*** Grouping material exchanges by material group

2101 : aluminium
27 : antimony
28 : bauxite
1 : beryllium
15 : borates
17 : cadmium
1555 : cement
3 : cerium
473 : chromium
1738 : coal(black)
589 : coal(brown)
166 : cobalt
110 : coke
1244 : copper
1 : dysprosium
19360 : electricity
1 : erbium
1 : europium
29 : fluorspar
1 : gadolinium
4 : gallium
11 : gold
33 : graphite
46 : helium
1 : holmium
1372 : hydrogen
13 : indium
50 : latex
260 : lead
52 : lithium
312 : magnesium
4035 : natural gas
436 : nickel
35 : palladium
508 : petroleum
207 : phosphate rock
171 : platinum
37 : rare earth
11 : rhodium
611 : sand
1 : scandium
9 : selenium
375 : silicon
50 : silver
28 : strontium
3 : tantalum
2 : tellurium
124 : tin
457 : titanium
5 : tungsten
140 : uranium
37 : vegetable oil
11569 : water
670 : zinc
11 : zirconium

```
** Pre-processing database (15/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2085**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2085
================================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-Base_2085, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 84 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-Base_2085> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
        WasteFootprint_digestion        | kilogram        |      4
        WasteFootprint_composting       | kilogram        |     14
        WasteFootprint_open burning         | kilogram        |    535
        WasteFootprint_incineration     | kilogram        |   2637
        WasteFootprint_recycling        | kilogram        |     84
        WasteFootprint_landfill     | kilogram        |   1712
        WasteFootprint_hazardous        | kilogram        |   1878
                ** No results for WasteFootprint_radioactive-kilogram
        WasteFootprint_carbon dioxide       | kilogram        |   1135
        WasteFootprint_total        | kilogram        |  30759
        WasteFootprint_digestion        | cubic meter         |      6
                ** No results for WasteFootprint_composting-cubic meter
                ** No results for WasteFootprint_open burning-cubic meter
        WasteFootprint_incineration     | cubic meter         |      2
                ** No results for WasteFootprint_recycling-cubic meter
        WasteFootprint_landfill     | cubic meter         |      2
        WasteFootprint_hazardous        | cubic meter         |    308
        WasteFootprint_radioactive      | cubic meter         |    308
                ** No results for WasteFootprint_carbon dioxide-cubic meter
        WasteFootprint_total        | cubic meter         |   4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2085
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
        ('market for aluminium', 'aluminium')
        ('market for antimony', 'antimony')
        ('market for bauxite', 'bauxite')
        ('market for beryllium', 'beryllium')
        ('market for bismuth', 'bismuth')
        ('market for cadmium', 'cadmium')
```

```
('market for calcium borates', 'borates')
('market for cement', 'cement')
('market for cerium', 'cerium')
('market for chromium', 'chromium')
('market for cobalt', 'cobalt')
('market for coke', 'coke')
('market for copper', 'copper')
('market for dysprosium', 'dysprosium')
('market for erbium', 'erbium')
('market for europium', 'europium')
('market for electricity,', 'electricity')
('market for ferroniobium,', 'niobium')
('market for fluorspar,', 'fluorspar')
('market for gadolinium', 'gadolinium')
('market for gallium', 'gallium')
('market for gold', 'gold')
('market for graphite', 'graphite')
('market for hafnium', 'hafnium')
('market for hard coal', 'coal(black)')
('market for helium', 'helium')
('market for holmium', 'holmium')
('market for hydrogen,', 'hydrogen')
('market for indium', 'indium')
('market for latex', 'latex')
('market for lead', 'lead')
('market for lignite', 'coal(brown)')
('market for lithium', 'lithium')
('market for magnesium', 'magnesium')
('market for natural gas,', 'natural gas')
('market for nickel', 'nickel')
('market for palladium', 'palladium')
('market for petroleum', 'petroleum')
('market for phosphate', 'phosphate rock')
('market for platinum', 'platinum')
('market for rare earth', 'rare earth')
('market for rhodium', 'rhodium')
('market for sand', 'sand')
('market for selenium', 'selenium')
('market for scandium', 'scandium')
('market for silicon', 'silicon')
('market for silver', 'silver')
('market for sodium borates', 'borates')
('market for strontium', 'strontium')
('market for tantalum', 'tantalum')
('market for tellurium', 'tellurium')
('market for tin', 'tin')
('market for titanium', 'titanium')
('market for uranium', 'uranium')
('market for tungsten', 'tungsten')
('market for vanadium', 'vanadium')
('market for vegetable oil,', 'vegetable oil')
('market for tap water', 'water')
('market for water,', 'water')
('market for zinc', 'zinc')
('market for zirconium', 'zirconium')

* 1646 material markets were found:
                                    name material_group location
476                 market for aluminium alloy, AlLi      aluminium      GLO
343                market for aluminium alloy, AlMg3      aluminium      GLO
447   market for aluminium alloy, metal matrix compo...      aluminium      GLO
487   market for aluminium around steel bi-metal str...      aluminium      GLO
1437  market for aluminium around steel bi-metal wir...      aluminium      GLO
...                                      ...           ...       ...
212                       market for zinc slag           zinc      GLO
839                     market for zinc sulfide          zinc      GLO
1271                   market for zirconium oxide      zirconium      GLO
1235        market for zirconium sponge, nuclear-grade      zirconium      GLO
1523              market for zirconium tetrachloride      zirconium      GLO

[1646 rows x 3 columns]
```

```
* Extracting classifications...

    Error for activity: market for graphite, battery grade, classification: nan
        Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
    Error for activity: market for lithium carbonate, battery grade, classification: nan
        Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
    Error for activity: market for lithium hydroxide, battery grade, classification: nan
        Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
    Error for activity: market for hard coal power plant, classification: nan
        Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p

Saved activities list to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2085/material_activities.csv

*** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-Base_2085 ***

*** Loading pickle to dataframe ***

There were 49146 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-Base_2085

Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2085/material_exchanges.cs

*** Grouping material exchanges by material group

    2101 : aluminium
      27 : antimony
      28 : bauxite
       1 : beryllium
      15 : borates
      17 : cadmium
    1555 : cement
       3 : cerium
     473 : chromium
    1738 : coal(black)
     589 : coal(brown)
     166 : cobalt
     110 : coke
    1244 : copper
       1 : dysprosium
   19360 : electricity
       1 : erbium
       1 : europium
      29 : fluorspar
       1 : gadolinium
       4 : gallium
      11 : gold
      33 : graphite
      46 : helium
       1 : holmium
    1372 : hydrogen
      13 : indium
      50 : latex
     260 : lead
      52 : lithium
     312 : magnesium
    4035 : natural gas
     436 : nickel
      35 : palladium
     508 : petroleum
     207 : phosphate rock
     171 : platinum
      37 : rare earth
      11 : rhodium
     611 : sand
       1 : scandium
       9 : selenium
     375 : silicon
      50 : silver
      28 : strontium
```

```
    3 : tantalum
    2 : tellurium
  124 : tin
  457 : titanium
    5 : tungsten
  140 : uranium
   37 : vegetable oil
11569 : water
  670 : zinc
   11 : zirconium

---------------------------------------------------------------------------

---------------------------------------------------------------------------

** Pre-processing database (16/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2090**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

============================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2090
============================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-Base_2090, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 84 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-Base_2090> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
      WasteFootprint_digestion       | kilogram        |     4
      WasteFootprint_composting   | kilogram        |    14
      WasteFootprint_open burning        | kilogram        |   535
      WasteFootprint_incineration   | kilogram        |  2637
      WasteFootprint_recycling       | kilogram        |    84
      WasteFootprint_landfill   | kilogram        |  1712
      WasteFootprint_hazardous     | kilogram        |  1878
            ** No results for WasteFootprint_radioactive-kilogram
      WasteFootprint_carbon dioxide      | kilogram        |  1135
      WasteFootprint_total       | kilogram        | 30759
      WasteFootprint_digestion       | cubic meter          |     6
            ** No results for WasteFootprint_composting-cubic meter
            ** No results for WasteFootprint_open burning-cubic meter
      WasteFootprint_incineration   | cubic meter          |     2
            ** No results for WasteFootprint_recycling-cubic meter
      WasteFootprint_landfill   | cubic meter          |     2
      WasteFootprint_hazardous     | cubic meter          |   308
      WasteFootprint_radioactive    | cubic meter          |   308
            ** No results for WasteFootprint_carbon dioxide-cubic meter
      WasteFootprint_total       | cubic meter          |  4695
*** Finished searching for waste exchanges ***
```

```
*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2090
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
        ('market for aluminium', 'aluminium')
        ('market for antimony', 'antimony')
        ('market for bauxite', 'bauxite')
        ('market for beryllium', 'beryllium')
        ('market for bismuth', 'bismuth')
        ('market for cadmium', 'cadmium')
        ('market for calcium borates', 'borates')
        ('market for cement', 'cement')
        ('market for cerium', 'cerium')
        ('market for chromium', 'chromium')
        ('market for cobalt', 'cobalt')
        ('market for coke', 'coke')
        ('market for copper', 'copper')
        ('market for dysprosium', 'dysprosium')
        ('market for erbium', 'erbium')
        ('market for europium', 'europium')
        ('market for electricity,', 'electricity')
        ('market for ferroniobium,', 'niobium')
        ('market for fluorspar,', 'fluorspar')
        ('market for gadolinium', 'gadolinium')
        ('market for gallium', 'gallium')
        ('market for gold', 'gold')
        ('market for graphite', 'graphite')
        ('market for hafnium', 'hafnium')
        ('market for hard coal', 'coal(black)')
        ('market for helium', 'helium')
        ('market for holmium', 'holmium')
        ('market for hydrogen,', 'hydrogen')
        ('market for indium', 'indium')
        ('market for latex', 'latex')
        ('market for lead', 'lead')
        ('market for lignite', 'coal(brown)')
        ('market for lithium', 'lithium')
        ('market for magnesium', 'magnesium')
        ('market for natural gas,', 'natural gas')
        ('market for nickel', 'nickel')
        ('market for palladium', 'palladium')
        ('market for petroleum', 'petroleum')
        ('market for phosphate', 'phosphate rock')
        ('market for platinum', 'platinum')
        ('market for rare earth', 'rare earth')
        ('market for rhodium', 'rhodium')
        ('market for sand', 'sand')
        ('market for selenium', 'selenium')
        ('market for scandium', 'scandium')
        ('market for silicon', 'silicon')
        ('market for silver', 'silver')
        ('market for sodium borates', 'borates')
        ('market for strontium', 'strontium')
        ('market for tantalum', 'tantalum')
        ('market for tellurium', 'tellurium')
        ('market for tin', 'tin')
        ('market for titanium', 'titanium')
        ('market for uranium', 'uranium')
        ('market for tungsten', 'tungsten')
        ('market for vanadium', 'vanadium')
        ('market for vegetable oil,', 'vegetable oil')
        ('market for tap water', 'water')
        ('market for water,', 'water')
        ('market for zinc', 'zinc')
        ('market for zirconium', 'zirconium')

* 1646 material markets were found:
```

```
                                                name material_group location
1096                  market for aluminium alloy, AlLi      aluminium      GLO
1135                market for aluminium alloy, AlMg3      aluminium      GLO
715   market for aluminium alloy, metal matrix compo...      aluminium      GLO
170   market for aluminium around steel bi-metal str...      aluminium      GLO
186   market for aluminium around steel bi-metal wir...      aluminium      GLO
...                                                 ...            ...      ...
284                           market for zinc slag           zinc      GLO
518                         market for zinc sulfide          zinc      GLO
605                       market for zirconium oxide      zirconium      GLO
722          market for zirconium sponge, nuclear-grade      zirconium      GLO
1050               market for zirconium tetrachloride      zirconium      GLO

[1646 rows x 3 columns]

* Extracting classifications...

    Error for activity: market for graphite, battery grade, classification: nan
        Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
    Error for activity: market for lithium carbonate, battery grade, classification: nan
        Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
    Error for activity: market for lithium hydroxide, battery grade, classification: nan
        Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
    Error for activity: market for hard coal power plant, classification: nan
        Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p

Saved activities list to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2090/material_activities.csv

*** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-Base_2090 ***

*** Loading pickle to dataframe ***

There were 49146 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-Base_2090

Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2090/material_exchanges.cs

*** Grouping material exchanges by material group

     2101 : aluminium
       27 : antimony
       28 : bauxite
        1 : beryllium
       15 : borates
       17 : cadmium
     1555 : cement
        3 : cerium
      473 : chromium
     1738 : coal(black)
      589 : coal(brown)
      166 : cobalt
      110 : coke
     1244 : copper
        1 : dysprosium
    19360 : electricity
        1 : erbium
        1 : europium
       29 : fluorspar
        1 : gadolinium
        4 : gallium
       11 : gold
       33 : graphite
       46 : helium
        1 : holmium
     1372 : hydrogen
       13 : indium
       50 : latex
      260 : lead
       52 : lithium
      312 : magnesium
```

```
  4035 : natural gas
   436 : nickel
    35 : palladium
   508 : petroleum
   207 : phosphate rock
   171 : platinum
    37 : rare earth
    11 : rhodium
   611 : sand
     1 : scandium
     9 : selenium
   375 : silicon
    50 : silver
    28 : strontium
     3 : tantalum
     2 : tellurium
   124 : tin
   457 : titanium
     5 : tungsten
   140 : uranium
    37 : vegetable oil
 11569 : water
   670 : zinc
    11 : zirconium

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** Pre-processing database (17/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2095**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2095
================================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-Base_2095, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 84 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-Base_2095> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
        WasteFootprint_digestion        | kilogram        |      4
        WasteFootprint_composting       | kilogram        |     14
        WasteFootprint_open burning         | kilogram        |    535
        WasteFootprint_incineration     | kilogram        |   2637
        WasteFootprint_recycling        | kilogram        |     84
        WasteFootprint_landfill     | kilogram        |   1712
        WasteFootprint_hazardous        | kilogram        |   1878
                ** No results for WasteFootprint_radioactive-kilogram
```

```
        WasteFootprint_carbon dioxide      | kilogram        |   1135
        WasteFootprint_total       | kilogram        |  30759
        WasteFootprint_digestion       | cubic meter           |     6
            ** No results for WasteFootprint_composting-cubic meter
            ** No results for WasteFootprint_open burning-cubic meter
        WasteFootprint_incineration    | cubic meter           |     2
            ** No results for WasteFootprint_recycling-cubic meter
        WasteFootprint_landfill    | cubic meter           |     2
        WasteFootprint_hazardous     | cubic meter           |   308
        WasteFootprint_radioactive     | cubic meter           |   308
            ** No results for WasteFootprint_carbon dioxide-cubic meter
        WasteFootprint_total       | cubic meter           |   4695
  *** Finished searching for waste exchanges ***

  *** Starting SearchMaterial ***
  *** Loading pickle to dataframe ***

  *** Loading activities
  from database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2095
  in project: TreX-premise-SSP2-cutoff

  ** Materials (61) | (activity, group)
        ('market for aluminium', 'aluminium')
        ('market for antimony', 'antimony')
        ('market for bauxite', 'bauxite')
        ('market for beryllium', 'beryllium')
        ('market for bismuth', 'bismuth')
        ('market for cadmium', 'cadmium')
        ('market for calcium borates', 'borates')
        ('market for cement', 'cement')
        ('market for cerium', 'cerium')
        ('market for chromium', 'chromium')
        ('market for cobalt', 'cobalt')
        ('market for coke', 'coke')
        ('market for copper', 'copper')
        ('market for dysprosium', 'dysprosium')
        ('market for erbium', 'erbium')
        ('market for europium', 'europium')
        ('market for electricity,', 'electricity')
        ('market for ferroniobium,', 'niobium')
        ('market for fluorspar,', 'fluorspar')
        ('market for gadolinium', 'gadolinium')
        ('market for gallium', 'gallium')
        ('market for gold', 'gold')
        ('market for graphite', 'graphite')
        ('market for hafnium', 'hafnium')
        ('market for hard coal', 'coal(black)')
        ('market for helium', 'helium')
        ('market for holmium', 'holmium')
        ('market for hydrogen,', 'hydrogen')
        ('market for indium', 'indium')
        ('market for latex', 'latex')
        ('market for lead', 'lead')
        ('market for lignite', 'coal(brown)')
        ('market for lithium', 'lithium')
        ('market for magnesium', 'magnesium')
        ('market for natural gas,', 'natural gas')
        ('market for nickel', 'nickel')
        ('market for palladium', 'palladium')
        ('market for petroleum', 'petroleum')
        ('market for phosphate', 'phosphate rock')
        ('market for platinum', 'platinum')
        ('market for rare earth', 'rare earth')
        ('market for rhodium', 'rhodium')
        ('market for sand', 'sand')
        ('market for selenium', 'selenium')
        ('market for scandium', 'scandium')
        ('market for silicon', 'silicon')
        ('market for silver', 'silver')
        ('market for sodium borates', 'borates')
        ('market for strontium', 'strontium')
```

```
        ('market for tantalum', 'tantalum')
        ('market for tellurium', 'tellurium')
        ('market for tin', 'tin')
        ('market for titanium', 'titanium')
        ('market for uranium', 'uranium')
        ('market for tungsten', 'tungsten')
        ('market for vanadium', 'vanadium')
        ('market for vegetable oil,', 'vegetable oil')
        ('market for tap water', 'water')
        ('market for water,', 'water')
        ('market for zinc', 'zinc')
        ('market for zirconium', 'zirconium')

 * 1646 material markets were found:
                                      name material_group location
 1032                market for aluminium alloy, AlLi      aluminium      GLO
 974                 market for aluminium alloy, AlMg3     aluminium      GLO
 1149  market for aluminium alloy, metal matrix compo...     aluminium      GLO
 824   market for aluminium around steel bi-metal str...     aluminium      GLO
 645   market for aluminium around steel bi-metal wir...     aluminium      GLO
 ...                                      ...          ...       ...
 1453                    market for zinc slag           zinc      GLO
 141                     market for zinc sulfide        zinc      GLO
 52                    market for zirconium oxide      zirconium      GLO
 1243       market for zirconium sponge, nuclear-grade      zirconium      GLO
 1406              market for zirconium tetrachloride      zirconium      GLO

 [1646 rows x 3 columns]

 * Extracting classifications...

       Error for activity: market for graphite, battery grade, classification: nan
            Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
       Error for activity: market for hard coal power plant, classification: nan
            Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
       Error for activity: market for lithium carbonate, battery grade, classification: nan
            Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
       Error for activity: market for lithium hydroxide, battery grade, classification: nan
            Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"

 Saved activities list to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2095/material_activities.csv

 *** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-Base_2095 ***

 *** Loading pickle to dataframe ***

 There were 49146 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-Base_2095

 Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2095/material_exchanges.cs

 *** Grouping material exchanges by material group

        2101 : aluminium
          27 : antimony
          28 : bauxite
           1 : beryllium
          15 : borates
          17 : cadmium
        1555 : cement
           3 : cerium
         473 : chromium
        1738 : coal(black)
         589 : coal(brown)
         166 : cobalt
         110 : coke
        1244 : copper
           1 : dysprosium
       19360 : electricity
           1 : erbium
```

```
    1 : europium
   29 : fluorspar
    1 : gadolinium
    4 : gallium
   11 : gold
   33 : graphite
   46 : helium
    1 : holmium
 1372 : hydrogen
   13 : indium
   50 : latex
  260 : lead
   52 : lithium
  312 : magnesium
 4035 : natural gas
  436 : nickel
   35 : palladium
  508 : petroleum
  207 : phosphate rock
  171 : platinum
   37 : rare earth
   11 : rhodium
  611 : sand
    1 : scandium
    9 : selenium
  375 : silicon
   50 : silver
   28 : strontium
    3 : tantalum
    2 : tellurium
  124 : tin
  457 : titanium
    5 : tungsten
  140 : uranium
   37 : vegetable oil
11569 : water
  670 : zinc
   11 : zirconium

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** Pre-processing database (18/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2100**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2100
================================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-Base_2100, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 84 MB
```

```
*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-Base_2100> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
        WasteFootprint_digestion        | kilogram        |      4
        WasteFootprint_composting   | kilogram        |     14
        WasteFootprint_open burning         | kilogram        |    535
        WasteFootprint_incineration   | kilogram        |   2637
        WasteFootprint_recycling        | kilogram        |     84
        WasteFootprint_landfill   | kilogram        |   1712
        WasteFootprint_hazardous     | kilogram        |   1878
                ** No results for WasteFootprint_radioactive-kilogram
        WasteFootprint_carbon dioxide       | kilogram        |   1135
        WasteFootprint_total        | kilogram        |  30759
        WasteFootprint_digestion        | cubic meter           |      6
                ** No results for WasteFootprint_composting-cubic meter
                ** No results for WasteFootprint_open burning-cubic meter
        WasteFootprint_incineration   | cubic meter           |      2
                ** No results for WasteFootprint_recycling-cubic meter
        WasteFootprint_landfill   | cubic meter           |      2
        WasteFootprint_hazardous     | cubic meter           |    308
        WasteFootprint_radioactive    | cubic meter           |    308
                ** No results for WasteFootprint_carbon dioxide-cubic meter
        WasteFootprint_total        | cubic meter           |   4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2100
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
        ('market for aluminium', 'aluminium')
        ('market for antimony', 'antimony')
        ('market for bauxite', 'bauxite')
        ('market for beryllium', 'beryllium')
        ('market for bismuth', 'bismuth')
        ('market for cadmium', 'cadmium')
        ('market for calcium borates', 'borates')
        ('market for cement', 'cement')
        ('market for cerium', 'cerium')
        ('market for chromium', 'chromium')
        ('market for cobalt', 'cobalt')
        ('market for coke', 'coke')
        ('market for copper', 'copper')
        ('market for dysprosium', 'dysprosium')
        ('market for erbium', 'erbium')
        ('market for europium', 'europium')
        ('market for electricity,', 'electricity')
        ('market for ferroniobium,', 'niobium')
        ('market for fluorspar,', 'fluorspar')
        ('market for gadolinium', 'gadolinium')
        ('market for gallium', 'gallium')
        ('market for gold', 'gold')
        ('market for graphite', 'graphite')
        ('market for hafnium', 'hafnium')
        ('market for hard coal', 'coal(black)')
        ('market for helium', 'helium')
        ('market for holmium', 'holmium')
        ('market for hydrogen,', 'hydrogen')
        ('market for indium', 'indium')
        ('market for latex', 'latex')
        ('market for lead', 'lead')
        ('market for lignite', 'coal(brown)')
        ('market for lithium', 'lithium')
        ('market for magnesium', 'magnesium')
        ('market for natural gas,', 'natural gas')
```

```
        ('market for nickel', 'nickel')
        ('market for palladium', 'palladium')
        ('market for petroleum', 'petroleum')
        ('market for phosphate', 'phosphate rock')
        ('market for platinum', 'platinum')
        ('market for rare earth', 'rare earth')
        ('market for rhodium', 'rhodium')
        ('market for sand', 'sand')
        ('market for selenium', 'selenium')
        ('market for scandium', 'scandium')
        ('market for silicon', 'silicon')
        ('market for silver', 'silver')
        ('market for sodium borates', 'borates')
        ('market for strontium', 'strontium')
        ('market for tantalum', 'tantalum')
        ('market for tellurium', 'tellurium')
        ('market for tin', 'tin')
        ('market for titanium', 'titanium')
        ('market for uranium', 'uranium')
        ('market for tungsten', 'tungsten')
        ('market for vanadium', 'vanadium')
        ('market for vegetable oil,', 'vegetable oil')
        ('market for tap water', 'water')
        ('market for water,', 'water')
        ('market for zinc', 'zinc')
        ('market for zirconium', 'zirconium')

    * 1646 material markets were found:
                                                name material_group location
    1129                market for aluminium alloy, AlLi      aluminium      GLO
    54                market for aluminium alloy, AlMg3      aluminium      GLO
    561   market for aluminium alloy, metal matrix compo...      aluminium      GLO
    1316  market for aluminium around steel bi-metal str...      aluminium      GLO
    1089  market for aluminium around steel bi-metal wir...      aluminium      GLO
    ...                                              ...           ...      ...
    790                        market for zinc slag          zinc      GLO
    1424                      market for zinc sulfide          zinc      GLO
    579                     market for zirconium oxide      zirconium      GLO
    99          market for zirconium sponge, nuclear-grade      zirconium      GLO
    146               market for zirconium tetrachloride      zirconium      GLO

    [1646 rows x 3 columns]

    * Extracting classifications...

        Error for activity: market for graphite, battery grade, classification: nan
            Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
        Error for activity: market for lithium hydroxide, battery grade, classification: nan
            Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
        Error for activity: market for hard coal power plant, classification: nan
            Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
        Error for activity: market for lithium carbonate, battery grade, classification: nan
            Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"

    Saved activities list to csv:
    /home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2100/material_activities.csv

    *** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-Base_2100 ***

    *** Loading pickle to dataframe ***

    There were 49146 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-Base_2100

    Saved material exchanges to csv:
    /home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-Base_2100/material_exchanges.cs

    *** Grouping material exchanges by material group

          2101 : aluminium
            27 : antimony
            28 : bauxite
```

```
    1 : beryllium
   15 : borates
   17 : cadmium
 1555 : cement
    3 : cerium
  473 : chromium
 1738 : coal(black)
  589 : coal(brown)
  166 : cobalt
  110 : coke
 1244 : copper
    1 : dysprosium
19360 : electricity
    1 : erbium
    1 : europium
   29 : fluorspar
    1 : gadolinium
    4 : gallium
   11 : gold
   33 : graphite
   46 : helium
    1 : holmium
 1372 : hydrogen
   13 : indium
   50 : latex
  260 : lead
   52 : lithium
  312 : magnesium
 4035 : natural gas
  436 : nickel
   35 : palladium
  508 : petroleum
  207 : phosphate rock
  171 : platinum
   37 : rare earth
   11 : rhodium
  611 : sand
    1 : scandium
    9 : selenium
  375 : silicon
   50 : silver
   28 : strontium
    3 : tantalum
    2 : tellurium
  124 : tin
  457 : titanium
    5 : tungsten
  140 : uranium
   37 : vegetable oil
11569 : water
  670 : zinc
   11 : zirconium

--------------------------------------------------------------------------------

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** Pre-processing database (19/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2020**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2020
================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2020, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
```

```
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 80 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2020> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
      WasteFootprint_digestion       | kilogram        |     4
      WasteFootprint_composting      | kilogram        |    14
      WasteFootprint_open burning        | kilogram        |   535
      WasteFootprint_incineration    | kilogram        |  2637
      WasteFootprint_recycling       | kilogram        |    84
      WasteFootprint_landfill    | kilogram        |  1712
      WasteFootprint_hazardous     | kilogram        |  1878
            ** No results for WasteFootprint_radioactive-kilogram
      WasteFootprint_carbon dioxide      | kilogram        |  1135
      WasteFootprint_total       | kilogram        | 30759
      WasteFootprint_digestion       | cubic meter           |     6
            ** No results for WasteFootprint_composting-cubic meter
            ** No results for WasteFootprint_open burning-cubic meter
      WasteFootprint_incineration    | cubic meter           |     2
            ** No results for WasteFootprint_recycling-cubic meter
      WasteFootprint_landfill    | cubic meter           |     2
      WasteFootprint_hazardous     | cubic meter           |   308
      WasteFootprint_radioactive     | cubic meter           |   308
            ** No results for WasteFootprint_carbon dioxide-cubic meter
      WasteFootprint_total       | cubic meter           |  4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2020
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
      ('market for aluminium', 'aluminium')
      ('market for antimony', 'antimony')
      ('market for bauxite', 'bauxite')
      ('market for beryllium', 'beryllium')
      ('market for bismuth', 'bismuth')
      ('market for cadmium', 'cadmium')
      ('market for calcium borates', 'borates')
      ('market for cement', 'cement')
      ('market for cerium', 'cerium')
      ('market for chromium', 'chromium')
      ('market for cobalt', 'cobalt')
      ('market for coke', 'coke')
      ('market for copper', 'copper')
      ('market for dysprosium', 'dysprosium')
      ('market for erbium', 'erbium')
      ('market for europium', 'europium')
      ('market for electricity,', 'electricity')
      ('market for ferroniobium,', 'niobium')
      ('market for fluorspar,', 'fluorspar')
      ('market for gadolinium', 'gadolinium')
      ('market for gallium', 'gallium')
```

```
        ('market for gold', 'gold')
        ('market for graphite', 'graphite')
        ('market for hafnium', 'hafnium')
        ('market for hard coal', 'coal(black)')
        ('market for helium', 'helium')
        ('market for holmium', 'holmium')
        ('market for hydrogen,', 'hydrogen')
        ('market for indium', 'indium')
        ('market for latex', 'latex')
        ('market for lead', 'lead')
        ('market for lignite', 'coal(brown)')
        ('market for lithium', 'lithium')
        ('market for magnesium', 'magnesium')
        ('market for natural gas,', 'natural gas')
        ('market for nickel', 'nickel')
        ('market for palladium', 'palladium')
        ('market for petroleum', 'petroleum')
        ('market for phosphate', 'phosphate rock')
        ('market for platinum', 'platinum')
        ('market for rare earth', 'rare earth')
        ('market for rhodium', 'rhodium')
        ('market for sand', 'sand')
        ('market for selenium', 'selenium')
        ('market for scandium', 'scandium')
        ('market for silicon', 'silicon')
        ('market for silver', 'silver')
        ('market for sodium borates', 'borates')
        ('market for strontium', 'strontium')
        ('market for tantalum', 'tantalum')
        ('market for tellurium', 'tellurium')
        ('market for tin', 'tin')
        ('market for titanium', 'titanium')
        ('market for uranium', 'uranium')
        ('market for tungsten', 'tungsten')
        ('market for vanadium', 'vanadium')
        ('market for vegetable oil,', 'vegetable oil')
        ('market for tap water', 'water')
        ('market for water,', 'water')
        ('market for zinc', 'zinc')
        ('market for zirconium', 'zirconium')

  * 1646 material markets were found:
                                    name material_group location
  939                market for aluminium alloy, AlLi      aluminium      GLO
  336               market for aluminium alloy, AlMg3      aluminium      GLO
  13    market for aluminium alloy, metal matrix compo...      aluminium      GLO
  869    market for aluminium around steel bi-metal str...      aluminium      GLO
  617    market for aluminium around steel bi-metal wir...      aluminium      GLO
  ...                                      ...           ...       ...
  553                        market for zinc slag          zinc      GLO
  455                      market for zinc sulfide          zinc      GLO
  1155                   market for zirconium oxide      zirconium      GLO
  606       market for zirconium sponge, nuclear-grade      zirconium      GLO
  470              market for zirconium tetrachloride      zirconium      GLO

  [1646 rows x 3 columns]

  * Extracting classifications...

        Error for activity: market for lithium carbonate, battery grade, classification: nan
              Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
        Error for activity: market for lithium hydroxide, battery grade, classification: nan
              Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
        Error for activity: market for hard coal power plant, classification: nan
              Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
        Error for activity: market for graphite, battery grade, classification: nan
              Inferring from reference product base: "graphite", from reference product "graphite, battery grade"

  Saved activities list to csv:
  /home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2020/material_activitie
```

*** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2020 ***

*** Loading pickle to dataframe ***

There were 48530 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2020

Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2020/material_exchan

*** Grouping material exchanges by material group

2101 : aluminium
27 : antimony
28 : bauxite
1 : beryllium
15 : borates
17 : cadmium
1555 : cement
3 : cerium
473 : chromium
1738 : coal(black)
589 : coal(brown)
166 : cobalt
110 : coke
1244 : copper
1 : dysprosium
19360 : electricity
1 : erbium
1 : europium
29 : fluorspar
1 : gadolinium
4 : gallium
11 : gold
33 : graphite
46 : helium
1 : holmium
686 : hydrogen
13 : indium
50 : latex
260 : lead
52 : lithium
312 : magnesium
4105 : natural gas
436 : nickel
35 : palladium
508 : petroleum
207 : phosphate rock
171 : platinum
37 : rare earth
11 : rhodium
611 : sand
1 : scandium
9 : selenium
375 : silicon
50 : silver
28 : strontium
3 : tantalum
2 : tellurium
124 : tin
457 : titanium
5 : tungsten
140 : uranium
37 : vegetable oil
11569 : water
670 : zinc
11 : zirconium

```
** Pre-processing database (20/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2025**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2025
================================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2025, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 83 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2025> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
        WasteFootprint_digestion        | kilogram        |      4
        WasteFootprint_composting       | kilogram        |     14
        WasteFootprint_open burning         | kilogram        |    535
        WasteFootprint_incineration     | kilogram        |   2637
        WasteFootprint_recycling        | kilogram        |     84
        WasteFootprint_landfill     | kilogram        |   1712
        WasteFootprint_hazardous        | kilogram        |   1878
                ** No results for WasteFootprint_radioactive-kilogram
        WasteFootprint_carbon dioxide       | kilogram        |   1181
        WasteFootprint_total        | kilogram        |  30759
        WasteFootprint_digestion        | cubic meter         |      6
                ** No results for WasteFootprint_composting-cubic meter
                ** No results for WasteFootprint_open burning-cubic meter
        WasteFootprint_incineration     | cubic meter         |      2
                ** No results for WasteFootprint_recycling-cubic meter
        WasteFootprint_landfill     | cubic meter         |      2
        WasteFootprint_hazardous        | cubic meter         |    308
        WasteFootprint_radioactive      | cubic meter         |    308
                ** No results for WasteFootprint_carbon dioxide-cubic meter
        WasteFootprint_total        | cubic meter         |   4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2025
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
        ('market for aluminium', 'aluminium')
        ('market for antimony', 'antimony')
        ('market for bauxite', 'bauxite')
        ('market for beryllium', 'beryllium')
        ('market for bismuth', 'bismuth')
        ('market for cadmium', 'cadmium')
        ('market for calcium borates', 'borates')
```

```
('market for cement', 'cement')
('market for cerium', 'cerium')
('market for chromium', 'chromium')
('market for cobalt', 'cobalt')
('market for coke', 'coke')
('market for copper', 'copper')
('market for dysprosium', 'dysprosium')
('market for erbium', 'erbium')
('market for europium', 'europium')
('market for electricity,', 'electricity')
('market for ferroniobium,', 'niobium')
('market for fluorspar,', 'fluorspar')
('market for gadolinium', 'gadolinium')
('market for gallium', 'gallium')
('market for gold', 'gold')
('market for graphite', 'graphite')
('market for hafnium', 'hafnium')
('market for hard coal', 'coal(black)')
('market for helium', 'helium')
('market for holmium', 'holmium')
('market for hydrogen,', 'hydrogen')
('market for indium', 'indium')
('market for latex', 'latex')
('market for lead', 'lead')
('market for lignite', 'coal(brown)')
('market for lithium', 'lithium')
('market for magnesium', 'magnesium')
('market for natural gas,', 'natural gas')
('market for nickel', 'nickel')
('market for palladium', 'palladium')
('market for petroleum', 'petroleum')
('market for phosphate', 'phosphate rock')
('market for platinum', 'platinum')
('market for rare earth', 'rare earth')
('market for rhodium', 'rhodium')
('market for sand', 'sand')
('market for selenium', 'selenium')
('market for scandium', 'scandium')
('market for silicon', 'silicon')
('market for silver', 'silver')
('market for sodium borates', 'borates')
('market for strontium', 'strontium')
('market for tantalum', 'tantalum')
('market for tellurium', 'tellurium')
('market for tin', 'tin')
('market for titanium', 'titanium')
('market for uranium', 'uranium')
('market for tungsten', 'tungsten')
('market for vanadium', 'vanadium')
('market for vegetable oil,', 'vegetable oil')
('market for tap water', 'water')
('market for water,', 'water')
('market for zinc', 'zinc')
('market for zirconium', 'zirconium')

* 1646 material markets were found:
                                                  name material_group location
461                  market for aluminium alloy, AlLi      aluminium      GLO
5                  market for aluminium alloy, AlMg3      aluminium      GLO
1593  market for aluminium alloy, metal matrix compo...      aluminium      GLO
1598  market for aluminium around steel bi-metal str...      aluminium      GLO
1431  market for aluminium around steel bi-metal wir...      aluminium      GLO
...                                                 ...            ...        ...
123                        market for zinc slag           zinc      GLO
494                       market for zinc sulfide           zinc      GLO
116                     market for zirconium oxide      zirconium      GLO
454       market for zirconium sponge, nuclear-grade      zirconium      GLO
437                market for zirconium tetrachloride      zirconium      GLO

[1646 rows x 3 columns]
```

```
* Extracting classifications...

    Error for activity: market for lithium carbonate, battery grade, classification: nan
        Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
    Error for activity: market for lithium hydroxide, battery grade, classification: nan
        Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
    Error for activity: market for hard coal power plant, classification: nan
        Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
    Error for activity: market for graphite, battery grade, classification: nan
        Inferring from reference product base: "graphite", from reference product "graphite, battery grade"

Saved activities list to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2025/material_activitie

*** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2025 ***

*** Loading pickle to dataframe ***

There were 48738 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2025

Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2025/material_exchan

*** Grouping material exchanges by material group

  2101 : aluminium
    27 : antimony
    28 : bauxite
     1 : beryllium
    15 : borates
    17 : cadmium
  1555 : cement
     3 : cerium
   473 : chromium
  1738 : coal(black)
   589 : coal(brown)
   166 : cobalt
   110 : coke
  1244 : copper
     1 : dysprosium
 19360 : electricity
     1 : erbium
     1 : europium
    29 : fluorspar
     1 : gadolinium
     4 : gallium
    11 : gold
    33 : graphite
    46 : helium
     1 : holmium
   952 : hydrogen
    13 : indium
    50 : latex
   260 : lead
    52 : lithium
   312 : magnesium
  4035 : natural gas
   436 : nickel
    35 : palladium
   508 : petroleum
   207 : phosphate rock
   171 : platinum
    37 : rare earth
    11 : rhodium
   611 : sand
     1 : scandium
     9 : selenium
   375 : silicon
    50 : silver
    28 : strontium
     3 : tantalum
```

```
     2 : tellurium
   124 : tin
   457 : titanium
     5 : tungsten
   140 : uranium
    37 : vegetable oil
 11581 : water
   670 : zinc
    11 : zirconium

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** Pre-processing database (21/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2030**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2030
================================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2030, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 82 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2030> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
      WasteFootprint_digestion       | kilogram        |     4
      WasteFootprint_composting      | kilogram        |    14
      WasteFootprint_open burning        | kilogram        |   535
      WasteFootprint_incineration    | kilogram        |  2637
      WasteFootprint_recycling       | kilogram        |    84
      WasteFootprint_landfill    | kilogram        |  1712
      WasteFootprint_hazardous     | kilogram        |  1878
            ** No results for WasteFootprint_radioactive-kilogram
      WasteFootprint_carbon dioxide      | kilogram        |  1224
      WasteFootprint_total       | kilogram        | 30759
      WasteFootprint_digestion       | cubic meter           |     6
            ** No results for WasteFootprint_composting-cubic meter
            ** No results for WasteFootprint_open burning-cubic meter
      WasteFootprint_incineration    | cubic meter           |     2
            ** No results for WasteFootprint_recycling-cubic meter
      WasteFootprint_landfill    | cubic meter           |     2
      WasteFootprint_hazardous     | cubic meter           |   308
      WasteFootprint_radioactive     | cubic meter           |   308
            ** No results for WasteFootprint_carbon dioxide-cubic meter
      WasteFootprint_total       | cubic meter           |  4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
```

```
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2030
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
        ('market for aluminium', 'aluminium')
        ('market for antimony', 'antimony')
        ('market for bauxite', 'bauxite')
        ('market for beryllium', 'beryllium')
        ('market for bismuth', 'bismuth')
        ('market for cadmium', 'cadmium')
        ('market for calcium borates', 'borates')
        ('market for cement', 'cement')
        ('market for cerium', 'cerium')
        ('market for chromium', 'chromium')
        ('market for cobalt', 'cobalt')
        ('market for coke', 'coke')
        ('market for copper', 'copper')
        ('market for dysprosium', 'dysprosium')
        ('market for erbium', 'erbium')
        ('market for europium', 'europium')
        ('market for electricity,', 'electricity')
        ('market for ferroniobium,', 'niobium')
        ('market for fluorspar,', 'fluorspar')
        ('market for gadolinium', 'gadolinium')
        ('market for gallium', 'gallium')
        ('market for gold', 'gold')
        ('market for graphite', 'graphite')
        ('market for hafnium', 'hafnium')
        ('market for hard coal', 'coal(black)')
        ('market for helium', 'helium')
        ('market for holmium', 'holmium')
        ('market for hydrogen,', 'hydrogen')
        ('market for indium', 'indium')
        ('market for latex', 'latex')
        ('market for lead', 'lead')
        ('market for lignite', 'coal(brown)')
        ('market for lithium', 'lithium')
        ('market for magnesium', 'magnesium')
        ('market for natural gas,', 'natural gas')
        ('market for nickel', 'nickel')
        ('market for palladium', 'palladium')
        ('market for petroleum', 'petroleum')
        ('market for phosphate', 'phosphate rock')
        ('market for platinum', 'platinum')
        ('market for rare earth', 'rare earth')
        ('market for rhodium', 'rhodium')
        ('market for sand', 'sand')
        ('market for selenium', 'selenium')
        ('market for scandium', 'scandium')
        ('market for silicon', 'silicon')
        ('market for silver', 'silver')
        ('market for sodium borates', 'borates')
        ('market for strontium', 'strontium')
        ('market for tantalum', 'tantalum')
        ('market for tellurium', 'tellurium')
        ('market for tin', 'tin')
        ('market for titanium', 'titanium')
        ('market for uranium', 'uranium')
        ('market for tungsten', 'tungsten')
        ('market for vanadium', 'vanadium')
        ('market for vegetable oil,', 'vegetable oil')
        ('market for tap water', 'water')
        ('market for water,', 'water')
        ('market for zinc', 'zinc')
        ('market for zirconium', 'zirconium')

* 1646 material markets were found:
                                    name material_group location
```

```
435                 market for aluminium alloy, AlLi      aluminium      GLO
1619                market for aluminium alloy, AlMg3     aluminium      GLO
1121  market for aluminium alloy, metal matrix compo...     aluminium     GLO
573   market for aluminium around steel bi-metal str...     aluminium     GLO
1433  market for aluminium around steel bi-metal wir...     aluminium     GLO
...                                          ...          ...      ...
65                          market for zinc slag          zinc      GLO
569                         market for zinc sulfide         zinc      GLO
689                       market for zirconium oxide      zirconium      GLO
1269        market for zirconium sponge, nuclear-grade      zirconium      GLO
1012              market for zirconium tetrachloride      zirconium      GLO

[1646 rows x 3 columns]

* Extracting classifications...

    Error for activity: market for lithium carbonate, battery grade, classification: nan
        Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
    Error for activity: market for lithium hydroxide, battery grade, classification: nan
        Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
    Error for activity: market for hard coal power plant, classification: nan
        Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
    Error for activity: market for graphite, battery grade, classification: nan
        Inferring from reference product base: "graphite", from reference product "graphite, battery grade"

Saved activities list to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2030/material_activitie

*** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2030 ***

*** Loading pickle to dataframe ***

There were 48992 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2030

Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2030/material_exchan

*** Grouping material exchanges by material group

    2101 : aluminium
      27 : antimony
      28 : bauxite
       1 : beryllium
      15 : borates
      17 : cadmium
    1555 : cement
       3 : cerium
     473 : chromium
    1738 : coal(black)
     589 : coal(brown)
     166 : cobalt
     110 : coke
    1244 : copper
       1 : dysprosium
   19360 : electricity
       1 : erbium
       1 : europium
      29 : fluorspar
       1 : gadolinium
       4 : gallium
      11 : gold
      33 : graphite
      46 : helium
       1 : holmium
    1204 : hydrogen
      13 : indium
      50 : latex
     260 : lead
      52 : lithium
     312 : magnesium
    4021 : natural gas
```

```
  436 : nickel
   35 : palladium
  508 : petroleum
  207 : phosphate rock
  171 : platinum
   37 : rare earth
   11 : rhodium
  611 : sand
    1 : scandium
    9 : selenium
  375 : silicon
   50 : silver
   28 : strontium
    3 : tantalum
    2 : tellurium
  124 : tin
  457 : titanium
    5 : tungsten
  140 : uranium
   37 : vegetable oil
11597 : water
  670 : zinc
   11 : zirconium

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** Pre-processing database (22/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2035**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2035
================================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2035, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 83 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2035> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
      WasteFootprint_digestion       | kilogram       |     4
      WasteFootprint_composting      | kilogram       |    14
      WasteFootprint_open burning        | kilogram       |   535
      WasteFootprint_incineration    | kilogram       |  2637
      WasteFootprint_recycling       | kilogram       |    84
      WasteFootprint_landfill    | kilogram       |  1712
      WasteFootprint_hazardous     | kilogram       |  1878
            ** No results for WasteFootprint_radioactive-kilogram
      WasteFootprint_carbon dioxide      | kilogram       |  1268
```

```
        WasteFootprint_total       | kilogram        | 30759
        WasteFootprint_digestion       | cubic meter           |     6
            ** No results for WasteFootprint_composting-cubic meter
            ** No results for WasteFootprint_open burning-cubic meter
        WasteFootprint_incineration    | cubic meter           |     2
            ** No results for WasteFootprint_recycling-cubic meter
        WasteFootprint_landfill    | cubic meter           |     2
        WasteFootprint_hazardous     | cubic meter           |   308
        WasteFootprint_radioactive     | cubic meter           |   308
            ** No results for WasteFootprint_carbon dioxide-cubic meter
        WasteFootprint_total       | cubic meter           |   4695
 *** Finished searching for waste exchanges ***

 *** Starting SearchMaterial ***
 *** Loading pickle to dataframe ***

 *** Loading activities
 from database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2035
 in project: TreX-premise-SSP2-cutoff

 ** Materials (61) | (activity, group)
        ('market for aluminium', 'aluminium')
        ('market for antimony', 'antimony')
        ('market for bauxite', 'bauxite')
        ('market for beryllium', 'beryllium')
        ('market for bismuth', 'bismuth')
        ('market for cadmium', 'cadmium')
        ('market for calcium borates', 'borates')
        ('market for cement', 'cement')
        ('market for cerium', 'cerium')
        ('market for chromium', 'chromium')
        ('market for cobalt', 'cobalt')
        ('market for coke', 'coke')
        ('market for copper', 'copper')
        ('market for dysprosium', 'dysprosium')
        ('market for erbium', 'erbium')
        ('market for europium', 'europium')
        ('market for electricity,', 'electricity')
        ('market for ferroniobium,', 'niobium')
        ('market for fluorspar,', 'fluorspar')
        ('market for gadolinium', 'gadolinium')
        ('market for gallium', 'gallium')
        ('market for gold', 'gold')
        ('market for graphite', 'graphite')
        ('market for hafnium', 'hafnium')
        ('market for hard coal', 'coal(black)')
        ('market for helium', 'helium')
        ('market for holmium', 'holmium')
        ('market for hydrogen,', 'hydrogen')
        ('market for indium', 'indium')
        ('market for latex', 'latex')
        ('market for lead', 'lead')
        ('market for lignite', 'coal(brown)')
        ('market for lithium', 'lithium')
        ('market for magnesium', 'magnesium')
        ('market for natural gas,', 'natural gas')
        ('market for nickel', 'nickel')
        ('market for palladium', 'palladium')
        ('market for petroleum', 'petroleum')
        ('market for phosphate', 'phosphate rock')
        ('market for platinum', 'platinum')
        ('market for rare earth', 'rare earth')
        ('market for rhodium', 'rhodium')
        ('market for sand', 'sand')
        ('market for selenium', 'selenium')
        ('market for scandium', 'scandium')
        ('market for silicon', 'silicon')
        ('market for silver', 'silver')
        ('market for sodium borates', 'borates')
        ('market for strontium', 'strontium')
        ('market for tantalum', 'tantalum')
```

```
        ('market for tellurium', 'tellurium')
        ('market for tin', 'tin')
        ('market for titanium', 'titanium')
        ('market for uranium', 'uranium')
        ('market for tungsten', 'tungsten')
        ('market for vanadium', 'vanadium')
        ('market for vegetable oil,', 'vegetable oil')
        ('market for tap water', 'water')
        ('market for water,', 'water')
        ('market for zinc', 'zinc')
        ('market for zirconium', 'zirconium')

    * 1646 material markets were found:
                                          name material_group location
    491                market for aluminium alloy, AlLi      aluminium      GLO
    619               market for aluminium alloy, AlMg3      aluminium      GLO
    647   market for aluminium alloy, metal matrix compo...      aluminium      GLO
    114   market for aluminium around steel bi-metal str...      aluminium      GLO
    160   market for aluminium around steel bi-metal wir...      aluminium      GLO
    ...                                              ...           ...      ...
    117                        market for zinc slag          zinc      GLO
    1185                      market for zinc sulfide          zinc      GLO
    1512                   market for zirconium oxide      zirconium      GLO
    119       market for zirconium sponge, nuclear-grade      zirconium      GLO
    407              market for zirconium tetrachloride      zirconium      GLO

    [1646 rows x 3 columns]

    * Extracting classifications...

        Error for activity: market for hard coal power plant, classification: nan
            Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
        Error for activity: market for lithium hydroxide, battery grade, classification: nan
            Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
        Error for activity: market for graphite, battery grade, classification: nan
            Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
        Error for activity: market for lithium carbonate, battery grade, classification: nan
            Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"

    Saved activities list to csv:
    /home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2035/material_activitie

    *** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2035 ***

    *** Loading pickle to dataframe ***

    There were 49102 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2035

    Saved material exchanges to csv:
    /home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2035/material_exchan

    *** Grouping material exchanges by material group

         2101 : aluminium
           27 : antimony
           28 : bauxite
            1 : beryllium
           15 : borates
           17 : cadmium
         1555 : cement
            3 : cerium
          473 : chromium
         1738 : coal(black)
          589 : coal(brown)
          166 : cobalt
          110 : coke
         1244 : copper
            1 : dysprosium
        19360 : electricity
            1 : erbium
            1 : europium
```

```
   29 : fluorspar
    1 : gadolinium
    4 : gallium
   11 : gold
   33 : graphite
   46 : helium
    1 : holmium
 1302 : hydrogen
   13 : indium
   50 : latex
  260 : lead
   52 : lithium
  312 : magnesium
 4021 : natural gas
  436 : nickel
   35 : palladium
  508 : petroleum
  207 : phosphate rock
  171 : platinum
   37 : rare earth
   11 : rhodium
  611 : sand
    1 : scandium
    9 : selenium
  375 : silicon
   50 : silver
   28 : strontium
    3 : tantalum
    2 : tellurium
  124 : tin
  457 : titanium
    5 : tungsten
  140 : uranium
   37 : vegetable oil
11609 : water
  670 : zinc
   11 : zirconium

--------------------------------------------------------------------------------

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** Pre-processing database (23/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2040**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2040
================================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2040, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 83 MB
```

```
*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2040> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
        WasteFootprint_digestion        | kilogram        |      4
        WasteFootprint_composting       | kilogram        |     14
        WasteFootprint_open burning     | kilogram        |    535
        WasteFootprint_incineration     | kilogram        |   2637
        WasteFootprint_recycling        | kilogram        |     84
        WasteFootprint_landfill         | kilogram        |   1712
        WasteFootprint_hazardous        | kilogram        |   1878
                ** No results for WasteFootprint_radioactive-kilogram
        WasteFootprint_carbon dioxide   | kilogram        |   1274
        WasteFootprint_total            | kilogram        |  30759
        WasteFootprint_digestion        | cubic meter     |      6
                ** No results for WasteFootprint_composting-cubic meter
                ** No results for WasteFootprint_open burning-cubic meter
        WasteFootprint_incineration     | cubic meter     |      2
                ** No results for WasteFootprint_recycling-cubic meter
        WasteFootprint_landfill         | cubic meter     |      2
        WasteFootprint_hazardous        | cubic meter     |    308
        WasteFootprint_radioactive      | cubic meter     |    308
                ** No results for WasteFootprint_carbon dioxide-cubic meter
        WasteFootprint_total            | cubic meter     |   4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2040
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
        ('market for aluminium', 'aluminium')
        ('market for antimony', 'antimony')
        ('market for bauxite', 'bauxite')
        ('market for beryllium', 'beryllium')
        ('market for bismuth', 'bismuth')
        ('market for cadmium', 'cadmium')
        ('market for calcium borates', 'borates')
        ('market for cement', 'cement')
        ('market for cerium', 'cerium')
        ('market for chromium', 'chromium')
        ('market for cobalt', 'cobalt')
        ('market for coke', 'coke')
        ('market for copper', 'copper')
        ('market for dysprosium', 'dysprosium')
        ('market for erbium', 'erbium')
        ('market for europium', 'europium')
        ('market for electricity,', 'electricity')
        ('market for ferroniobium,', 'niobium')
        ('market for fluorspar,', 'fluorspar')
        ('market for gadolinium', 'gadolinium')
        ('market for gallium', 'gallium')
        ('market for gold', 'gold')
        ('market for graphite', 'graphite')
        ('market for hafnium', 'hafnium')
        ('market for hard coal', 'coal(black)')
        ('market for helium', 'helium')
        ('market for holmium', 'holmium')
        ('market for hydrogen,', 'hydrogen')
        ('market for indium', 'indium')
        ('market for latex', 'latex')
        ('market for lead', 'lead')
        ('market for lignite', 'coal(brown)')
        ('market for lithium', 'lithium')
        ('market for magnesium', 'magnesium')
        ('market for natural gas,', 'natural gas')
        ('market for nickel', 'nickel')
```

```
        ('market for palladium', 'palladium')
        ('market for petroleum', 'petroleum')
        ('market for phosphate', 'phosphate rock')
        ('market for platinum', 'platinum')
        ('market for rare earth', 'rare earth')
        ('market for rhodium', 'rhodium')
        ('market for sand', 'sand')
        ('market for selenium', 'selenium')
        ('market for scandium', 'scandium')
        ('market for silicon', 'silicon')
        ('market for silver', 'silver')
        ('market for sodium borates', 'borates')
        ('market for strontium', 'strontium')
        ('market for tantalum', 'tantalum')
        ('market for tellurium', 'tellurium')
        ('market for tin', 'tin')
        ('market for titanium', 'titanium')
        ('market for uranium', 'uranium')
        ('market for tungsten', 'tungsten')
        ('market for vanadium', 'vanadium')
        ('market for vegetable oil,', 'vegetable oil')
        ('market for tap water', 'water')
        ('market for water,', 'water')
        ('market for zinc', 'zinc')
        ('market for zirconium', 'zirconium')

  * 1646 material markets were found:
                                        name material_group location
  65                 market for aluminium alloy, AlLi      aluminium      GLO
  1134                market for aluminium alloy, AlMg3      aluminium      GLO
  242   market for aluminium alloy, metal matrix compo...      aluminium      GLO
  639   market for aluminium around steel bi-metal str...      aluminium      GLO
  843   market for aluminium around steel bi-metal wir...      aluminium      GLO
  ...                                        ...           ...      ...
  1390                     market for zinc slag          zinc      GLO
  85                      market for zinc sulfide          zinc      GLO
  1340                    market for zirconium oxide      zirconium      GLO
  1048       market for zirconium sponge, nuclear-grade      zirconium      GLO
  1089               market for zirconium tetrachloride      zirconium      GLO

  [1646 rows x 3 columns]

  * Extracting classifications...

        Error for activity: market for graphite, battery grade, classification: nan
              Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
        Error for activity: market for hard coal power plant, classification: nan
              Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
        Error for activity: market for lithium hydroxide, battery grade, classification: nan
              Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
        Error for activity: market for lithium carbonate, battery grade, classification: nan
              Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"

  Saved activities list to csv:
  /home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2040/material_activitie

  *** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2040 ***

  *** Loading pickle to dataframe ***

  There were 49188 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2040

  Saved material exchanges to csv:
  /home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2040/material_exchan

  *** Grouping material exchanges by material group

        2101 : aluminium
          27 : antimony
          28 : bauxite
           1 : beryllium
```

```
    15 : borates
    17 : cadmium
  1555 : cement
     3 : cerium
   473 : chromium
  1738 : coal(black)
   589 : coal(brown)
   166 : cobalt
   110 : coke
  1244 : copper
     1 : dysprosium
 19360 : electricity
     1 : erbium
     1 : europium
    29 : fluorspar
     1 : gadolinium
     4 : gallium
    11 : gold
    33 : graphite
    46 : helium
     1 : holmium
  1372 : hydrogen
    13 : indium
    50 : latex
   260 : lead
    52 : lithium
   312 : magnesium
  4035 : natural gas
   436 : nickel
    35 : palladium
   508 : petroleum
   207 : phosphate rock
   171 : platinum
    37 : rare earth
    11 : rhodium
   611 : sand
     1 : scandium
     9 : selenium
   375 : silicon
    50 : silver
    28 : strontium
     3 : tantalum
     2 : tellurium
   124 : tin
   457 : titanium
     5 : tungsten
   140 : uranium
    37 : vegetable oil
 11611 : water
   670 : zinc
    11 : zirconium

---------------------------------------------------------------------------

---------------------------------------------------------------------------

** Pre-processing database (24/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2045**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2045
================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2045, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
```

```
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 84 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2045> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
      WasteFootprint_digestion      | kilogram      |     4
      WasteFootprint_composting     | kilogram      |    14
      WasteFootprint_open burning       | kilogram      |   535
      WasteFootprint_incineration   | kilogram      |  2637
      WasteFootprint_recycling      | kilogram      |    84
      WasteFootprint_landfill   | kilogram      |  1712
      WasteFootprint_hazardous      | kilogram      |  1878
            ** No results for WasteFootprint_radioactive-kilogram
      WasteFootprint_carbon dioxide     | kilogram      |  1274
      WasteFootprint_total      | kilogram      | 30759
      WasteFootprint_digestion      | cubic meter       |     6
            ** No results for WasteFootprint_composting-cubic meter
            ** No results for WasteFootprint_open burning-cubic meter
      WasteFootprint_incineration   | cubic meter       |     2
            ** No results for WasteFootprint_recycling-cubic meter
      WasteFootprint_landfill   | cubic meter       |     2
      WasteFootprint_hazardous      | cubic meter       |   308
      WasteFootprint_radioactive    | cubic meter       |   308
            ** No results for WasteFootprint_carbon dioxide-cubic meter
      WasteFootprint_total      | cubic meter       |  4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2045
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
      ('market for aluminium', 'aluminium')
      ('market for antimony', 'antimony')
      ('market for bauxite', 'bauxite')
      ('market for beryllium', 'beryllium')
      ('market for bismuth', 'bismuth')
      ('market for cadmium', 'cadmium')
      ('market for calcium borates', 'borates')
      ('market for cement', 'cement')
      ('market for cerium', 'cerium')
      ('market for chromium', 'chromium')
      ('market for cobalt', 'cobalt')
      ('market for coke', 'coke')
      ('market for copper', 'copper')
      ('market for dysprosium', 'dysprosium')
      ('market for erbium', 'erbium')
      ('market for europium', 'europium')
      ('market for electricity,', 'electricity')
      ('market for ferroniobium,', 'niobium')
      ('market for fluorspar,', 'fluorspar')
      ('market for gadolinium', 'gadolinium')
      ('market for gallium', 'gallium')
      ('market for gold', 'gold')
```

```
        ('market for graphite', 'graphite')
        ('market for hafnium', 'hafnium')
        ('market for hard coal', 'coal(black)')
        ('market for helium', 'helium')
        ('market for holmium', 'holmium')
        ('market for hydrogen,', 'hydrogen')
        ('market for indium', 'indium')
        ('market for latex', 'latex')
        ('market for lead', 'lead')
        ('market for lignite', 'coal(brown)')
        ('market for lithium', 'lithium')
        ('market for magnesium', 'magnesium')
        ('market for natural gas,', 'natural gas')
        ('market for nickel', 'nickel')
        ('market for palladium', 'palladium')
        ('market for petroleum', 'petroleum')
        ('market for phosphate', 'phosphate rock')
        ('market for platinum', 'platinum')
        ('market for rare earth', 'rare earth')
        ('market for rhodium', 'rhodium')
        ('market for sand', 'sand')
        ('market for selenium', 'selenium')
        ('market for scandium', 'scandium')
        ('market for silicon', 'silicon')
        ('market for silver', 'silver')
        ('market for sodium borates', 'borates')
        ('market for strontium', 'strontium')
        ('market for tantalum', 'tantalum')
        ('market for tellurium', 'tellurium')
        ('market for tin', 'tin')
        ('market for titanium', 'titanium')
        ('market for uranium', 'uranium')
        ('market for tungsten', 'tungsten')
        ('market for vanadium', 'vanadium')
        ('market for vegetable oil,', 'vegetable oil')
        ('market for tap water', 'water')
        ('market for water,', 'water')
        ('market for zinc', 'zinc')
        ('market for zirconium', 'zirconium')

  * 1646 material markets were found:
                                        name material_group location
  988                market for aluminium alloy, AlLi      aluminium      GLO
  522               market for aluminium alloy, AlMg3      aluminium      GLO
  803   market for aluminium alloy, metal matrix compo...      aluminium      GLO
  635   market for aluminium around steel bi-metal str...      aluminium      GLO
  1269  market for aluminium around steel bi-metal wir...      aluminium      GLO
  ...                                        ...           ...      ...
  764                        market for zinc slag          zinc      GLO
  1552                      market for zinc sulfide          zinc      GLO
  459                     market for zirconium oxide      zirconium      GLO
  155       market for zirconium sponge, nuclear-grade      zirconium      GLO
  465              market for zirconium tetrachloride      zirconium      GLO

  [1646 rows x 3 columns]

  * Extracting classifications...

        Error for activity: market for hard coal power plant, classification: nan
              Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
        Error for activity: market for lithium hydroxide, battery grade, classification: nan
              Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
        Error for activity: market for lithium carbonate, battery grade, classification: nan
              Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
        Error for activity: market for graphite, battery grade, classification: nan
              Inferring from reference product base: "graphite", from reference product "graphite, battery grade"

  Saved activities list to csv:
  /home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2045/material_activitie

  *** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2045 ***
```

*** Loading pickle to dataframe ***

There were 49188 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2045

Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2045/material_exchan

*** Grouping material exchanges by material group

2101 : aluminium
27 : antimony
28 : bauxite
1 : beryllium
15 : borates
17 : cadmium
1555 : cement
3 : cerium
473 : chromium
1738 : coal(black)
589 : coal(brown)
166 : cobalt
110 : coke
1244 : copper
1 : dysprosium
19360 : electricity
1 : erbium
1 : europium
29 : fluorspar
1 : gadolinium
4 : gallium
11 : gold
33 : graphite
46 : helium
1 : holmium
1372 : hydrogen
13 : indium
50 : latex
260 : lead
52 : lithium
312 : magnesium
4035 : natural gas
436 : nickel
35 : palladium
508 : petroleum
207 : phosphate rock
171 : platinum
37 : rare earth
11 : rhodium
611 : sand
1 : scandium
9 : selenium
375 : silicon
50 : silver
28 : strontium
3 : tantalum
2 : tellurium
124 : tin
457 : titanium
5 : tungsten
140 : uranium
37 : vegetable oil
11611 : water
670 : zinc
11 : zirconium

** Pre-processing database (25/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2050**

```
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2050
================================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2050, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 84 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2050> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
        WasteFootprint_digestion        | kilogram        |      4
        WasteFootprint_composting       | kilogram        |     14
        WasteFootprint_open burning         | kilogram        |    535
        WasteFootprint_incineration     | kilogram        |   2637
        WasteFootprint_recycling        | kilogram        |     84
        WasteFootprint_landfill     | kilogram        |   1712
        WasteFootprint_hazardous        | kilogram        |   1878
                ** No results for WasteFootprint_radioactive-kilogram
        WasteFootprint_carbon dioxide       | kilogram        |   1274
        WasteFootprint_total        | kilogram        |  30759
        WasteFootprint_digestion        | cubic meter           |      6
                ** No results for WasteFootprint_composting-cubic meter
                ** No results for WasteFootprint_open burning-cubic meter
        WasteFootprint_incineration     | cubic meter           |      2
                ** No results for WasteFootprint_recycling-cubic meter
        WasteFootprint_landfill     | cubic meter           |      2
        WasteFootprint_hazardous        | cubic meter           |    308
        WasteFootprint_radioactive      | cubic meter           |    308
                ** No results for WasteFootprint_carbon dioxide-cubic meter
        WasteFootprint_total        | cubic meter           |   4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2050
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
        ('market for aluminium', 'aluminium')
        ('market for antimony', 'antimony')
        ('market for bauxite', 'bauxite')
        ('market for beryllium', 'beryllium')
        ('market for bismuth', 'bismuth')
        ('market for cadmium', 'cadmium')
        ('market for calcium borates', 'borates')
        ('market for cement', 'cement')
```

```
        ('market for cerium', 'cerium')
        ('market for chromium', 'chromium')
        ('market for cobalt', 'cobalt')
        ('market for coke', 'coke')
        ('market for copper', 'copper')
        ('market for dysprosium', 'dysprosium')
        ('market for erbium', 'erbium')
        ('market for europium', 'europium')
        ('market for electricity,', 'electricity')
        ('market for ferroniobium,', 'niobium')
        ('market for fluorspar,', 'fluorspar')
        ('market for gadolinium', 'gadolinium')
        ('market for gallium', 'gallium')
        ('market for gold', 'gold')
        ('market for graphite', 'graphite')
        ('market for hafnium', 'hafnium')
        ('market for hard coal', 'coal(black)')
        ('market for helium', 'helium')
        ('market for holmium', 'holmium')
        ('market for hydrogen,', 'hydrogen')
        ('market for indium', 'indium')
        ('market for latex', 'latex')
        ('market for lead', 'lead')
        ('market for lignite', 'coal(brown)')
        ('market for lithium', 'lithium')
        ('market for magnesium', 'magnesium')
        ('market for natural gas,', 'natural gas')
        ('market for nickel', 'nickel')
        ('market for palladium', 'palladium')
        ('market for petroleum', 'petroleum')
        ('market for phosphate', 'phosphate rock')
        ('market for platinum', 'platinum')
        ('market for rare earth', 'rare earth')
        ('market for rhodium', 'rhodium')
        ('market for sand', 'sand')
        ('market for selenium', 'selenium')
        ('market for scandium', 'scandium')
        ('market for silicon', 'silicon')
        ('market for silver', 'silver')
        ('market for sodium borates', 'borates')
        ('market for strontium', 'strontium')
        ('market for tantalum', 'tantalum')
        ('market for tellurium', 'tellurium')
        ('market for tin', 'tin')
        ('market for titanium', 'titanium')
        ('market for uranium', 'uranium')
        ('market for tungsten', 'tungsten')
        ('market for vanadium', 'vanadium')
        ('market for vegetable oil,', 'vegetable oil')
        ('market for tap water', 'water')
        ('market for water,', 'water')
        ('market for zinc', 'zinc')
        ('market for zirconium', 'zirconium')

  * 1646 material markets were found:
                                        name material_group location
  629                 market for aluminium alloy, AlLi      aluminium      GLO
  1475                market for aluminium alloy, AlMg3     aluminium      GLO
  1620  market for aluminium alloy, metal matrix compo...     aluminium      GLO
  882   market for aluminium around steel bi-metal str...     aluminium      GLO
  501   market for aluminium around steel bi-metal wir...     aluminium      GLO
  ...                                        ...          ...       ...
  84                        market for zinc slag          zinc      GLO
  54                       market for zinc sulfide          zinc      GLO
  438                    market for zirconium oxide      zirconium      GLO
  1503       market for zirconium sponge, nuclear-grade      zirconium      GLO
  395               market for zirconium tetrachloride      zirconium      GLO

  [1646 rows x 3 columns]

  * Extracting classifications...
```

```
    Error for activity: market for lithium carbonate, battery grade, classification: nan
        Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
    Error for activity: market for lithium hydroxide, battery grade, classification: nan
        Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
    Error for activity: market for hard coal power plant, classification: nan
        Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
    Error for activity: market for graphite, battery grade, classification: nan
        Inferring from reference product base: "graphite", from reference product "graphite, battery grade"

Saved activities list to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2050/material_activitie

*** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2050 ***

*** Loading pickle to dataframe ***

There were 49188 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2050

Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2050/material_exchan

*** Grouping material exchanges by material group

  2101 : aluminium
    27 : antimony
    28 : bauxite
     1 : beryllium
    15 : borates
    17 : cadmium
  1555 : cement
     3 : cerium
   473 : chromium
  1738 : coal(black)
   589 : coal(brown)
   166 : cobalt
   110 : coke
  1244 : copper
     1 : dysprosium
 19360 : electricity
     1 : erbium
     1 : europium
    29 : fluorspar
     1 : gadolinium
     4 : gallium
    11 : gold
    33 : graphite
    46 : helium
     1 : holmium
  1372 : hydrogen
    13 : indium
    50 : latex
   260 : lead
    52 : lithium
   312 : magnesium
  4035 : natural gas
   436 : nickel
    35 : palladium
   508 : petroleum
   207 : phosphate rock
   171 : platinum
    37 : rare earth
    11 : rhodium
   611 : sand
     1 : scandium
     9 : selenium
   375 : silicon
    50 : silver
    28 : strontium
     3 : tantalum
     2 : tellurium
```

```
   124 : tin
   457 : titanium
     5 : tungsten
   140 : uranium
    37 : vegetable oil
 11611 : water
   670 : zinc
    11 : zirconium

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** Pre-processing database (26/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2055**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2055
================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2055, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 84 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2055> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
      WasteFootprint_digestion       | kilogram        |     4
      WasteFootprint_composting   | kilogram        |    14
      WasteFootprint_open burning        | kilogram        |   535
      WasteFootprint_incineration   | kilogram        |  2637
      WasteFootprint_recycling       | kilogram        |    84
      WasteFootprint_landfill   | kilogram        |  1712
      WasteFootprint_hazardous     | kilogram        |  1878
            ** No results for WasteFootprint_radioactive-kilogram
      WasteFootprint_carbon dioxide      | kilogram        |  1274
      WasteFootprint_total       | kilogram        | 30759
      WasteFootprint_digestion       | cubic meter          |     6
            ** No results for WasteFootprint_composting-cubic meter
            ** No results for WasteFootprint_open burning-cubic meter
      WasteFootprint_incineration   | cubic meter          |     2
            ** No results for WasteFootprint_recycling-cubic meter
      WasteFootprint_landfill   | cubic meter          |     2
      WasteFootprint_hazardous     | cubic meter          |   308
      WasteFootprint_radioactive    | cubic meter          |   308
            ** No results for WasteFootprint_carbon dioxide-cubic meter
      WasteFootprint_total       | cubic meter          |  4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***
```

```
*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2055
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
        ('market for aluminium', 'aluminium')
        ('market for antimony', 'antimony')
        ('market for bauxite', 'bauxite')
        ('market for beryllium', 'beryllium')
        ('market for bismuth', 'bismuth')
        ('market for cadmium', 'cadmium')
        ('market for calcium borates', 'borates')
        ('market for cement', 'cement')
        ('market for cerium', 'cerium')
        ('market for chromium', 'chromium')
        ('market for cobalt', 'cobalt')
        ('market for coke', 'coke')
        ('market for copper', 'copper')
        ('market for dysprosium', 'dysprosium')
        ('market for erbium', 'erbium')
        ('market for europium', 'europium')
        ('market for electricity,', 'electricity')
        ('market for ferroniobium,', 'niobium')
        ('market for fluorspar,', 'fluorspar')
        ('market for gadolinium', 'gadolinium')
        ('market for gallium', 'gallium')
        ('market for gold', 'gold')
        ('market for graphite', 'graphite')
        ('market for hafnium', 'hafnium')
        ('market for hard coal', 'coal(black)')
        ('market for helium', 'helium')
        ('market for holmium', 'holmium')
        ('market for hydrogen,', 'hydrogen')
        ('market for indium', 'indium')
        ('market for latex', 'latex')
        ('market for lead', 'lead')
        ('market for lignite', 'coal(brown)')
        ('market for lithium', 'lithium')
        ('market for magnesium', 'magnesium')
        ('market for natural gas,', 'natural gas')
        ('market for nickel', 'nickel')
        ('market for palladium', 'palladium')
        ('market for petroleum', 'petroleum')
        ('market for phosphate', 'phosphate rock')
        ('market for platinum', 'platinum')
        ('market for rare earth', 'rare earth')
        ('market for rhodium', 'rhodium')
        ('market for sand', 'sand')
        ('market for selenium', 'selenium')
        ('market for scandium', 'scandium')
        ('market for silicon', 'silicon')
        ('market for silver', 'silver')
        ('market for sodium borates', 'borates')
        ('market for strontium', 'strontium')
        ('market for tantalum', 'tantalum')
        ('market for tellurium', 'tellurium')
        ('market for tin', 'tin')
        ('market for titanium', 'titanium')
        ('market for uranium', 'uranium')
        ('market for tungsten', 'tungsten')
        ('market for vanadium', 'vanadium')
        ('market for vegetable oil,', 'vegetable oil')
        ('market for tap water', 'water')
        ('market for water,', 'water')
        ('market for zinc', 'zinc')
        ('market for zirconium', 'zirconium')

* 1646 material markets were found:
                                name material_group location
261          market for aluminium alloy, AlLi     aluminium      GLO
```

```
 872                market for aluminium alloy, AlMg3      aluminium      GLO
 645   market for aluminium alloy, metal matrix compo...      aluminium      GLO
 1192  market for aluminium around steel bi-metal str...      aluminium      GLO
 1106  market for aluminium around steel bi-metal wir...      aluminium      GLO
 ...                                          ...          ...      ...
 937                          market for zinc slag          zinc      GLO
 1018                        market for zinc sulfide          zinc      GLO
 655                      market for zirconium oxide      zirconium      GLO
 314        market for zirconium sponge, nuclear-grade      zirconium      GLO
 227               market for zirconium tetrachloride      zirconium      GLO

 [1646 rows x 3 columns]

 * Extracting classifications...

      Error for activity: market for graphite, battery grade, classification: nan
           Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
      Error for activity: market for lithium hydroxide, battery grade, classification: nan
           Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
      Error for activity: market for hard coal power plant, classification: nan
           Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
      Error for activity: market for lithium carbonate, battery grade, classification: nan
           Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"

 Saved activities list to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2055/material_activitie

 *** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2055 ***

 *** Loading pickle to dataframe ***

 There were 49188 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2055

 Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2055/material_exchan

 *** Grouping material exchanges by material group

      2101 : aluminium
        27 : antimony
        28 : bauxite
         1 : beryllium
        15 : borates
        17 : cadmium
      1555 : cement
         3 : cerium
       473 : chromium
      1738 : coal(black)
       589 : coal(brown)
       166 : cobalt
       110 : coke
      1244 : copper
         1 : dysprosium
     19360 : electricity
         1 : erbium
         1 : europium
        29 : fluorspar
         1 : gadolinium
         4 : gallium
        11 : gold
        33 : graphite
        46 : helium
         1 : holmium
      1372 : hydrogen
        13 : indium
        50 : latex
       260 : lead
        52 : lithium
       312 : magnesium
      4035 : natural gas
       436 : nickel
```

```
   35 : palladium
  508 : petroleum
  207 : phosphate rock
  171 : platinum
   37 : rare earth
   11 : rhodium
  611 : sand
    1 : scandium
    9 : selenium
  375 : silicon
   50 : silver
   28 : strontium
    3 : tantalum
    2 : tellurium
  124 : tin
  457 : titanium
    5 : tungsten
  140 : uranium
   37 : vegetable oil
11611 : water
  670 : zinc
   11 : zirconium

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** Pre-processing database (27/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2060**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2060
================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2060, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 84 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2060> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
      WasteFootprint_digestion       | kilogram        |     4
      WasteFootprint_composting      | kilogram        |    14
      WasteFootprint_open burning        | kilogram        |   535
      WasteFootprint_incineration    | kilogram        |  2637
      WasteFootprint_recycling       | kilogram        |    84
      WasteFootprint_landfill    | kilogram        |  1712
      WasteFootprint_hazardous     | kilogram        |  1878
            ** No results for WasteFootprint_radioactive-kilogram
      WasteFootprint_carbon dioxide      | kilogram        |  1274
      WasteFootprint_total       | kilogram        | 30759
```

```
        WasteFootprint_digestion       | cubic meter          |     6
            ** No results for WasteFootprint_composting-cubic meter
            ** No results for WasteFootprint_open burning-cubic meter
        WasteFootprint_incineration    | cubic meter          |     2
            ** No results for WasteFootprint_recycling-cubic meter
        WasteFootprint_landfill    | cubic meter          |     2
        WasteFootprint_hazardous     | cubic meter          |   308
        WasteFootprint_radioactive     | cubic meter          |   308
            ** No results for WasteFootprint_carbon dioxide-cubic meter
        WasteFootprint_total       | cubic meter          |   4695
 *** Finished searching for waste exchanges ***

 *** Starting SearchMaterial ***
 *** Loading pickle to dataframe ***

 *** Loading activities
 from database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2060
 in project: TreX-premise-SSP2-cutoff

 ** Materials (61) | (activity, group)
        ('market for aluminium', 'aluminium')
        ('market for antimony', 'antimony')
        ('market for bauxite', 'bauxite')
        ('market for beryllium', 'beryllium')
        ('market for bismuth', 'bismuth')
        ('market for cadmium', 'cadmium')
        ('market for calcium borates', 'borates')
        ('market for cement', 'cement')
        ('market for cerium', 'cerium')
        ('market for chromium', 'chromium')
        ('market for cobalt', 'cobalt')
        ('market for coke', 'coke')
        ('market for copper', 'copper')
        ('market for dysprosium', 'dysprosium')
        ('market for erbium', 'erbium')
        ('market for europium', 'europium')
        ('market for electricity,', 'electricity')
        ('market for ferroniobium,', 'niobium')
        ('market for fluorspar,', 'fluorspar')
        ('market for gadolinium', 'gadolinium')
        ('market for gallium', 'gallium')
        ('market for gold', 'gold')
        ('market for graphite', 'graphite')
        ('market for hafnium', 'hafnium')
        ('market for hard coal', 'coal(black)')
        ('market for helium', 'helium')
        ('market for holmium', 'holmium')
        ('market for hydrogen,', 'hydrogen')
        ('market for indium', 'indium')
        ('market for latex', 'latex')
        ('market for lead', 'lead')
        ('market for lignite', 'coal(brown)')
        ('market for lithium', 'lithium')
        ('market for magnesium', 'magnesium')
        ('market for natural gas,', 'natural gas')
        ('market for nickel', 'nickel')
        ('market for palladium', 'palladium')
        ('market for petroleum', 'petroleum')
        ('market for phosphate', 'phosphate rock')
        ('market for platinum', 'platinum')
        ('market for rare earth', 'rare earth')
        ('market for rhodium', 'rhodium')
        ('market for sand', 'sand')
        ('market for selenium', 'selenium')
        ('market for scandium', 'scandium')
        ('market for silicon', 'silicon')
        ('market for silver', 'silver')
        ('market for sodium borates', 'borates')
        ('market for strontium', 'strontium')
        ('market for tantalum', 'tantalum')
        ('market for tellurium', 'tellurium')
```

```
        ('market for tin', 'tin')
        ('market for titanium', 'titanium')
        ('market for uranium', 'uranium')
        ('market for tungsten', 'tungsten')
        ('market for vanadium', 'vanadium')
        ('market for vegetable oil,', 'vegetable oil')
        ('market for tap water', 'water')
        ('market for water,', 'water')
        ('market for zinc', 'zinc')
        ('market for zirconium', 'zirconium')

 * 1646 material markets were found:
                                        name material_group location
945                market for aluminium alloy, AlLi      aluminium      GLO
1532               market for aluminium alloy, AlMg3      aluminium      GLO
272   market for aluminium alloy, metal matrix compo...      aluminium      GLO
121   market for aluminium around steel bi-metal str...      aluminium      GLO
713   market for aluminium around steel bi-metal wir...      aluminium      GLO
...                                      ...           ...      ...
1511                       market for zinc slag          zinc      GLO
1065                     market for zinc sulfide          zinc      GLO
1430                   market for zirconium oxide      zirconium      GLO
1632       market for zirconium sponge, nuclear-grade      zirconium      GLO
656              market for zirconium tetrachloride      zirconium      GLO

 [1646 rows x 3 columns]

 * Extracting classifications...

        Error for activity: market for lithium carbonate, battery grade, classification: nan
            Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
        Error for activity: market for graphite, battery grade, classification: nan
            Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
        Error for activity: market for hard coal power plant, classification: nan
            Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
        Error for activity: market for lithium hydroxide, battery grade, classification: nan
            Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"

 Saved activities list to csv:
 /home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2060/material_activitie

 *** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2060 ***

 *** Loading pickle to dataframe ***

 There were 49224 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2060

 Saved material exchanges to csv:
 /home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2060/material_exchan

 *** Grouping material exchanges by material group

         2101 : aluminium
           27 : antimony
           28 : bauxite
            1 : beryllium
           15 : borates
           17 : cadmium
         1591 : cement
            3 : cerium
          473 : chromium
         1738 : coal(black)
          589 : coal(brown)
          166 : cobalt
          110 : coke
         1244 : copper
            1 : dysprosium
        19360 : electricity
            1 : erbium
            1 : europium
           29 : fluorspar
```

```
    1 : gadolinium
    4 : gallium
   11 : gold
   33 : graphite
   46 : helium
    1 : holmium
 1372 : hydrogen
   13 : indium
   50 : latex
  260 : lead
   52 : lithium
  312 : magnesium
 4035 : natural gas
  436 : nickel
   35 : palladium
  508 : petroleum
  207 : phosphate rock
  171 : platinum
   37 : rare earth
   11 : rhodium
  611 : sand
    1 : scandium
    9 : selenium
  375 : silicon
   50 : silver
   28 : strontium
    3 : tantalum
    2 : tellurium
  124 : tin
  457 : titanium
    5 : tungsten
  140 : uranium
   37 : vegetable oil
11611 : water
  670 : zinc
   11 : zirconium

--------------------------------------------------------------------------------

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** Pre-processing database (28/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2065**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2065
================================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2065, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 84 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2065> was exploded and pickled. Rejoice!
```

```
*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
        WasteFootprint_digestion        | kilogram        |      4
        WasteFootprint_composting       | kilogram        |     14
        WasteFootprint_open burning         | kilogram        |    535
        WasteFootprint_incineration     | kilogram        |   2637
        WasteFootprint_recycling        | kilogram        |     84
        WasteFootprint_landfill     | kilogram        |   1712
        WasteFootprint_hazardous        | kilogram        |   1878
                ** No results for WasteFootprint_radioactive-kilogram
        WasteFootprint_carbon dioxide       | kilogram        |   1274
        WasteFootprint_total        | kilogram        |  30759
        WasteFootprint_digestion        | cubic meter         |      6
                ** No results for WasteFootprint_composting-cubic meter
                ** No results for WasteFootprint_open burning-cubic meter
        WasteFootprint_incineration     | cubic meter         |      2
                ** No results for WasteFootprint_recycling-cubic meter
        WasteFootprint_landfill     | cubic meter         |      2
        WasteFootprint_hazardous        | cubic meter         |    308
        WasteFootprint_radioactive      | cubic meter         |    308
                ** No results for WasteFootprint_carbon dioxide-cubic meter
        WasteFootprint_total        | cubic meter         |   4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2065
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
        ('market for aluminium', 'aluminium')
        ('market for antimony', 'antimony')
        ('market for bauxite', 'bauxite')
        ('market for beryllium', 'beryllium')
        ('market for bismuth', 'bismuth')
        ('market for cadmium', 'cadmium')
        ('market for calcium borates', 'borates')
        ('market for cement', 'cement')
        ('market for cerium', 'cerium')
        ('market for chromium', 'chromium')
        ('market for cobalt', 'cobalt')
        ('market for coke', 'coke')
        ('market for copper', 'copper')
        ('market for dysprosium', 'dysprosium')
        ('market for erbium', 'erbium')
        ('market for europium', 'europium')
        ('market for electricity,', 'electricity')
        ('market for ferroniobium,', 'niobium')
        ('market for fluorspar,', 'fluorspar')
        ('market for gadolinium', 'gadolinium')
        ('market for gallium', 'gallium')
        ('market for gold', 'gold')
        ('market for graphite', 'graphite')
        ('market for hafnium', 'hafnium')
        ('market for hard coal', 'coal(black)')
        ('market for helium', 'helium')
        ('market for holmium', 'holmium')
        ('market for hydrogen,', 'hydrogen')
        ('market for indium', 'indium')
        ('market for latex', 'latex')
        ('market for lead', 'lead')
        ('market for lignite', 'coal(brown)')
        ('market for lithium', 'lithium')
        ('market for magnesium', 'magnesium')
        ('market for natural gas,', 'natural gas')
        ('market for nickel', 'nickel')
        ('market for palladium', 'palladium')
```

```
        ('market for petroleum', 'petroleum')
        ('market for phosphate', 'phosphate rock')
        ('market for platinum', 'platinum')
        ('market for rare earth', 'rare earth')
        ('market for rhodium', 'rhodium')
        ('market for sand', 'sand')
        ('market for selenium', 'selenium')
        ('market for scandium', 'scandium')
        ('market for silicon', 'silicon')
        ('market for silver', 'silver')
        ('market for sodium borates', 'borates')
        ('market for strontium', 'strontium')
        ('market for tantalum', 'tantalum')
        ('market for tellurium', 'tellurium')
        ('market for tin', 'tin')
        ('market for titanium', 'titanium')
        ('market for uranium', 'uranium')
        ('market for tungsten', 'tungsten')
        ('market for vanadium', 'vanadium')
        ('market for vegetable oil,', 'vegetable oil')
        ('market for tap water', 'water')
        ('market for water,', 'water')
        ('market for zinc', 'zinc')
        ('market for zirconium', 'zirconium')

    * 1646 material markets were found:
                                          name material_group location
    1420                market for aluminium alloy, AlLi      aluminium      GLO
    1354               market for aluminium alloy, AlMg3      aluminium      GLO
    529   market for aluminium alloy, metal matrix compo...      aluminium      GLO
    882   market for aluminium around steel bi-metal str...      aluminium      GLO
    898   market for aluminium around steel bi-metal wir...      aluminium      GLO
    ...                                              ...           ...       ...
    1103                      market for zinc slag          zinc      GLO
    769                      market for zinc sulfide          zinc      GLO
    1255                   market for zirconium oxide      zirconium      GLO
    379       market for zirconium sponge, nuclear-grade      zirconium      GLO
    378              market for zirconium tetrachloride      zirconium      GLO

    [1646 rows x 3 columns]

    * Extracting classifications...

        Error for activity: market for lithium carbonate, battery grade, classification: nan
            Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
        Error for activity: market for lithium hydroxide, battery grade, classification: nan
            Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
        Error for activity: market for graphite, battery grade, classification: nan
            Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
        Error for activity: market for hard coal power plant, classification: nan
            Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p

    Saved activities list to csv:
    /home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2065/material_activitie

    *** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2065 ***

    *** Loading pickle to dataframe ***

    There were 49224 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2065

    Saved material exchanges to csv:
    /home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2065/material_exchan

    *** Grouping material exchanges by material group

         2101 : aluminium
           27 : antimony
           28 : bauxite
            1 : beryllium
           15 : borates
```

```
   17 : cadmium
 1591 : cement
    3 : cerium
  473 : chromium
 1738 : coal(black)
  589 : coal(brown)
  166 : cobalt
  110 : coke
 1244 : copper
    1 : dysprosium
19360 : electricity
    1 : erbium
    1 : europium
   29 : fluorspar
    1 : gadolinium
    4 : gallium
   11 : gold
   33 : graphite
   46 : helium
    1 : holmium
 1372 : hydrogen
   13 : indium
   50 : latex
  260 : lead
   52 : lithium
  312 : magnesium
 4035 : natural gas
  436 : nickel
   35 : palladium
  508 : petroleum
  207 : phosphate rock
  171 : platinum
   37 : rare earth
   11 : rhodium
  611 : sand
    1 : scandium
    9 : selenium
  375 : silicon
   50 : silver
   28 : strontium
    3 : tantalum
    2 : tellurium
  124 : tin
  457 : titanium
    5 : tungsten
  140 : uranium
   37 : vegetable oil
11611 : water
  670 : zinc
   11 : zirconium

--------------------------------------------------------------------------------

--------------------------------------------------------------------------------

** Pre-processing database (29/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2070**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================
       Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2070
================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2070, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
```

```
Adding exchange data to activities
100%|██████████████████████████████████████████████████
Filling out exchange data
100%|██████████████████████████████████████████████████

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 84 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2070> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
	WasteFootprint_digestion	| kilogram	|	4
	WasteFootprint_composting	| kilogram	|	14
	WasteFootprint_open burning	| kilogram	|	535
	WasteFootprint_incineration	| kilogram	|	2637
	WasteFootprint_recycling	| kilogram	|	84
	WasteFootprint_landfill	| kilogram	|	1712
	WasteFootprint_hazardous	| kilogram	|	1878
		** No results for WasteFootprint_radioactive-kilogram
	WasteFootprint_carbon dioxide	| kilogram	|	1274
	WasteFootprint_total	| kilogram	|	30759
	WasteFootprint_digestion	| cubic meter	|	6
		** No results for WasteFootprint_composting-cubic meter
		** No results for WasteFootprint_open burning-cubic meter
	WasteFootprint_incineration	| cubic meter	|	2
		** No results for WasteFootprint_recycling-cubic meter
	WasteFootprint_landfill	| cubic meter	|	2
	WasteFootprint_hazardous	| cubic meter	|	308
	WasteFootprint_radioactive	| cubic meter	|	308
		** No results for WasteFootprint_carbon dioxide-cubic meter
	WasteFootprint_total	| cubic meter	|	4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2070
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
	('market for aluminium', 'aluminium')
	('market for antimony', 'antimony')
	('market for bauxite', 'bauxite')
	('market for beryllium', 'beryllium')
	('market for bismuth', 'bismuth')
	('market for cadmium', 'cadmium')
	('market for calcium borates', 'borates')
	('market for cement', 'cement')
	('market for cerium', 'cerium')
	('market for chromium', 'chromium')
	('market for cobalt', 'cobalt')
	('market for coke', 'coke')
	('market for copper', 'copper')
	('market for dysprosium', 'dysprosium')
	('market for erbium', 'erbium')
	('market for europium', 'europium')
	('market for electricity,', 'electricity')
	('market for ferroniobium,', 'niobium')
	('market for fluorspar,', 'fluorspar')
	('market for gadolinium', 'gadolinium')
	('market for gallium', 'gallium')
	('market for gold', 'gold')
	('market for graphite', 'graphite')
```

```
        ('market for hafnium', 'hafnium')
        ('market for hard coal', 'coal(black)')
        ('market for helium', 'helium')
        ('market for holmium', 'holmium')
        ('market for hydrogen,', 'hydrogen')
        ('market for indium', 'indium')
        ('market for latex', 'latex')
        ('market for lead', 'lead')
        ('market for lignite', 'coal(brown)')
        ('market for lithium', 'lithium')
        ('market for magnesium', 'magnesium')
        ('market for natural gas,', 'natural gas')
        ('market for nickel', 'nickel')
        ('market for palladium', 'palladium')
        ('market for petroleum', 'petroleum')
        ('market for phosphate', 'phosphate rock')
        ('market for platinum', 'platinum')
        ('market for rare earth', 'rare earth')
        ('market for rhodium', 'rhodium')
        ('market for sand', 'sand')
        ('market for selenium', 'selenium')
        ('market for scandium', 'scandium')
        ('market for silicon', 'silicon')
        ('market for silver', 'silver')
        ('market for sodium borates', 'borates')
        ('market for strontium', 'strontium')
        ('market for tantalum', 'tantalum')
        ('market for tellurium', 'tellurium')
        ('market for tin', 'tin')
        ('market for titanium', 'titanium')
        ('market for uranium', 'uranium')
        ('market for tungsten', 'tungsten')
        ('market for vanadium', 'vanadium')
        ('market for vegetable oil,', 'vegetable oil')
        ('market for tap water', 'water')
        ('market for water,', 'water')
        ('market for zinc', 'zinc')
        ('market for zirconium', 'zirconium')

  * 1646 material markets were found:
                                        name material_group location
  1000                market for aluminium alloy, AlLi      aluminium      GLO
  417                market for aluminium alloy, AlMg3      aluminium      GLO
  1455  market for aluminium alloy, metal matrix compo...      aluminium      GLO
  655   market for aluminium around steel bi-metal str...      aluminium      GLO
  239   market for aluminium around steel bi-metal wir...      aluminium      GLO
  ...                                        ...           ...      ...
  1411                     market for zinc slag          zinc      GLO
  961                     market for zinc sulfide          zinc      GLO
  15                    market for zirconium oxide      zirconium      GLO
  1260       market for zirconium sponge, nuclear-grade      zirconium      GLO
  1199              market for zirconium tetrachloride      zirconium      GLO

  [1646 rows x 3 columns]

  * Extracting classifications...

        Error for activity: market for graphite, battery grade, classification: nan
              Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
        Error for activity: market for hard coal power plant, classification: nan
              Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
        Error for activity: market for lithium hydroxide, battery grade, classification: nan
              Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
        Error for activity: market for lithium carbonate, battery grade, classification: nan
              Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"

  Saved activities list to csv:
  /home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2070/material_activitie

  *** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2070 ***
```

*** Loading pickle to dataframe ***

There were 49224 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2070

Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2070/material_exchan

*** Grouping material exchanges by material group

2101 : aluminium
27 : antimony
28 : bauxite
1 : beryllium
15 : borates
17 : cadmium
1591 : cement
3 : cerium
473 : chromium
1738 : coal(black)
589 : coal(brown)
166 : cobalt
110 : coke
1244 : copper
1 : dysprosium
19360 : electricity
1 : erbium
1 : europium
29 : fluorspar
1 : gadolinium
4 : gallium
11 : gold
33 : graphite
46 : helium
1 : holmium
1372 : hydrogen
13 : indium
50 : latex
260 : lead
52 : lithium
312 : magnesium
4035 : natural gas
436 : nickel
35 : palladium
508 : petroleum
207 : phosphate rock
171 : platinum
37 : rare earth
11 : rhodium
611 : sand
1 : scandium
9 : selenium
375 : silicon
50 : silver
28 : strontium
3 : tantalum
2 : tellurium
124 : tin
457 : titanium
5 : tungsten
140 : uranium
37 : vegetable oil
11611 : water
670 : zinc
11 : zirconium

** Pre-processing database (30/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2075**

```
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2075
================================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2075, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 84 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2075> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
        WasteFootprint_digestion        | kilogram        |      4
        WasteFootprint_composting   | kilogram        |     14
        WasteFootprint_open burning         | kilogram        |    535
        WasteFootprint_incineration    | kilogram        |   2637
        WasteFootprint_recycling        | kilogram        |     84
        WasteFootprint_landfill    | kilogram        |   1712
        WasteFootprint_hazardous     | kilogram        |   1878
                ** No results for WasteFootprint_radioactive-kilogram
        WasteFootprint_carbon dioxide       | kilogram        |   1274
        WasteFootprint_total       | kilogram        |  30759
        WasteFootprint_digestion        | cubic meter           |      6
                ** No results for WasteFootprint_composting-cubic meter
                ** No results for WasteFootprint_open burning-cubic meter
        WasteFootprint_incineration    | cubic meter           |      2
                ** No results for WasteFootprint_recycling-cubic meter
        WasteFootprint_landfill    | cubic meter           |      2
        WasteFootprint_hazardous     | cubic meter           |    308
        WasteFootprint_radioactive     | cubic meter           |    308
                ** No results for WasteFootprint_carbon dioxide-cubic meter
        WasteFootprint_total       | cubic meter           |   4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2075
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
        ('market for aluminium', 'aluminium')
        ('market for antimony', 'antimony')
        ('market for bauxite', 'bauxite')
        ('market for beryllium', 'beryllium')
        ('market for bismuth', 'bismuth')
        ('market for cadmium', 'cadmium')
        ('market for calcium borates', 'borates')
        ('market for cement', 'cement')
        ('market for cerium', 'cerium')
```

```
        ('market for chromium', 'chromium')
        ('market for cobalt', 'cobalt')
        ('market for coke', 'coke')
        ('market for copper', 'copper')
        ('market for dysprosium', 'dysprosium')
        ('market for erbium', 'erbium')
        ('market for europium', 'europium')
        ('market for electricity,', 'electricity')
        ('market for ferroniobium,', 'niobium')
        ('market for fluorspar,', 'fluorspar')
        ('market for gadolinium', 'gadolinium')
        ('market for gallium', 'gallium')
        ('market for gold', 'gold')
        ('market for graphite', 'graphite')
        ('market for hafnium', 'hafnium')
        ('market for hard coal', 'coal(black)')
        ('market for helium', 'helium')
        ('market for holmium', 'holmium')
        ('market for hydrogen,', 'hydrogen')
        ('market for indium', 'indium')
        ('market for latex', 'latex')
        ('market for lead', 'lead')
        ('market for lignite', 'coal(brown)')
        ('market for lithium', 'lithium')
        ('market for magnesium', 'magnesium')
        ('market for natural gas,', 'natural gas')
        ('market for nickel', 'nickel')
        ('market for palladium', 'palladium')
        ('market for petroleum', 'petroleum')
        ('market for phosphate', 'phosphate rock')
        ('market for platinum', 'platinum')
        ('market for rare earth', 'rare earth')
        ('market for rhodium', 'rhodium')
        ('market for sand', 'sand')
        ('market for selenium', 'selenium')
        ('market for scandium', 'scandium')
        ('market for silicon', 'silicon')
        ('market for silver', 'silver')
        ('market for sodium borates', 'borates')
        ('market for strontium', 'strontium')
        ('market for tantalum', 'tantalum')
        ('market for tellurium', 'tellurium')
        ('market for tin', 'tin')
        ('market for titanium', 'titanium')
        ('market for uranium', 'uranium')
        ('market for tungsten', 'tungsten')
        ('market for vanadium', 'vanadium')
        ('market for vegetable oil,', 'vegetable oil')
        ('market for tap water', 'water')
        ('market for water,', 'water')
        ('market for zinc', 'zinc')
        ('market for zirconium', 'zirconium')

  * 1646 material markets were found:
                                        name material_group location
  29                 market for aluminium alloy, AlLi      aluminium      GLO
  1489                market for aluminium alloy, AlMg3      aluminium      GLO
  1366  market for aluminium alloy, metal matrix compo...      aluminium      GLO
  1044  market for aluminium around steel bi-metal str...      aluminium      GLO
  296   market for aluminium around steel bi-metal wir...      aluminium      GLO
  ...                                       ...           ...      ...
  622                        market for zinc slag          zinc      GLO
  806                      market for zinc sulfide          zinc      GLO
  931                     market for zirconium oxide      zirconium      GLO
  1407        market for zirconium sponge, nuclear-grade      zirconium      GLO
  606               market for zirconium tetrachloride      zirconium      GLO

  [1646 rows x 3 columns]

  * Extracting classifications...
```

```
    Error for activity: market for lithium carbonate, battery grade, classification: nan
        Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
    Error for activity: market for hard coal power plant, classification: nan
        Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
    Error for activity: market for graphite, battery grade, classification: nan
        Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
    Error for activity: market for lithium hydroxide, battery grade, classification: nan
        Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"

Saved activities list to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2075/material_activitie

*** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2075 ***

*** Loading pickle to dataframe ***

There were 49224 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2075

Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2075/material_exchan

*** Grouping material exchanges by material group

    2101 : aluminium
      27 : antimony
      28 : bauxite
       1 : beryllium
      15 : borates
      17 : cadmium
    1591 : cement
       3 : cerium
     473 : chromium
    1738 : coal(black)
     589 : coal(brown)
     166 : cobalt
     110 : coke
    1244 : copper
       1 : dysprosium
   19360 : electricity
       1 : erbium
       1 : europium
      29 : fluorspar
       1 : gadolinium
       4 : gallium
      11 : gold
      33 : graphite
      46 : helium
       1 : holmium
    1372 : hydrogen
      13 : indium
      50 : latex
     260 : lead
      52 : lithium
     312 : magnesium
    4035 : natural gas
     436 : nickel
      35 : palladium
     508 : petroleum
     207 : phosphate rock
     171 : platinum
      37 : rare earth
      11 : rhodium
     611 : sand
       1 : scandium
       9 : selenium
     375 : silicon
      50 : silver
      28 : strontium
       3 : tantalum
       2 : tellurium
     124 : tin
```

```
   457 : titanium
     5 : tungsten
   140 : uranium
    37 : vegetable oil
 11611 : water
   670 : zinc
    11 : zirconium

------------------------------------------------------------------------------

------------------------------------------------------------------------------

** Pre-processing database (31/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2080**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2080
================================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2080, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 84 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2080> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
      WasteFootprint_digestion       | kilogram        |     4
      WasteFootprint_composting      | kilogram        |    14
      WasteFootprint_open burning        | kilogram        |   535
      WasteFootprint_incineration    | kilogram        |  2637
      WasteFootprint_recycling       | kilogram        |    84
      WasteFootprint_landfill    | kilogram        |  1712
      WasteFootprint_hazardous     | kilogram        |  1878
            ** No results for WasteFootprint_radioactive-kilogram
      WasteFootprint_carbon dioxide      | kilogram        |  1274
      WasteFootprint_total       | kilogram        | 30759
      WasteFootprint_digestion       | cubic meter         |     6
            ** No results for WasteFootprint_composting-cubic meter
            ** No results for WasteFootprint_open burning-cubic meter
      WasteFootprint_incineration    | cubic meter         |     2
            ** No results for WasteFootprint_recycling-cubic meter
      WasteFootprint_landfill    | cubic meter         |     2
      WasteFootprint_hazardous     | cubic meter         |   308
      WasteFootprint_radioactive     | cubic meter         |   308
            ** No results for WasteFootprint_carbon dioxide-cubic meter
      WasteFootprint_total       | cubic meter         |  4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***
```

```
*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2080
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
        ('market for aluminium', 'aluminium')
        ('market for antimony', 'antimony')
        ('market for bauxite', 'bauxite')
        ('market for beryllium', 'beryllium')
        ('market for bismuth', 'bismuth')
        ('market for cadmium', 'cadmium')
        ('market for calcium borates', 'borates')
        ('market for cement', 'cement')
        ('market for cerium', 'cerium')
        ('market for chromium', 'chromium')
        ('market for cobalt', 'cobalt')
        ('market for coke', 'coke')
        ('market for copper', 'copper')
        ('market for dysprosium', 'dysprosium')
        ('market for erbium', 'erbium')
        ('market for europium', 'europium')
        ('market for electricity,', 'electricity')
        ('market for ferroniobium,', 'niobium')
        ('market for fluorspar,', 'fluorspar')
        ('market for gadolinium', 'gadolinium')
        ('market for gallium', 'gallium')
        ('market for gold', 'gold')
        ('market for graphite', 'graphite')
        ('market for hafnium', 'hafnium')
        ('market for hard coal', 'coal(black)')
        ('market for helium', 'helium')
        ('market for holmium', 'holmium')
        ('market for hydrogen,', 'hydrogen')
        ('market for indium', 'indium')
        ('market for latex', 'latex')
        ('market for lead', 'lead')
        ('market for lignite', 'coal(brown)')
        ('market for lithium', 'lithium')
        ('market for magnesium', 'magnesium')
        ('market for natural gas,', 'natural gas')
        ('market for nickel', 'nickel')
        ('market for palladium', 'palladium')
        ('market for petroleum', 'petroleum')
        ('market for phosphate', 'phosphate rock')
        ('market for platinum', 'platinum')
        ('market for rare earth', 'rare earth')
        ('market for rhodium', 'rhodium')
        ('market for sand', 'sand')
        ('market for selenium', 'selenium')
        ('market for scandium', 'scandium')
        ('market for silicon', 'silicon')
        ('market for silver', 'silver')
        ('market for sodium borates', 'borates')
        ('market for strontium', 'strontium')
        ('market for tantalum', 'tantalum')
        ('market for tellurium', 'tellurium')
        ('market for tin', 'tin')
        ('market for titanium', 'titanium')
        ('market for uranium', 'uranium')
        ('market for tungsten', 'tungsten')
        ('market for vanadium', 'vanadium')
        ('market for vegetable oil,', 'vegetable oil')
        ('market for tap water', 'water')
        ('market for water,', 'water')
        ('market for zinc', 'zinc')
        ('market for zirconium', 'zirconium')

* 1646 material markets were found:
                                name material_group location
1337          market for aluminium alloy, AlLi      aluminium      GLO
651         market for aluminium alloy, AlMg3      aluminium      GLO
```

```
1381  market for aluminium alloy, metal matrix compo...      aluminium      GLO
1056  market for aluminium around steel bi-metal str...      aluminium      GLO
276   market for aluminium around steel bi-metal wir...      aluminium      GLO
...                                                  ...            ...      ...
888                          market for zinc slag            zinc      GLO
1082                        market for zinc sulfide            zinc      GLO
793                      market for zirconium oxide       zirconium      GLO
931         market for zirconium sponge, nuclear-grade       zirconium      GLO
1449              market for zirconium tetrachloride       zirconium      GLO

[1646 rows x 3 columns]

* Extracting classifications...

    Error for activity: market for lithium carbonate, battery grade, classification: nan
        Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
    Error for activity: market for graphite, battery grade, classification: nan
        Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
    Error for activity: market for hard coal power plant, classification: nan
        Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
    Error for activity: market for lithium hydroxide, battery grade, classification: nan
        Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"

Saved activities list to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2080/material_activitie

*** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2080 ***

*** Loading pickle to dataframe ***

There were 49224 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2080

Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2080/material_exchan

*** Grouping material exchanges by material group

    2101 : aluminium
      27 : antimony
      28 : bauxite
       1 : beryllium
      15 : borates
      17 : cadmium
    1591 : cement
       3 : cerium
     473 : chromium
    1738 : coal(black)
     589 : coal(brown)
     166 : cobalt
     110 : coke
    1244 : copper
       1 : dysprosium
   19360 : electricity
       1 : erbium
       1 : europium
      29 : fluorspar
       1 : gadolinium
       4 : gallium
      11 : gold
      33 : graphite
      46 : helium
       1 : holmium
    1372 : hydrogen
      13 : indium
      50 : latex
     260 : lead
      52 : lithium
     312 : magnesium
    4035 : natural gas
     436 : nickel
      35 : palladium
```

```
  508 : petroleum
  207 : phosphate rock
  171 : platinum
   37 : rare earth
   11 : rhodium
  611 : sand
    1 : scandium
    9 : selenium
  375 : silicon
   50 : silver
   28 : strontium
    3 : tantalum
    2 : tellurium
  124 : tin
  457 : titanium
    5 : tungsten
  140 : uranium
   37 : vegetable oil
11611 : water
  670 : zinc
   11 : zirconium

--------------------------------------------------------------------------------

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** Pre-processing database (32/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2085**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2085
================================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2085, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 84 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2085> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
      WasteFootprint_digestion       | kilogram        |      4
      WasteFootprint_composting      | kilogram        |     14
      WasteFootprint_open burning        | kilogram        |    535
      WasteFootprint_incineration    | kilogram        |   2637
      WasteFootprint_recycling       | kilogram        |     84
      WasteFootprint_landfill    | kilogram        |   1712
      WasteFootprint_hazardous     | kilogram        |   1878
            ** No results for WasteFootprint_radioactive-kilogram
      WasteFootprint_carbon dioxide      | kilogram        |   1274
      WasteFootprint_total       | kilogram        |  30759
      WasteFootprint_digestion       | cubic meter           |      6
```

```
            ** No results for WasteFootprint_composting-cubic meter
            ** No results for WasteFootprint_open burning-cubic meter
        WasteFootprint_incineration   | cubic meter          |     2
            ** No results for WasteFootprint_recycling-cubic meter
        WasteFootprint_landfill   | cubic meter          |     2
        WasteFootprint_hazardous    | cubic meter          |   308
        WasteFootprint_radioactive    | cubic meter          |   308
            ** No results for WasteFootprint_carbon dioxide-cubic meter
        WasteFootprint_total      | cubic meter          |  4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2085
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
        ('market for aluminium', 'aluminium')
        ('market for antimony', 'antimony')
        ('market for bauxite', 'bauxite')
        ('market for beryllium', 'beryllium')
        ('market for bismuth', 'bismuth')
        ('market for cadmium', 'cadmium')
        ('market for calcium borates', 'borates')
        ('market for cement', 'cement')
        ('market for cerium', 'cerium')
        ('market for chromium', 'chromium')
        ('market for cobalt', 'cobalt')
        ('market for coke', 'coke')
        ('market for copper', 'copper')
        ('market for dysprosium', 'dysprosium')
        ('market for erbium', 'erbium')
        ('market for europium', 'europium')
        ('market for electricity,', 'electricity')
        ('market for ferroniobium,', 'niobium')
        ('market for fluorspar,', 'fluorspar')
        ('market for gadolinium', 'gadolinium')
        ('market for gallium', 'gallium')
        ('market for gold', 'gold')
        ('market for graphite', 'graphite')
        ('market for hafnium', 'hafnium')
        ('market for hard coal', 'coal(black)')
        ('market for helium', 'helium')
        ('market for holmium', 'holmium')
        ('market for hydrogen,', 'hydrogen')
        ('market for indium', 'indium')
        ('market for latex', 'latex')
        ('market for lead', 'lead')
        ('market for lignite', 'coal(brown)')
        ('market for lithium', 'lithium')
        ('market for magnesium', 'magnesium')
        ('market for natural gas,', 'natural gas')
        ('market for nickel', 'nickel')
        ('market for palladium', 'palladium')
        ('market for petroleum', 'petroleum')
        ('market for phosphate', 'phosphate rock')
        ('market for platinum', 'platinum')
        ('market for rare earth', 'rare earth')
        ('market for rhodium', 'rhodium')
        ('market for sand', 'sand')
        ('market for selenium', 'selenium')
        ('market for scandium', 'scandium')
        ('market for silicon', 'silicon')
        ('market for silver', 'silver')
        ('market for sodium borates', 'borates')
        ('market for strontium', 'strontium')
        ('market for tantalum', 'tantalum')
        ('market for tellurium', 'tellurium')
        ('market for tin', 'tin')
```

```
('market for titanium', 'titanium')
('market for uranium', 'uranium')
('market for tungsten', 'tungsten')
('market for vanadium', 'vanadium')
('market for vegetable oil,', 'vegetable oil')
('market for tap water', 'water')
('market for water,', 'water')
('market for zinc', 'zinc')
('market for zirconium', 'zirconium')

* 1646 material markets were found:
                                    name material_group location
52                 market for aluminium alloy, AlLi      aluminium      GLO
1561                market for aluminium alloy, AlMg3      aluminium      GLO
1255  market for aluminium alloy, metal matrix compo...      aluminium      GLO
355   market for aluminium around steel bi-metal str...      aluminium      GLO
1576  market for aluminium around steel bi-metal wir...      aluminium      GLO
...                                    ...           ...      ...
496                          market for zinc slag          zinc      GLO
243                         market for zinc sulfide          zinc      GLO
975                       market for zirconium oxide      zirconium      GLO
1016        market for zirconium sponge, nuclear-grade      zirconium      GLO
1457                market for zirconium tetrachloride      zirconium      GLO

[1646 rows x 3 columns]

* Extracting classifications...

    Error for activity: market for graphite, battery grade, classification: nan
        Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
    Error for activity: market for lithium carbonate, battery grade, classification: nan
        Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
    Error for activity: market for lithium hydroxide, battery grade, classification: nan
        Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
    Error for activity: market for hard coal power plant, classification: nan
        Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p

Saved activities list to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2085/material_activitie

*** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2085 ***

*** Loading pickle to dataframe ***

There were 49224 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2085

Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2085/material_exchan

*** Grouping material exchanges by material group

    2101 : aluminium
      27 : antimony
      28 : bauxite
       1 : beryllium
      15 : borates
      17 : cadmium
    1591 : cement
       3 : cerium
     473 : chromium
    1738 : coal(black)
     589 : coal(brown)
     166 : cobalt
     110 : coke
    1244 : copper
       1 : dysprosium
   19360 : electricity
       1 : erbium
       1 : europium
      29 : fluorspar
       1 : gadolinium
```

```
   4 : gallium
  11 : gold
  33 : graphite
  46 : helium
   1 : holmium
1372 : hydrogen
  13 : indium
  50 : latex
 260 : lead
  52 : lithium
 312 : magnesium
4035 : natural gas
 436 : nickel
  35 : palladium
 508 : petroleum
 207 : phosphate rock
 171 : platinum
  37 : rare earth
  11 : rhodium
 611 : sand
   1 : scandium
   9 : selenium
 375 : silicon
  50 : silver
  28 : strontium
   3 : tantalum
   2 : tellurium
 124 : tin
 457 : titanium
   5 : tungsten
 140 : uranium
  37 : vegetable oil
11611 : water
 670 : zinc
  11 : zirconium

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** Pre-processing database (33/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2090**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2090
================================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2090, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 84 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2090> was exploded and pickled. Rejoice!
```

```
*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
        WasteFootprint_digestion        | kilogram        |      4
        WasteFootprint_composting       | kilogram        |     14
        WasteFootprint_open burning         | kilogram        |    535
        WasteFootprint_incineration     | kilogram        |   2637
        WasteFootprint_recycling        | kilogram        |     84
        WasteFootprint_landfill     | kilogram        |   1712
        WasteFootprint_hazardous        | kilogram        |   1878
                ** No results for WasteFootprint_radioactive-kilogram
        WasteFootprint_carbon dioxide       | kilogram        |   1274
        WasteFootprint_total        | kilogram        |  30759
        WasteFootprint_digestion        | cubic meter         |      6
                ** No results for WasteFootprint_composting-cubic meter
                ** No results for WasteFootprint_open burning-cubic meter
        WasteFootprint_incineration     | cubic meter         |      2
                ** No results for WasteFootprint_recycling-cubic meter
        WasteFootprint_landfill     | cubic meter         |      2
        WasteFootprint_hazardous        | cubic meter         |    308
        WasteFootprint_radioactive      | cubic meter         |    308
                ** No results for WasteFootprint_carbon dioxide-cubic meter
        WasteFootprint_total        | cubic meter         |   4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2090
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
        ('market for aluminium', 'aluminium')
        ('market for antimony', 'antimony')
        ('market for bauxite', 'bauxite')
        ('market for beryllium', 'beryllium')
        ('market for bismuth', 'bismuth')
        ('market for cadmium', 'cadmium')
        ('market for calcium borates', 'borates')
        ('market for cement', 'cement')
        ('market for cerium', 'cerium')
        ('market for chromium', 'chromium')
        ('market for cobalt', 'cobalt')
        ('market for coke', 'coke')
        ('market for copper', 'copper')
        ('market for dysprosium', 'dysprosium')
        ('market for erbium', 'erbium')
        ('market for europium', 'europium')
        ('market for electricity,', 'electricity')
        ('market for ferroniobium,', 'niobium')
        ('market for fluorspar,', 'fluorspar')
        ('market for gadolinium', 'gadolinium')
        ('market for gallium', 'gallium')
        ('market for gold', 'gold')
        ('market for graphite', 'graphite')
        ('market for hafnium', 'hafnium')
        ('market for hard coal', 'coal(black)')
        ('market for helium', 'helium')
        ('market for holmium', 'holmium')
        ('market for hydrogen,', 'hydrogen')
        ('market for indium', 'indium')
        ('market for latex', 'latex')
        ('market for lead', 'lead')
        ('market for lignite', 'coal(brown)')
        ('market for lithium', 'lithium')
        ('market for magnesium', 'magnesium')
        ('market for natural gas,', 'natural gas')
        ('market for nickel', 'nickel')
        ('market for palladium', 'palladium')
        ('market for petroleum', 'petroleum')
```

```
        ('market for phosphate', 'phosphate rock')
        ('market for platinum', 'platinum')
        ('market for rare earth', 'rare earth')
        ('market for rhodium', 'rhodium')
        ('market for sand', 'sand')
        ('market for selenium', 'selenium')
        ('market for scandium', 'scandium')
        ('market for silicon', 'silicon')
        ('market for silver', 'silver')
        ('market for sodium borates', 'borates')
        ('market for strontium', 'strontium')
        ('market for tantalum', 'tantalum')
        ('market for tellurium', 'tellurium')
        ('market for tin', 'tin')
        ('market for titanium', 'titanium')
        ('market for uranium', 'uranium')
        ('market for tungsten', 'tungsten')
        ('market for vanadium', 'vanadium')
        ('market for vegetable oil,', 'vegetable oil')
        ('market for tap water', 'water')
        ('market for water,', 'water')
        ('market for zinc', 'zinc')
        ('market for zirconium', 'zirconium')

    * 1646 material markets were found:
                                          name material_group location
    356                market for aluminium alloy, AlLi      aluminium      GLO
    1074               market for aluminium alloy, AlMg3     aluminium      GLO
    415   market for aluminium alloy, metal matrix compo...      aluminium      GLO
    838   market for aluminium around steel bi-metal str...      aluminium      GLO
    45    market for aluminium around steel bi-metal wir...      aluminium      GLO
    ...                                          ...           ...       ...
    179                        market for zinc slag          zinc      GLO
    587                       market for zinc sulfide          zinc      GLO
    1103                    market for zirconium oxide      zirconium      GLO
    628        market for zirconium sponge, nuclear-grade      zirconium      GLO
    1549              market for zirconium tetrachloride      zirconium      GLO

    [1646 rows x 3 columns]

    * Extracting classifications...

        Error for activity: market for lithium carbonate, battery grade, classification: nan
            Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
        Error for activity: market for hard coal power plant, classification: nan
            Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
        Error for activity: market for lithium hydroxide, battery grade, classification: nan
            Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"
        Error for activity: market for graphite, battery grade, classification: nan
            Inferring from reference product base: "graphite", from reference product "graphite, battery grade"

    Saved activities list to csv:
    /home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2090/material_activitie

    *** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2090 ***

    *** Loading pickle to dataframe ***

    There were 49224 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2090

    Saved material exchanges to csv:
    /home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2090/material_exchan

    *** Grouping material exchanges by material group

         2101 : aluminium
           27 : antimony
           28 : bauxite
            1 : beryllium
           15 : borates
           17 : cadmium
```

```
 1591 : cement
    3 : cerium
  473 : chromium
 1738 : coal(black)
  589 : coal(brown)
  166 : cobalt
  110 : coke
 1244 : copper
    1 : dysprosium
19360 : electricity
    1 : erbium
    1 : europium
   29 : fluorspar
    1 : gadolinium
    4 : gallium
   11 : gold
   33 : graphite
   46 : helium
    1 : holmium
 1372 : hydrogen
   13 : indium
   50 : latex
  260 : lead
   52 : lithium
  312 : magnesium
 4035 : natural gas
  436 : nickel
   35 : palladium
  508 : petroleum
  207 : phosphate rock
  171 : platinum
   37 : rare earth
   11 : rhodium
  611 : sand
    1 : scandium
    9 : selenium
  375 : silicon
   50 : silver
   28 : strontium
    3 : tantalum
    2 : tellurium
  124 : tin
  457 : titanium
    5 : tungsten
  140 : uranium
   37 : vegetable oil
11611 : water
  670 : zinc
   11 : zirconium

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** Pre-processing database (34/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2095**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

================================================================================================
      Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2095
================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2095, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
```

100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

Pickle is: 84 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2095> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
WasteFootprint_digestion | kilogram | 4
WasteFootprint_composting | kilogram | 14
WasteFootprint_open burning | kilogram | 535
WasteFootprint_incineration | kilogram | 2637
WasteFootprint_recycling | kilogram | 84
WasteFootprint_landfill | kilogram | 1712
WasteFootprint_hazardous | kilogram | 1878
** No results for WasteFootprint_radioactive-kilogram
WasteFootprint_carbon dioxide | kilogram | 1274
WasteFootprint_total | kilogram | 30759
WasteFootprint_digestion | cubic meter | 6
** No results for WasteFootprint_composting-cubic meter
** No results for WasteFootprint_open burning-cubic meter
WasteFootprint_incineration | cubic meter | 2
** No results for WasteFootprint_recycling-cubic meter
WasteFootprint_landfill | cubic meter | 2
WasteFootprint_hazardous | cubic meter | 308
WasteFootprint_radioactive | cubic meter | 308
** No results for WasteFootprint_carbon dioxide-cubic meter
WasteFootprint_total | cubic meter | 4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2095
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
('market for aluminium', 'aluminium')
('market for antimony', 'antimony')
('market for bauxite', 'bauxite')
('market for beryllium', 'beryllium')
('market for bismuth', 'bismuth')
('market for cadmium', 'cadmium')
('market for calcium borates', 'borates')
('market for cement', 'cement')
('market for cerium', 'cerium')
('market for chromium', 'chromium')
('market for cobalt', 'cobalt')
('market for coke', 'coke')
('market for copper', 'copper')
('market for dysprosium', 'dysprosium')
('market for erbium', 'erbium')
('market for europium', 'europium')
('market for electricity,', 'electricity')
('market for ferroniobium,', 'niobium')
('market for fluorspar,', 'fluorspar')
('market for gadolinium', 'gadolinium')
('market for gallium', 'gallium')
('market for gold', 'gold')
('market for graphite', 'graphite')
('market for hafnium', 'hafnium')

```
        ('market for hard coal', 'coal(black)')
        ('market for helium', 'helium')
        ('market for holmium', 'holmium')
        ('market for hydrogen,', 'hydrogen')
        ('market for indium', 'indium')
        ('market for latex', 'latex')
        ('market for lead', 'lead')
        ('market for lignite', 'coal(brown)')
        ('market for lithium', 'lithium')
        ('market for magnesium', 'magnesium')
        ('market for natural gas,', 'natural gas')
        ('market for nickel', 'nickel')
        ('market for palladium', 'palladium')
        ('market for petroleum', 'petroleum')
        ('market for phosphate', 'phosphate rock')
        ('market for platinum', 'platinum')
        ('market for rare earth', 'rare earth')
        ('market for rhodium', 'rhodium')
        ('market for sand', 'sand')
        ('market for selenium', 'selenium')
        ('market for scandium', 'scandium')
        ('market for silicon', 'silicon')
        ('market for silver', 'silver')
        ('market for sodium borates', 'borates')
        ('market for strontium', 'strontium')
        ('market for tantalum', 'tantalum')
        ('market for tellurium', 'tellurium')
        ('market for tin', 'tin')
        ('market for titanium', 'titanium')
        ('market for uranium', 'uranium')
        ('market for tungsten', 'tungsten')
        ('market for vanadium', 'vanadium')
        ('market for vegetable oil,', 'vegetable oil')
        ('market for tap water', 'water')
        ('market for water,', 'water')
        ('market for zinc', 'zinc')
        ('market for zirconium', 'zirconium')

  * 1646 material markets were found:
                                        name material_group location
 21                  market for aluminium alloy, AlLi      aluminium      GLO
 1579                 market for aluminium alloy, AlMg3      aluminium      GLO
 269   market for aluminium alloy, metal matrix compo...      aluminium      GLO
 1593  market for aluminium around steel bi-metal str...      aluminium      GLO
 447   market for aluminium around steel bi-metal wir...      aluminium      GLO
 ...                                        ...           ...      ...
 658                          market for zinc slag          zinc      GLO
 387                         market for zinc sulfide          zinc      GLO
 1165                       market for zirconium oxide      zirconium      GLO
 649         market for zirconium sponge, nuclear-grade      zirconium      GLO
 1242                market for zirconium tetrachloride      zirconium      GLO

  [1646 rows x 3 columns]

  * Extracting classifications...

        Error for activity: market for hard coal power plant, classification: nan
              Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
        Error for activity: market for lithium carbonate, battery grade, classification: nan
              Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
        Error for activity: market for graphite, battery grade, classification: nan
              Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
        Error for activity: market for lithium hydroxide, battery grade, classification: nan
              Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"

  Saved activities list to csv:
  /home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2095/material_activitie

  *** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2095 ***

  *** Loading pickle to dataframe ***
```

There were 49224 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2095

Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2095/material_exchan

*** Grouping material exchanges by material group

```
 2101 : aluminium
   27 : antimony
   28 : bauxite
    1 : beryllium
   15 : borates
   17 : cadmium
 1591 : cement
    3 : cerium
  473 : chromium
 1738 : coal(black)
  589 : coal(brown)
  166 : cobalt
  110 : coke
 1244 : copper
    1 : dysprosium
19360 : electricity
    1 : erbium
    1 : europium
   29 : fluorspar
    1 : gadolinium
    4 : gallium
   11 : gold
   33 : graphite
   46 : helium
    1 : holmium
 1372 : hydrogen
   13 : indium
   50 : latex
  260 : lead
   52 : lithium
  312 : magnesium
 4035 : natural gas
  436 : nickel
   35 : palladium
  508 : petroleum
  207 : phosphate rock
  171 : platinum
   37 : rare earth
   11 : rhodium
  611 : sand
    1 : scandium
    9 : selenium
  375 : silicon
   50 : silver
   28 : strontium
    3 : tantalum
    2 : tellurium
  124 : tin
  457 : titanium
    5 : tungsten
  140 : uranium
   37 : vegetable oil
11611 : water
  670 : zinc
   11 : zirconium
```

** Pre-processing database (35/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2100**

{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

```
================================================================================================================
        Starting T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2100
================================================================================================================

*** Starting ExplodeDatabase ***
ExplodeDatabase uses wurst to open a bw2 database, explodes the exchanges for each process, and then returns a pickle file

** db: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2100, in project: TreX-premise-SSP2-cutoff will be processed

** Opening the sausage...
Getting activity data
100%|
Adding exchange data to activities
100%|
Filling out exchange data
100%|

*** Extracting activities from db...

*** Exploding exchanges from activities...

*** Pickling...

 Pickle is: 84 MB

*** The sausage <ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2100> was exploded and pickled. Rejoice!

*** Starting SearchWaste ***
*** Loading pickle to dataframe ***
*** Searching for waste exchanges ***
        WasteFootprint_digestion        | kilogram        |      4
        WasteFootprint_composting   | kilogram        |     14
        WasteFootprint_open burning         | kilogram        |    535
        WasteFootprint_incineration   | kilogram        |   2637
        WasteFootprint_recycling        | kilogram        |     84
        WasteFootprint_landfill   | kilogram        |   1712
        WasteFootprint_hazardous     | kilogram        |   1878
                ** No results for WasteFootprint_radioactive-kilogram
        WasteFootprint_carbon dioxide       | kilogram        |   1274
        WasteFootprint_total       | kilogram        |  30759
        WasteFootprint_digestion        | cubic meter           |      6
                ** No results for WasteFootprint_composting-cubic meter
                ** No results for WasteFootprint_open burning-cubic meter
        WasteFootprint_incineration   | cubic meter           |      2
                ** No results for WasteFootprint_recycling-cubic meter
        WasteFootprint_landfill   | cubic meter           |      2
        WasteFootprint_hazardous     | cubic meter           |    308
        WasteFootprint_radioactive     | cubic meter           |    308
                ** No results for WasteFootprint_carbon dioxide-cubic meter
        WasteFootprint_total       | cubic meter           |   4695
*** Finished searching for waste exchanges ***

*** Starting SearchMaterial ***
*** Loading pickle to dataframe ***

*** Loading activities
from database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2100
in project: TreX-premise-SSP2-cutoff

** Materials (61) | (activity, group)
        ('market for aluminium', 'aluminium')
        ('market for antimony', 'antimony')
        ('market for bauxite', 'bauxite')
        ('market for beryllium', 'beryllium')
        ('market for bismuth', 'bismuth')
        ('market for cadmium', 'cadmium')
        ('market for calcium borates', 'borates')
        ('market for cement', 'cement')
        ('market for cerium', 'cerium')
        ('market for chromium', 'chromium')
```

```
('market for cobalt', 'cobalt')
('market for coke', 'coke')
('market for copper', 'copper')
('market for dysprosium', 'dysprosium')
('market for erbium', 'erbium')
('market for europium', 'europium')
('market for electricity,', 'electricity')
('market for ferroniobium,', 'niobium')
('market for fluorspar,', 'fluorspar')
('market for gadolinium', 'gadolinium')
('market for gallium', 'gallium')
('market for gold', 'gold')
('market for graphite', 'graphite')
('market for hafnium', 'hafnium')
('market for hard coal', 'coal(black)')
('market for helium', 'helium')
('market for holmium', 'holmium')
('market for hydrogen,', 'hydrogen')
('market for indium', 'indium')
('market for latex', 'latex')
('market for lead', 'lead')
('market for lignite', 'coal(brown)')
('market for lithium', 'lithium')
('market for magnesium', 'magnesium')
('market for natural gas,', 'natural gas')
('market for nickel', 'nickel')
('market for palladium', 'palladium')
('market for petroleum', 'petroleum')
('market for phosphate', 'phosphate rock')
('market for platinum', 'platinum')
('market for rare earth', 'rare earth')
('market for rhodium', 'rhodium')
('market for sand', 'sand')
('market for selenium', 'selenium')
('market for scandium', 'scandium')
('market for silicon', 'silicon')
('market for silver', 'silver')
('market for sodium borates', 'borates')
('market for strontium', 'strontium')
('market for tantalum', 'tantalum')
('market for tellurium', 'tellurium')
('market for tin', 'tin')
('market for titanium', 'titanium')
('market for uranium', 'uranium')
('market for tungsten', 'tungsten')
('market for vanadium', 'vanadium')
('market for vegetable oil,', 'vegetable oil')
('market for tap water', 'water')
('market for water,', 'water')
('market for zinc', 'zinc')
('market for zirconium', 'zirconium')

* 1646 material markets were found:
                                        name material_group location
1558                market for aluminium alloy, AlLi      aluminium      GLO
843                market for aluminium alloy, AlMg3      aluminium      GLO
1257  market for aluminium alloy, metal matrix compo...      aluminium      GLO
25    market for aluminium around steel bi-metal str...      aluminium      GLO
1287  market for aluminium around steel bi-metal wir...      aluminium      GLO
...                                        ...           ...      ...
1110                        market for zinc slag          zinc      GLO
386                       market for zinc sulfide          zinc      GLO
153                      market for zirconium oxide      zirconium      GLO
1372       market for zirconium sponge, nuclear-grade      zirconium      GLO
1158               market for zirconium tetrachloride      zirconium      GLO

[1646 rows x 3 columns]

* Extracting classifications...

    Error for activity: market for hard coal power plant, classification: nan
```

```
        Inferring from reference product base: "hard coal pulverised power plant 500MW", from reference product "hard coal p
    Error for activity: market for graphite, battery grade, classification: nan
        Inferring from reference product base: "graphite", from reference product "graphite, battery grade"
    Error for activity: market for lithium carbonate, battery grade, classification: nan
        Inferring from reference product base: "lithium carbonate", from reference product "lithium carbonate, battery grade"
    Error for activity: market for lithium hydroxide, battery grade, classification: nan
        Inferring from reference product base: "lithium hydroxide", from reference product "lithium hydroxide, battery grade"

Saved activities list to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2100/material_activitie

*** Searching for material exchanges in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2100 ***

*** Loading pickle to dataframe ***

There were 49224 matching exchanges found in ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2100

Saved material exchanges to csv:
/home/stew/code/gh/T-reX/data/SearchMaterialResults/ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2100/material_exchan

*** Grouping material exchanges by material group

  2101 : aluminium
    27 : antimony
    28 : bauxite
     1 : beryllium
    15 : borates
    17 : cadmium
  1591 : cement
     3 : cerium
   473 : chromium
  1738 : coal(black)
   589 : coal(brown)
   166 : cobalt
   110 : coke
  1244 : copper
     1 : dysprosium
 19360 : electricity
     1 : erbium
     1 : europium
    29 : fluorspar
     1 : gadolinium
     4 : gallium
    11 : gold
    33 : graphite
    46 : helium
     1 : holmium
  1372 : hydrogen
    13 : indium
    50 : latex
   260 : lead
    52 : lithium
   312 : magnesium
  4035 : natural gas
   436 : nickel
    35 : palladium
   508 : petroleum
   207 : phosphate rock
   171 : platinum
    37 : rare earth
    11 : rhodium
   611 : sand
     1 : scandium
     9 : selenium
   375 : silicon
    50 : silver
    28 : strontium
     3 : tantalum
     2 : tellurium
   124 : tin
   457 : titanium
```

```
    5 : tungsten
  140 : uranium
   37 : vegetable oil
11611 : water
  670 : zinc
   11 : zirconium

--------------------------------------------------------------------------------

*** Writing custom database file: biosphere_T-reX


*** Appending to existing custom database file: biosphere_T-reX

    Appending: MaterialFootprint_aluminium
    Appending: MaterialFootprint_antimony
    Appending: MaterialFootprint_bauxite
    Appending: MaterialFootprint_beryllium
    Appending: MaterialFootprint_borates
    Appending: MaterialFootprint_cadmium
    Appending: MaterialFootprint_cement
    Appending: MaterialFootprint_cerium
    Appending: MaterialFootprint_chromium
    Appending: MaterialFootprint_coal(black)
    Appending: MaterialFootprint_coal(brown)
    Appending: MaterialFootprint_cobalt
    Appending: MaterialFootprint_coke
    Appending: MaterialFootprint_copper
    Appending: MaterialFootprint_dysprosium
    Appending: MaterialFootprint_electricity
    Appending: MaterialFootprint_erbium
    Appending: MaterialFootprint_europium
    Appending: MaterialFootprint_fluorspar
    Appending: MaterialFootprint_gadolinium
    Appending: MaterialFootprint_gallium
    Appending: MaterialFootprint_gold
    Appending: MaterialFootprint_graphite
    Appending: MaterialFootprint_helium
    Appending: MaterialFootprint_holmium
    Appending: MaterialFootprint_hydrogen
    Appending: MaterialFootprint_indium
    Appending: MaterialFootprint_latex
    Appending: MaterialFootprint_lead
    Appending: MaterialFootprint_lithium
    Appending: MaterialFootprint_magnesium
    Appending: MaterialFootprint_natural gas
    Appending: MaterialFootprint_nickel
    Appending: MaterialFootprint_palladium
    Appending: MaterialFootprint_petroleum
    Appending: MaterialFootprint_phosphate rock
    Appending: MaterialFootprint_platinum
    Appending: MaterialFootprint_rare earth
    Appending: MaterialFootprint_rhodium
    Appending: MaterialFootprint_sand
    Appending: MaterialFootprint_scandium
    Appending: MaterialFootprint_selenium
    Appending: MaterialFootprint_silicon
    Appending: MaterialFootprint_silver
    Appending: MaterialFootprint_strontium
    Appending: MaterialFootprint_tantalum
    Appending: MaterialFootprint_tellurium
    Appending: MaterialFootprint_tin
    Appending: MaterialFootprint_titanium
    Appending: MaterialFootprint_tungsten
    Appending: MaterialFootprint_uranium
    Appending: MaterialFootprint_vegetable oil
    Appending: MaterialFootprint_water
    Appending: MaterialFootprint_zinc
    Appending: MaterialFootprint_zirconium
```

```
        Appending: WasteFootprint_carbondioxide-kilogram
        Appending: WasteFootprint_composting-kilogram
        Appending: WasteFootprint_digestion-cubicmeter
        Appending: WasteFootprint_digestion-kilogram
        Appending: WasteFootprint_hazardous-cubicmeter
        Appending: WasteFootprint_hazardous-kilogram
        Appending: WasteFootprint_incineration-cubicmeter
        Appending: WasteFootprint_incineration-kilogram
        Appending: WasteFootprint_landfill-cubicmeter
        Appending: WasteFootprint_landfill-kilogram
        Appending: WasteFootprint_openburning-kilogram
        Appending: WasteFootprint_radioactive-cubicmeter
        Appending: WasteFootprint_recycling-kilogram
        Appending: WasteFootprint_total-cubicmeter
        Appending: WasteFootprint_total-kilogram

 ** Added 70 entries to the xlsx for the custom waste and material database:
       biosphere_T-reX

** Importing the custom database biosphere_T-reX**
       to the brightway2 project: TreX-premise-SSP2-cutoff

** Running BW2io ExcelImporter **

Extracted 1 worksheets in 0.01 seconds
Applying strategy: csv_restore_tuples
Applying strategy: csv_restore_booleans
Applying strategy: csv_numerize
Applying strategy: csv_drop_unknown
Applying strategy: csv_add_missing_exchanges_section
Applying strategy: normalize_units
Applying strategy: normalize_biosphere_categories
Applying strategy: normalize_biosphere_names
Applying strategy: strip_biosphere_exc_locations
Applying strategy: set_code_by_activity_hash
Applying strategy: link_iterable_by_fields
Applying strategy: assign_only_product_as_production
Applying strategy: link_technosphere_by_activity_hash
Applying strategy: drop_falsey_uncertainty_fields_but_keep_zeros
Applying strategy: convert_uncertainty_types_to_integers
Applying strategy: convert_activity_parameters_to_list
Applied 16 strategies in 3.21 seconds
70 datasets
0 exchanges
0 unlinked exchanges

Writing activities to SQLite3 database:
0% [##############################] 100% | ETA: 00:00:01
Total time elapsed: 00:00:00
Title: Writing activities to SQLite3 database:
  Started: 03/21/2024 20:35:06
  Finished: 03/21/2024 20:35:06
  Total time elapsed: 00:00:00
  CPU %: 0.00
  Memory %: 4.46
Created database: biosphere_T-reX

** Database metadata **
format: Excel
depends: []
backend: sqlite
number: 70
modified: 2024-03-21T20:35:06.420556
searchable: True
processed: 2024-03-21T20:35:07.025325

*** Great success! ***

*** Running AddMethods() ***

        ('T-reX', 'Demand: Aluminium', 'Aluminium')
```

```
('T-reX', 'Demand: Antimony', 'Antimony')
('T-reX', 'Demand: Bauxite', 'Bauxite')
('T-reX', 'Demand: Beryllium', 'Beryllium')
('T-reX', 'Demand: Borates', 'Borates')
('T-reX', 'Demand: Cadmium', 'Cadmium')
('T-reX', 'Demand: Cement', 'Cement')
('T-reX', 'Demand: Cerium', 'Cerium')
('T-reX', 'Demand: Chromium', 'Chromium')
('T-reX', 'Demand: Coal(black)', 'Coal(black)')
('T-reX', 'Demand: Coal(brown)', 'Coal(brown)')
('T-reX', 'Demand: Cobalt', 'Cobalt')
('T-reX', 'Demand: Coke', 'Coke')
('T-reX', 'Demand: Copper', 'Copper')
('T-reX', 'Demand: Dysprosium', 'Dysprosium')
('T-reX', 'Demand: Electricity', 'Electricity')
('T-reX', 'Demand: Erbium', 'Erbium')
('T-reX', 'Demand: Europium', 'Europium')
('T-reX', 'Demand: Fluorspar', 'Fluorspar')
('T-reX', 'Demand: Gadolinium', 'Gadolinium')
('T-reX', 'Demand: Gallium', 'Gallium')
('T-reX', 'Demand: Gold', 'Gold')
('T-reX', 'Demand: Graphite', 'Graphite')
('T-reX', 'Demand: Helium', 'Helium')
('T-reX', 'Demand: Holmium', 'Holmium')
('T-reX', 'Demand: Hydrogen', 'Hydrogen')
('T-reX', 'Demand: Indium', 'Indium')
('T-reX', 'Demand: Latex', 'Latex')
('T-reX', 'Demand: Lead', 'Lead')
('T-reX', 'Demand: Lithium', 'Lithium')
('T-reX', 'Demand: Magnesium', 'Magnesium')
('T-reX', 'Demand: Natural gas', 'Natural gas')
('T-reX', 'Demand: Nickel', 'Nickel')
('T-reX', 'Demand: Palladium', 'Palladium')
('T-reX', 'Demand: Petroleum', 'Petroleum')
('T-reX', 'Demand: Phosphate rock', 'Phosphate rock')
('T-reX', 'Demand: Platinum', 'Platinum')
('T-reX', 'Demand: Rare earth', 'Rare earth')
('T-reX', 'Demand: Rhodium', 'Rhodium')
('T-reX', 'Demand: Sand', 'Sand')
('T-reX', 'Demand: Scandium', 'Scandium')
('T-reX', 'Demand: Selenium', 'Selenium')
('T-reX', 'Demand: Silicon', 'Silicon')
('T-reX', 'Demand: Silver', 'Silver')
('T-reX', 'Demand: Strontium', 'Strontium')
('T-reX', 'Demand: Tantalum', 'Tantalum')
('T-reX', 'Demand: Tellurium', 'Tellurium')
('T-reX', 'Demand: Tin', 'Tin')
('T-reX', 'Demand: Titanium', 'Titanium')
('T-reX', 'Demand: Tungsten', 'Tungsten')
('T-reX', 'Demand: Uranium', 'Uranium')
('T-reX', 'Demand: Vegetable oil', 'Vegetable oil')
('T-reX', 'Demand: Water', 'Water')
('T-reX', 'Demand: Zinc', 'Zinc')
('T-reX', 'Demand: Zirconium', 'Zirconium')
('T-reX', 'Waste: Carbondioxide combined', 'Carbondioxide (kg)')
('T-reX', 'Waste: Composting combined', 'Composting (kg)')
('T-reX', 'Waste: Digestion combined', 'Digestion (m3)')
('T-reX', 'Waste: Digestion combined', 'Digestion (kg)')
('T-reX', 'Waste: Hazardous combined', 'Hazardous (m3)')
('T-reX', 'Waste: Hazardous combined', 'Hazardous (kg)')
('T-reX', 'Waste: Incineration combined', 'Incineration (m3)')
('T-reX', 'Waste: Incineration combined', 'Incineration (kg)')
('T-reX', 'Waste: Landfill combined', 'Landfill (m3)')
('T-reX', 'Waste: Landfill combined', 'Landfill (kg)')
('T-reX', 'Waste: Openburning combined', 'Openburning (kg)')
('T-reX', 'Waste: Radioactive combined', 'Radioactive (m3)')
('T-reX', 'Waste: Recycling combined', 'Recycling (kg)')
('T-reX', 'Waste: Total combined', 'Total (m3)')
('T-reX', 'Waste: Total combined', 'Total (kg)')

*** Added 70  new methods ***
```

*** Preprocessing completed ***

Total databases: 35
Successfully processed: 35
Duration: 0:34:26 (h:m:s)

** Processing database (1/35): ecoinvent-3.9.1-cutoff**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent-3.9.1-cutoff', 'db_T_re

*** ExchangeEditor() is running for ecoinvent-3.9.1-cutoff ***

* Appending waste and material exchanges in biosphere_T-reX

- 1/69 : MaterialFootprint_aluminium | 100.0% | Progress: 1822 of
- 2/69 : MaterialFootprint_antimony | 100.0% | Progress: 26 of 26
- 3/69 : MaterialFootprint_bauxite | 100.0% | Progress: 24 of 24
- 4/69 : MaterialFootprint_beryllium | 100.0% | Progress: 1 of 1
- 5/69 : MaterialFootprint_borates | 100.0% | Progress: 15 of 15
- 6/69 : MaterialFootprint_cadmium | 100.0% | Progress: 17 of 1
- 7/69 : MaterialFootprint_cement | 100.0% | Progress: 2575 of 2
- 8/69 : MaterialFootprint_cerium | 100.0% | Progress: 2 of 2
- 9/69 : MaterialFootprint_chromium | 100.0% | Progress: 410 of 4
- 10/69 : MaterialFootprint_coal(black) | 100.0% | Progress: 1556 of
- 11/69 : MaterialFootprint_coal(brown) | 100.0% | Progress: 499 of
- 12/69 : MaterialFootprint_cobalt | 100.0% | Progress: 166 of 16
- 13/69 : MaterialFootprint_coke | 100.0% | Progress: 68 of 68
- 14/69 : MaterialFootprint_copper | 100.0% | Progress: 915 of 9
- 15/69 : MaterialFootprint_dysprosium | 100.0% | Progress: 1 of 1
- 16/69 : MaterialFootprint_electricity | 100.0% | Progress: 23823 of 2
- 17/69 : MaterialFootprint_erbium | 100.0% | Progress: 1 of 1
- 18/69 : MaterialFootprint_europium | 100.0% | Progress: 1 of 1
- 19/69 : MaterialFootprint_fluorspar | 100.0% | Progress: 22 of 22
- 20/69 : MaterialFootprint_gadolinium | 100.0% | Progress: 1 of 1
- 21/69 : MaterialFootprint_gallium | 100.0% | Progress: 3 of 3
- 22/69 : MaterialFootprint_gold | 100.0% | Progress: 10 of 10
- 23/69 : MaterialFootprint_graphite | 100.0% | Progress: 30 of 30
- 24/69 : MaterialFootprint_helium | 100.0% | Progress: 43 of 43
- 25/69 : MaterialFootprint_holmium | 100.0% | Progress: 1 of 1
- 26/69 : MaterialFootprint_hydrogen | 100.0% | Progress: 377 of
- 27/69 : MaterialFootprint_indium | 100.0% | Progress: 13 of 13
- 28/69 : MaterialFootprint_latex | 100.0% | Progress: 49 of 49
- 29/69 : MaterialFootprint_lead | 100.0% | Progress: 184 of 184
- 30/69 : MaterialFootprint_lithium | 100.0% | Progress: 43 of 43
- 31/69 : MaterialFootprint_magnesium | 100.0% | Progress: 250 o
- 32/69 : MaterialFootprint_natural gas | 100.0% | Progress: 5804 of
- 33/69 : MaterialFootprint_nickel | 100.0% | Progress: 342 of 342
- 34/69 : MaterialFootprint_palladium | 100.0% | Progress: 22 of 2
- 35/69 : MaterialFootprint_petroleum | 100.0% | Progress: 503 of
- 36/69 : MaterialFootprint_phosphate rock | 100.0% | Progress: 207 o
- 37/69 : MaterialFootprint_platinum | 100.0% | Progress: 164 of 1
- 38/69 : MaterialFootprint_rare earth | 100.0% | Progress: 37 of 37
- 39/69 : MaterialFootprint_rhodium | 100.0% | Progress: 11 of 11
- 40/69 : MaterialFootprint_sand | 100.0% | Progress: 553 of 55
- 41/69 : MaterialFootprint_scandium | 100.0% | Progress: 1 of 1
- 42/69 : MaterialFootprint_selenium | 100.0% | Progress: 9 of 9
- 43/69 : MaterialFootprint_silicon | 100.0% | Progress: 358 of 358
- 44/69 : MaterialFootprint_silver | 100.0% | Progress: 46 of 46
- 45/69 : MaterialFootprint_strontium | 100.0% | Progress: 27 of 27
- 46/69 : MaterialFootprint_tantalum | 100.0% | Progress: 3 of 3
- 47/69 : MaterialFootprint_tellurium | 100.0% | Progress: 2 of 2
- 48/69 : MaterialFootprint_tin | 100.0% | Progress: 103 of 103
- 49/69 : MaterialFootprint_titanium | 100.0% | Progress: 454 of 45

- 50/69 : MaterialFootprint_tungsten | 100.0% | Progress: 5 of 5
- 51/69 : MaterialFootprint_uranium | 100.0% | Progress: 136 of 1
- 52/69 : MaterialFootprint_vegetable oil | 100.0% | Progress: 34 of 3
- 53/69 : MaterialFootprint_water | 100.0% | Progress: 10145 of 1
- 54/69 : MaterialFootprint_zinc | 100.0% | Progress: 557 of 557
- 55/69 : MaterialFootprint_zirconium | 100.0% | Progress: 9 of 9
- 56/69 : WasteFootprint_composting-kilogram | 100.0% | Progress: 14
- 57/69 : WasteFootprint_digestion-cubicmeter | 100.0% | Progress: 6
- 58/69 : WasteFootprint_digestion-kilogram | 100.0% | Progress: 4 o
- 59/69 : WasteFootprint_hazardous-cubicmeter | 100.0% | Progress: 29
- 60/69 : WasteFootprint_hazardous-kilogram | 100.0% | Progress: 149
- 61/69 : WasteFootprint_incineration-cubicmeter | 100.0% | Progress: 2
- 62/69 : WasteFootprint_incineration-kilogram | 100.0% | Progress: 1687
- 63/69 : WasteFootprint_landfill-cubicmeter | 100.0% | Progress: 2 of
- 64/69 : WasteFootprint_landfill-kilogram | 100.0% | Progress: 1430 o
- 65/69 : WasteFootprint_openburning-kilogram | 100.0% | Progress: 53
- 66/69 : WasteFootprint_radioactive-cubicmeter | 100.0% | Progress: 29
- 67/69 : WasteFootprint_recycling-kilogram | 100.0% | Progress: 63 c
- 68/69 : WasteFootprint_total-cubicmeter | 100.0% | Progress: 3838 c
- 69/69 : WasteFootprint_total-kilogram | 100.0% | Progress: 27830 o

****

*** ExchangeEditor() completed for ecoinvent-3.9.1-cutoff in 0:24:13 (h:m:s) ***

****

** Verifying database ecoinvent-3.9.1-cutoff in project TreX-premise-SSP2-cutoff **

Score: 0.00e+00
Method: Europium
Activity: market for phosphorus oxychloride
Database: ecoinvent-3.9.1-cutoff

Score: 9.80e-02
Method: Composting (kg)
Activity: market for mandarin, fresh grade
Database: ecoinvent-3.9.1-cutoff

** Database verified successfully! **

==========

*** Finished T-reX for ecoinvent-3.9.1-cutoff ***
Duration: 0:24:27 (h:m:s)
*** Woah woah wee waa, great success!! ***

==========

** Processing database (2/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2020**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-Base_2020 ***

* Appending waste and material exchanges in biosphere_T-reX

- 1/70 : MaterialFootprint_aluminium | 100.0% | Progress: 2101 of
- 2/70 : MaterialFootprint_antimony | 100.0% | Progress: 27 of 27
- 3/70 : MaterialFootprint_bauxite | 100.0% | Progress: 28 of 28
- 4/70 : MaterialFootprint_beryllium | 100.0% | Progress: 1 of 1
- 5/70 : MaterialFootprint_borates | 100.0% | Progress: 15 of 15
- 6/70 : MaterialFootprint_cadmium | 100.0% | Progress: 17 of 1
- 7/70 : MaterialFootprint_cement | 100.0% | Progress: 1555 of 1
- 8/70 : MaterialFootprint_cerium | 100.0% | Progress: 3 of 3
- 9/70 : MaterialFootprint_chromium | 100.0% | Progress: 473 of
- 10/70 : MaterialFootprint_coal(black) | 100.0% | Progress: 1738 of
- 11/70 : MaterialFootprint_coal(brown) | 100.0% | Progress: 589 of
- 12/70 : MaterialFootprint_cobalt | 100.0% | Progress: 166 of 16

```
 - 13/70 : MaterialFootprint_coke                | 100.0% | Progress:   110 of 11
 - 14/70 : MaterialFootprint_copper              | 100.0% | Progress:  1244 of 1
 - 15/70 : MaterialFootprint_dysprosium          | 100.0% | Progress:     1 of 1
 - 16/70 : MaterialFootprint_electricity         | 100.0% | Progress: 19360 of 1
 - 17/70 : MaterialFootprint_erbium              | 100.0% | Progress:     1 of 1
 - 18/70 : MaterialFootprint_europium            | 100.0% | Progress:     1 of 1
 - 19/70 : MaterialFootprint_fluorspar           | 100.0% | Progress:    29 of 29
 - 20/70 : MaterialFootprint_gadolinium          | 100.0% | Progress:     1 of 1
 - 21/70 : MaterialFootprint_gallium             | 100.0% | Progress:     4 of 4
 - 22/70 : MaterialFootprint_gold                | 100.0% | Progress:    11 of 11
 - 23/70 : MaterialFootprint_graphite            | 100.0% | Progress:    33 of 33
 - 24/70 : MaterialFootprint_helium              | 100.0% | Progress:    46 of 46
 - 25/70 : MaterialFootprint_holmium             | 100.0% | Progress:     1 of 1
 - 26/70 : MaterialFootprint_hydrogen            | 100.0% | Progress:   686 of
 - 27/70 : MaterialFootprint_indium              | 100.0% | Progress:    13 of 13
 - 28/70 : MaterialFootprint_latex               | 100.0% | Progress:    50 of 50
 - 29/70 : MaterialFootprint_lead                | 100.0% | Progress:   260 of 26
 - 30/70 : MaterialFootprint_lithium             | 100.0% | Progress:    52 of 52
 - 31/70 : MaterialFootprint_magnesium           | 100.0% | Progress:   312 o
 - 32/70 : MaterialFootprint_natural gas         | 100.0% | Progress:  4105 of
 - 33/70 : MaterialFootprint_nickel              | 100.0% | Progress:   436 of 43
 - 34/70 : MaterialFootprint_palladium           | 100.0% | Progress:    35 of 3
 - 35/70 : MaterialFootprint_petroleum           | 100.0% | Progress:   508 of
 - 36/70 : MaterialFootprint_phosphate rock      | 100.0% | Progress:   207 o
 - 37/70 : MaterialFootprint_platinum            | 100.0% | Progress:   171 of 1
 - 38/70 : MaterialFootprint_rare earth          | 100.0% | Progress:    37 of 37
 - 39/70 : MaterialFootprint_rhodium             | 100.0% | Progress:    11 of 11
 - 40/70 : MaterialFootprint_sand                | 100.0% | Progress:   611 of 61
 - 41/70 : MaterialFootprint_scandium            | 100.0% | Progress:     1 of 1
 - 42/70 : MaterialFootprint_selenium            | 100.0% | Progress:     9 of 9
 - 43/70 : MaterialFootprint_silicon             | 100.0% | Progress:   375 of 375
 - 44/70 : MaterialFootprint_silver              | 100.0% | Progress:    50 of 50
 - 45/70 : MaterialFootprint_strontium           | 100.0% | Progress:    28 of 28
 - 46/70 : MaterialFootprint_tantalum            | 100.0% | Progress:     3 of 3
 - 47/70 : MaterialFootprint_tellurium           | 100.0% | Progress:     2 of 2
 - 48/70 : MaterialFootprint_tin                 | 100.0% | Progress:   124 of 124
 - 49/70 : MaterialFootprint_titanium            | 100.0% | Progress:   457 of 45
 - 50/70 : MaterialFootprint_tungsten            | 100.0% | Progress:     5 of 5
 - 51/70 : MaterialFootprint_uranium             | 100.0% | Progress:   140 of 1
 - 52/70 : MaterialFootprint_vegetable oil       | 100.0% | Progress:    37 of 3
 - 53/70 : MaterialFootprint_water               | 100.0% | Progress: 11569 of 1
 - 54/70 : MaterialFootprint_zinc                | 100.0% | Progress:   670 of 670
 - 55/70 : MaterialFootprint_zirconium           | 100.0% | Progress:    11 of 1
 - 56/70 : WasteFootprint_carbondioxide-kilogram | 100.0% | Progress:  11
 - 57/70 : WasteFootprint_composting-kilogram    | 100.0% | Progress:   14
 - 58/70 : WasteFootprint_digestion-cubicmeter   | 100.0% | Progress:    6
 - 59/70 : WasteFootprint_digestion-kilogram     | 100.0% | Progress:    4 o
 - 60/70 : WasteFootprint_hazardous-cubicmeter   | 100.0% | Progress:   3
 - 61/70 : WasteFootprint_hazardous-kilogram     | 100.0% | Progress:  187
 - 62/70 : WasteFootprint_incineration-cubicmeter | 100.0% | Progress:    2
 - 63/70 : WasteFootprint_incineration-kilogram  | 100.0% | Progress:  2637
 - 64/70 : WasteFootprint_landfill-cubicmeter    | 100.0% | Progress:    2 of
 - 65/70 : WasteFootprint_landfill-kilogram      | 100.0% | Progress:  1712 o
 - 66/70 : WasteFootprint_openburning-kilogram   | 100.0% | Progress:   53
 - 67/70 : WasteFootprint_radioactive-cubicmeter | 100.0% | Progress:   30
 - 68/70 : WasteFootprint_recycling-kilogram     | 100.0% | Progress:   84 c
 - 69/70 : WasteFootprint_total-cubicmeter       | 100.0% | Progress:  4695 c
 - 70/70 : WasteFootprint_total-kilogram         | 100.0% | Progress: 30759 o
****************************************************************************************************

*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-Base_2020 in 0:25:16 (h:m:s) ***

****************************************************************************************************

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2020 in project TreX-premise-SSP2-cutoff **

        Score: -3.13e-21
        Method: Holmium
        Activity: transport, freight, lorry, diesel, 7.5t gross weight, 2020, EURO-VI, regional delivery
        Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2020
```

** Database verified successfully! **

==========

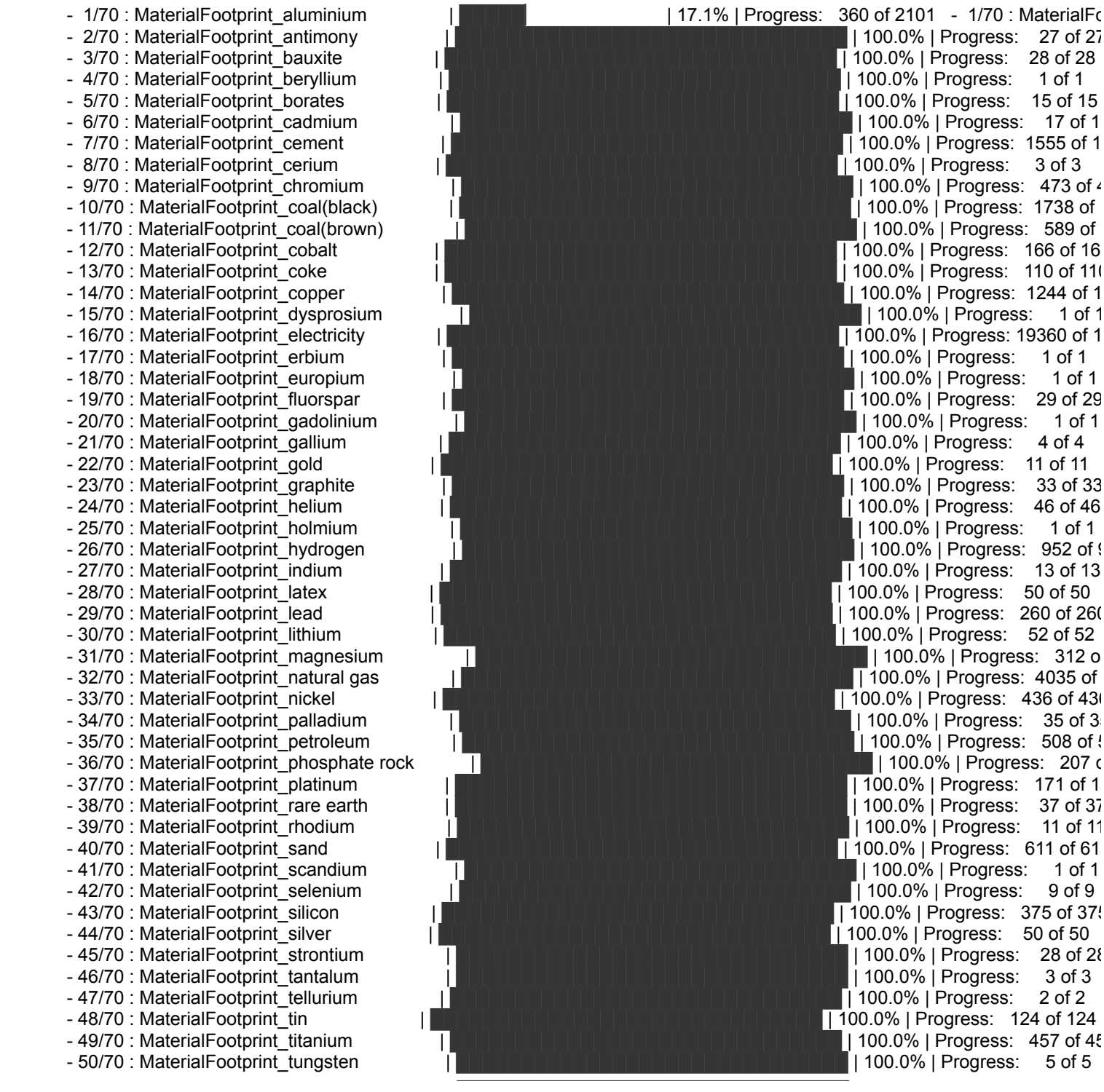
*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2020 ***
Duration: 0:25:29 (h:m:s)
*** Woah woah wee waa, great success!! ***

==========

** Processing database (3/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2025**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-Base_2025 ***

* Appending waste and material exchanges in biosphere_T-reX



- 51/70 : MaterialFootprint_uranium | | 100.0% | Progress: 140 of 1
- 52/70 : MaterialFootprint_vegetable oil | | 100.0% | Progress: 37 of 3
- 53/70 : MaterialFootprint_water | | 100.0% | Progress: 11569 of 1
- 54/70 : MaterialFootprint_zinc | | 100.0% | Progress: 670 of 67(
- 55/70 : MaterialFootprint_zirconium | | 100.0% | Progress: 11 of 1
- 56/70 : WasteFootprint_carbondioxide-kilogram | | 100.0% | Progress: 11
- 57/70 : WasteFootprint_composting-kilogram | | 100.0% | Progress: 14
- 58/70 : WasteFootprint_digestion-cubicmeter | | 100.0% | Progress: 6
- 59/70 : WasteFootprint_digestion-kilogram | | 100.0% | Progress: 4 o
- 60/70 : WasteFootprint_hazardous-cubicmeter | | 100.0% | Progress: 3(
- 61/70 : WasteFootprint_hazardous-kilogram | | 100.0% | Progress: 187
- 62/70 : WasteFootprint_incineration-cubicmeter | | 100.0% | Progress: 2
- 63/70 : WasteFootprint_incineration-kilogram | | 100.0% | Progress: 2637
- 64/70 : WasteFootprint_landfill-cubicmeter | | 100.0% | Progress: 2 of
- 65/70 : WasteFootprint_landfill-kilogram | | 100.0% | Progress: 1712 o
- 66/70 : WasteFootprint_openburning-kilogram | | 100.0% | Progress: 53
- 67/70 : WasteFootprint_radioactive-cubicmeter | | 100.0% | Progress: 30
- 68/70 : WasteFootprint_recycling-kilogram | | 100.0% | Progress: 84 c
- 69/70 : WasteFootprint_total-cubicmeter | | 100.0% | Progress: 4695 c
- 70/70 : WasteFootprint_total-kilogram | | 100.0% | Progress: 30759 o

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*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-Base_2025 in 0:24:17 (h:m:s) ***

****

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2025 in project TreX-premise-SSP2-cutoff **

Score: 0.00e+00
Method: Openburning (kg)
Activity: market for sulfidic tailings, from nickel mine operation
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2025

Score: 5.44e-09
Method: Hazardous (m3)
Activity: transport, freight, lorry, compressed gas, 18t gross weight, 2020, EURO-VI, regional delivery
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2025

** Database verified successfully! **

==========

*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2025 ***
Duration: 0:24:36 (h:m:s)
*** Woah woah wee waa, great success!! ***

==========

** Processing database (4/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2030**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-Base_2030 ***

* Appending waste and material exchanges in biosphere_T-reX

- 1/70 : MaterialFootprint_aluminium | | 100.0% | Progress: 2101 of
- 2/70 : MaterialFootprint_antimony | | 100.0% | Progress: 27 of 27
- 3/70 : MaterialFootprint_bauxite | | 100.0% | Progress: 28 of 28
- 4/70 : MaterialFootprint_beryllium | | 100.0% | Progress: 1 of 1
- 5/70 : MaterialFootprint_borates | | 100.0% | Progress: 15 of 15
- 6/70 : MaterialFootprint_cadmium | | 100.0% | Progress: 17 of 1
- 7/70 : MaterialFootprint_cement | | 100.0% | Progress: 1555 of 1
- 8/70 : MaterialFootprint_cerium | | 100.0% | Progress: 3 of 3
- 9/70 : MaterialFootprint_chromium | | 100.0% | Progress: 473 of 4
- 10/70 : MaterialFootprint_coal(black) | | 100.0% | Progress: 1738 of
- 11/70 : MaterialFootprint_coal(brown) | | 100.0% | Progress: 589 of
- 12/70 : MaterialFootprint_cobalt | | 100.0% | Progress: 166 of 16

- 13/70 : MaterialFootprint_coke | 100.0% | Progress: 110 of 11
- 14/70 : MaterialFootprint_copper | 100.0% | Progress: 1244 of 1
- 15/70 : MaterialFootprint_dysprosium | 100.0% | Progress: 1 of 1
- 16/70 : MaterialFootprint_electricity | 100.0% | Progress: 19360 of 1
- 17/70 : MaterialFootprint_erbium | 100.0% | Progress: 1 of 1
- 18/70 : MaterialFootprint_europium | 100.0% | Progress: 1 of 1
- 19/70 : MaterialFootprint_fluorspar | 100.0% | Progress: 29 of 29
- 20/70 : MaterialFootprint_gadolinium | 100.0% | Progress: 1 of 1
- 21/70 : MaterialFootprint_gallium | 100.0% | Progress: 4 of 4
- 22/70 : MaterialFootprint_gold | 100.0% | Progress: 11 of 11
- 23/70 : MaterialFootprint_graphite | 100.0% | Progress: 33 of 33
- 24/70 : MaterialFootprint_helium | 100.0% | Progress: 46 of 46
- 25/70 : MaterialFootprint_holmium | 100.0% | Progress: 1 of 1
- 26/70 : MaterialFootprint_hydrogen | 100.0% | Progress: 1204 of
- 27/70 : MaterialFootprint_indium | 100.0% | Progress: 13 of 13
- 28/70 : MaterialFootprint_latex | 100.0% | Progress: 50 of 50
- 29/70 : MaterialFootprint_lead | 100.0% | Progress: 260 of 26
- 30/70 : MaterialFootprint_lithium | 100.0% | Progress: 52 of 52
- 31/70 : MaterialFootprint_magnesium | 100.0% | Progress: 312 o
- 32/70 : MaterialFootprint_natural gas | 100.0% | Progress: 4021 of
- 33/70 : MaterialFootprint_nickel | 100.0% | Progress: 436 of 43
- 34/70 : MaterialFootprint_palladium | 100.0% | Progress: 35 of 3
- 35/70 : MaterialFootprint_petroleum | 100.0% | Progress: 508 of 5
- 36/70 : MaterialFootprint_phosphate rock | 100.0% | Progress: 207 o
- 37/70 : MaterialFootprint_platinum | 100.0% | Progress: 171 of 1
- 38/70 : MaterialFootprint_rare earth | 100.0% | Progress: 37 of 37
- 39/70 : MaterialFootprint_rhodium | 100.0% | Progress: 11 of 11
- 40/70 : MaterialFootprint_sand | 100.0% | Progress: 611 of 61
- 41/70 : MaterialFootprint_scandium | 100.0% | Progress: 1 of 1
- 42/70 : MaterialFootprint_selenium | 100.0% | Progress: 9 of 9
- 43/70 : MaterialFootprint_silicon | 100.0% | Progress: 375 of 375
- 44/70 : MaterialFootprint_silver | 100.0% | Progress: 50 of 50
- 45/70 : MaterialFootprint_strontium | 100.0% | Progress: 28 of 28
- 46/70 : MaterialFootprint_tantalum | 100.0% | Progress: 3 of 3
- 47/70 : MaterialFootprint_tellurium | 100.0% | Progress: 2 of 2
- 48/70 : MaterialFootprint_tin | 100.0% | Progress: 124 of 124
- 49/70 : MaterialFootprint_titanium | 100.0% | Progress: 457 of 45
- 50/70 : MaterialFootprint_tungsten | 100.0% | Progress: 5 of 5
- 51/70 : MaterialFootprint_uranium | 100.0% | Progress: 140 of 1
- 52/70 : MaterialFootprint_vegetable oil | 100.0% | Progress: 37 of 3
- 53/70 : MaterialFootprint_water | 100.0% | Progress: 11569 of 1
- 54/70 : MaterialFootprint_zinc | 100.0% | Progress: 670 of 670
- 55/70 : MaterialFootprint_zirconium | 100.0% | Progress: 11 of 11
- 56/70 : WasteFootprint_carbondioxide-kilogram | 100.0% | Progress: 11
- 57/70 : WasteFootprint_composting-kilogram | 100.0% | Progress: 14
- 58/70 : WasteFootprint_digestion-cubicmeter | 100.0% | Progress: 6
- 59/70 : WasteFootprint_digestion-kilogram | 100.0% | Progress: 4 o
- 60/70 : WasteFootprint_hazardous-cubicmeter | 100.0% | Progress: 3
- 61/70 : WasteFootprint_hazardous-kilogram | 100.0% | Progress: 187
- 62/70 : WasteFootprint_incineration-cubicmeter | 100.0% | Progress: 2
- 63/70 : WasteFootprint_incineration-kilogram | 100.0% | Progress: 2637
- 64/70 : WasteFootprint_landfill-cubicmeter | 100.0% | Progress: 2 of
- 65/70 : WasteFootprint_landfill-kilogram | 100.0% | Progress: 1712 o
- 66/70 : WasteFootprint_openburning-kilogram | 100.0% | Progress: 53
- 67/70 : WasteFootprint_radioactive-cubicmeter | 100.0% | Progress: 30
- 68/70 : WasteFootprint_recycling-kilogram | 100.0% | Progress: 84 c
- 69/70 : WasteFootprint_total-cubicmeter | 100.0% | Progress: 4695 c
- 70/70 : WasteFootprint_total-kilogram | 100.0% | Progress: 30759 o

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*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-Base_2030 in 0:24:21 (h:m:s) ***

****

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2030 in project TreX-premise-SSP2-cutoff **

Score: 6.41e-01
Method: Landfill (kg)
Activity: diesel production, from methanol, hydrogen from coal gasification, with CCS, economic allocation
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2030

** Database verified successfully! **

==========

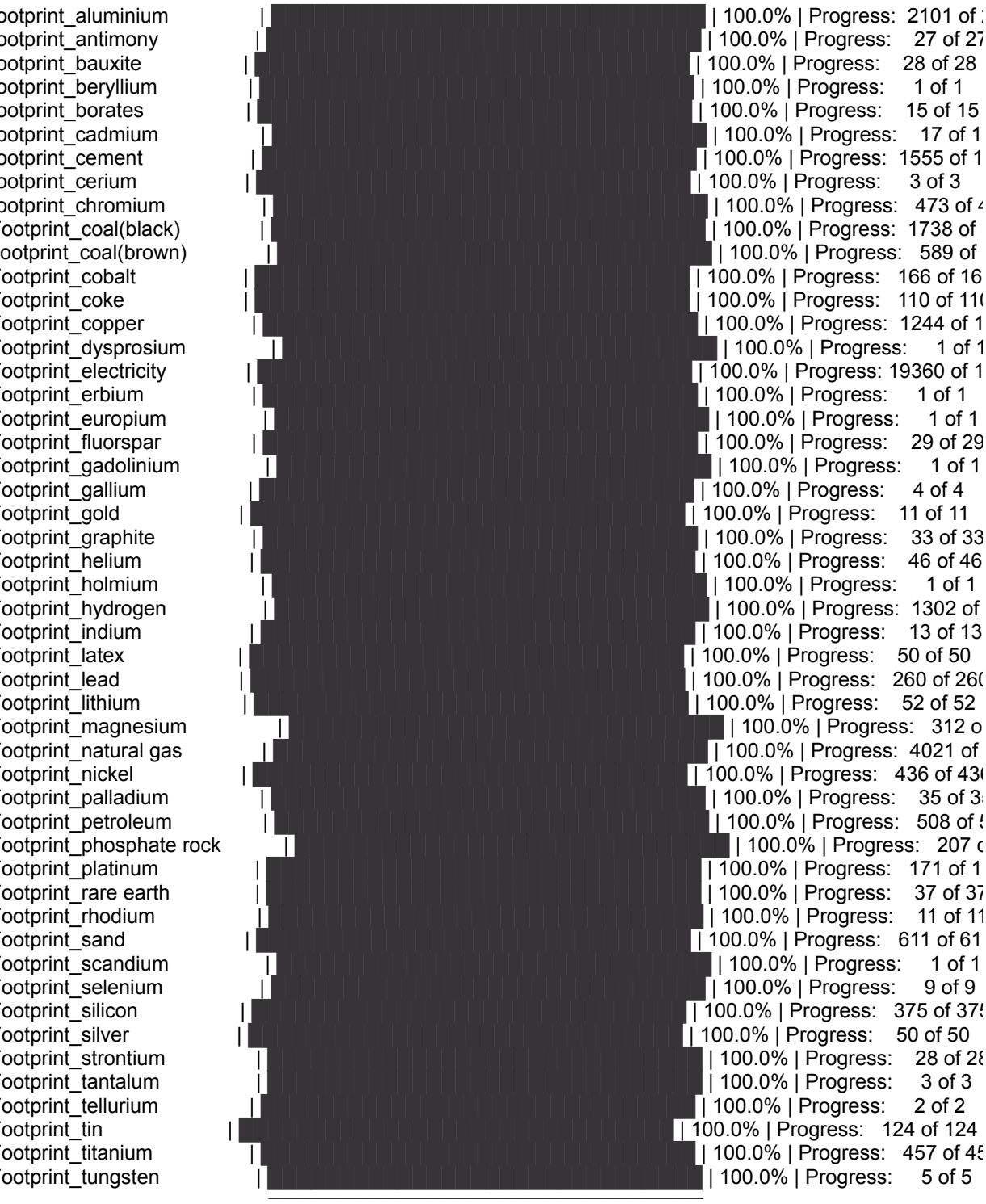
*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2030 ***
Duration: 0:24:36 (h:m:s)
*** Woah woah wee waa, great success!! ***

==========

** Processing database (5/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2035**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-Base_2035 ***

* Appending waste and material exchanges in biosphere_T-reX



- 51/70 : MaterialFootprint_uranium | | 100.0% | Progress: 140 of 1
- 52/70 : MaterialFootprint_vegetable oil | | 100.0% | Progress: 37 of 3
- 53/70 : MaterialFootprint_water | | 100.0% | Progress: 11569 of 1
- 54/70 : MaterialFootprint_zinc | | 100.0% | Progress: 670 of 67(
- 55/70 : MaterialFootprint_zirconium | | 100.0% | Progress: 11 of 1
- 56/70 : WasteFootprint_carbondioxide-kilogram | | 100.0% | Progress: 11
- 57/70 : WasteFootprint_composting-kilogram | | 100.0% | Progress: 14
- 58/70 : WasteFootprint_digestion-cubicmeter | | 100.0% | Progress: 6
- 59/70 : WasteFootprint_digestion-kilogram | | 100.0% | Progress: 4 o
- 60/70 : WasteFootprint_hazardous-cubicmeter | | 100.0% | Progress: 3(
- 61/70 : WasteFootprint_hazardous-kilogram | | 100.0% | Progress: 187
- 62/70 : WasteFootprint_incineration-cubicmeter | | 100.0% | Progress: 2
- 63/70 : WasteFootprint_incineration-kilogram | | 100.0% | Progress: 2637
- 64/70 : WasteFootprint_landfill-cubicmeter | | 100.0% | Progress: 2 of
- 65/70 : WasteFootprint_landfill-kilogram | | 100.0% | Progress: 1712 o
- 66/70 : WasteFootprint_openburning-kilogram | | 100.0% | Progress: 53
- 67/70 : WasteFootprint_radioactive-cubicmeter | | 100.0% | Progress: 30
- 68/70 : WasteFootprint_recycling-kilogram | | 100.0% | Progress: 84 c
- 69/70 : WasteFootprint_total-cubicmeter | | 100.0% | Progress: 4695 c
- 70/70 : WasteFootprint_total-kilogram | | 100.0% | Progress: 30759 o

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*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-Base_2035 in 0:24:23 (h:m:s) ***

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** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2035 in project TreX-premise-SSP2-cutoff **

Score: 1.46e-03
Method: Cement
Activity: grass production, permanent grassland, organic, extensive
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2035

** Database verified successfully! **

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*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2035 ***
Duration: 0:24:37 (h:m:s)
*** Woah woah wee waa, great success!! ***

==========

** Processing database (6/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2040**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-Base_2040 ***

* Appending waste and material exchanges in biosphere_T-reX

- 1/70 : MaterialFootprint_aluminium | | 100.0% | Progress: 2101 of
- 2/70 : MaterialFootprint_antimony | | 100.0% | Progress: 27 of 27
- 3/70 : MaterialFootprint_bauxite | | 100.0% | Progress: 28 of 28
- 4/70 : MaterialFootprint_beryllium | | 100.0% | Progress: 1 of 1
- 5/70 : MaterialFootprint_borates | | 100.0% | Progress: 15 of 15
- 6/70 : MaterialFootprint_cadmium | | 100.0% | Progress: 17 of 1
- 7/70 : MaterialFootprint_cement | | 100.0% | Progress: 1555 of 1
- 8/70 : MaterialFootprint_cerium | | 100.0% | Progress: 3 of 3
- 9/70 : MaterialFootprint_chromium | | 100.0% | Progress: 473 of 4
- 10/70 : MaterialFootprint_coal(black) | | 100.0% | Progress: 1738 of
- 11/70 : MaterialFootprint_coal(brown) | | 100.0% | Progress: 589 of
- 12/70 : MaterialFootprint_cobalt | | 100.0% | Progress: 166 of 16
- 13/70 : MaterialFootprint_coke | | 100.0% | Progress: 110 of 11(
- 14/70 : MaterialFootprint_copper | | 100.0% | Progress: 1244 of 1
- 15/70 : MaterialFootprint_dysprosium | | 100.0% | Progress: 1 of 1
- 16/70 : MaterialFootprint_electricity | | 100.0% | Progress: 19360 of 1
- 17/70 : MaterialFootprint_erbium | | 100.0% | Progress: 1 of 1

```
 - 18/70 : MaterialFootprint_europium                | 100.0% | Progress:     1 of 1
 - 19/70 : MaterialFootprint_fluorspar               | 100.0% | Progress:    29 of 29
 - 20/70 : MaterialFootprint_gadolinium              | 100.0% | Progress:     1 of 1
 - 21/70 : MaterialFootprint_gallium                 | 100.0% | Progress:     4 of 4
 - 22/70 : MaterialFootprint_gold                    | 100.0% | Progress:    11 of 11
 - 23/70 : MaterialFootprint_graphite                | 100.0% | Progress:    33 of 33
 - 24/70 : MaterialFootprint_helium                  | 100.0% | Progress:    46 of 46
 - 25/70 : MaterialFootprint_holmium                 | 100.0% | Progress:     1 of 1
 - 26/70 : MaterialFootprint_hydrogen                | 100.0% | Progress:  1372 of
 - 27/70 : MaterialFootprint_indium                  | 100.0% | Progress:    13 of 13
 - 28/70 : MaterialFootprint_latex                   | 100.0% | Progress:    50 of 50
 - 29/70 : MaterialFootprint_lead                    | 100.0% | Progress:   260 of 26(
 - 30/70 : MaterialFootprint_lithium                 | 100.0% | Progress:    52 of 52
 - 31/70 : MaterialFootprint_magnesium               | 100.0% | Progress:   312 o
 - 32/70 : MaterialFootprint_natural gas             | 100.0% | Progress:  4035 of
 - 33/70 : MaterialFootprint_nickel                  | 100.0% | Progress:   436 of 43(
 - 34/70 : MaterialFootprint_palladium               | 100.0% | Progress:    35 of 3
 - 35/70 : MaterialFootprint_petroleum               | 100.0% | Progress:   508 of
 - 36/70 : MaterialFootprint_phosphate rock          | 100.0% | Progress:   207 (
 - 37/70 : MaterialFootprint_platinum                | 100.0% | Progress:   171 of 1
 - 38/70 : MaterialFootprint_rare earth              | 100.0% | Progress:    37 of 37
 - 39/70 : MaterialFootprint_rhodium                 | 100.0% | Progress:    11 of 11
 - 40/70 : MaterialFootprint_sand                    | 100.0% | Progress:   611 of 61
 - 41/70 : MaterialFootprint_scandium                | 100.0% | Progress:     1 of 1
 - 42/70 : MaterialFootprint_selenium                | 100.0% | Progress:     9 of 9
 - 43/70 : MaterialFootprint_silicon                 | 100.0% | Progress:   375 of 375
 - 44/70 : MaterialFootprint_silver                  | 100.0% | Progress:    50 of 50
 - 45/70 : MaterialFootprint_strontium               | 100.0% | Progress:    28 of 28
 - 46/70 : MaterialFootprint_tantalum                | 100.0% | Progress:     3 of 3
 - 47/70 : MaterialFootprint_tellurium               | 100.0% | Progress:     2 of 2
 - 48/70 : MaterialFootprint_tin                     | 100.0% | Progress:   124 of 124
 - 49/70 : MaterialFootprint_titanium                | 100.0% | Progress:   457 of 45
 - 50/70 : MaterialFootprint_tungsten                | 100.0% | Progress:     5 of 5
 - 51/70 : MaterialFootprint_uranium                 | 100.0% | Progress:   140 of 1
 - 52/70 : MaterialFootprint_vegetable oil           | 100.0% | Progress:    37 of 3
 - 53/70 : MaterialFootprint_water                   | 100.0% | Progress: 11569 of 1
 - 54/70 : MaterialFootprint_zinc                    | 100.0% | Progress:   670 of 670
 - 55/70 : MaterialFootprint_zirconium               | 100.0% | Progress:    11 of 1
 - 56/70 : WasteFootprint_carbondioxide-kilogram     | 100.0% | Progress:  11
 - 57/70 : WasteFootprint_composting-kilogram        | 100.0% | Progress:   14
 - 58/70 : WasteFootprint_digestion-cubicmeter       | 100.0% | Progress:     6
 - 59/70 : WasteFootprint_digestion-kilogram         | 100.0% | Progress:     4 o
 - 60/70 : WasteFootprint_hazardous-cubicmeter       | 100.0% | Progress:    3(
 - 61/70 : WasteFootprint_hazardous-kilogram         | 100.0% | Progress:  187
 - 62/70 : WasteFootprint_incineration-cubicmeter    | 100.0% | Progress:     2
 - 63/70 : WasteFootprint_incineration-kilogram      | 100.0% | Progress:  2637
 - 64/70 : WasteFootprint_landfill-cubicmeter        | 100.0% | Progress:     2 of
 - 65/70 : WasteFootprint_landfill-kilogram          | 100.0% | Progress:  1712 o
 - 66/70 : WasteFootprint_openburning-kilogram       | 100.0% | Progress:    53
 - 67/70 : WasteFootprint_radioactive-cubicmeter     | 100.0% | Progress:    30
 - 68/70 : WasteFootprint_recycling-kilogram         | 100.0% | Progress:    84 (
 - 69/70 : WasteFootprint_total-cubicmeter           | 100.0% | Progress:  4695 (
 - 70/70 : WasteFootprint_total-kilogram             | 100.0% | Progress: 30759 o
****************************************************************************************************

 *** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-Base_2040 in 0:24:24 (h:m:s) ***

 ****************************************************************************************************

 ** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2040 in project TreX-premise-SSP2-cutoff **

       Score: 6.77e-04
       Method: Openburning (kg)
       Activity: market for methyl ethyl ketone
       Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2040

 ** Database verified successfully! **

 ====================================================================================================
       *** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2040 ***
             Duration: 0:24:40 (h:m:s)
```

*** Woah woah wee waa, great success!! ***

==========

** Processing database (7/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2045**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-Base_2045 ***

* Appending waste and material exchanges in biosphere_T-reX

- 1/70 : MaterialFootprint_aluminium | 100.0% | Progress: 2101 of
- 2/70 : MaterialFootprint_antimony | 100.0% | Progress: 27 of 27
- 3/70 : MaterialFootprint_bauxite | 100.0% | Progress: 28 of 28
- 4/70 : MaterialFootprint_beryllium | 100.0% | Progress: 1 of 1
- 5/70 : MaterialFootprint_borates | 100.0% | Progress: 15 of 15
- 6/70 : MaterialFootprint_cadmium | 100.0% | Progress: 17 of 1
- 7/70 : MaterialFootprint_cement | 100.0% | Progress: 1555 of 1
- 8/70 : MaterialFootprint_cerium | 100.0% | Progress: 3 of 3
- 9/70 : MaterialFootprint_chromium | 100.0% | Progress: 473 of
- 10/70 : MaterialFootprint_coal(black) | 100.0% | Progress: 1738 of
- 11/70 : MaterialFootprint_coal(brown) | 100.0% | Progress: 589 of
- 12/70 : MaterialFootprint_cobalt | 100.0% | Progress: 166 of 16
- 13/70 : MaterialFootprint_coke | 100.0% | Progress: 110 of 11
- 14/70 : MaterialFootprint_copper | 100.0% | Progress: 1244 of 1
- 15/70 : MaterialFootprint_dysprosium | 100.0% | Progress: 1 of 1
- 16/70 : MaterialFootprint_electricity | 100.0% | Progress: 19360 of 1
- 17/70 : MaterialFootprint_erbium | 100.0% | Progress: 1 of 1
- 18/70 : MaterialFootprint_europium | 100.0% | Progress: 1 of 1
- 19/70 : MaterialFootprint_fluorspar | 100.0% | Progress: 29 of 29
- 20/70 : MaterialFootprint_gadolinium | 100.0% | Progress: 1 of 1
- 21/70 : MaterialFootprint_gallium | 100.0% | Progress: 4 of 4
- 22/70 : MaterialFootprint_gold | 100.0% | Progress: 11 of 11
- 23/70 : MaterialFootprint_graphite | 100.0% | Progress: 33 of 33
- 24/70 : MaterialFootprint_helium | 100.0% | Progress: 46 of 46
- 25/70 : MaterialFootprint_holmium | 100.0% | Progress: 1 of 1
- 26/70 : MaterialFootprint_hydrogen | 100.0% | Progress: 1372 of
- 27/70 : MaterialFootprint_indium | 100.0% | Progress: 13 of 13
- 28/70 : MaterialFootprint_latex | 100.0% | Progress: 50 of 50
- 29/70 : MaterialFootprint_lead | 100.0% | Progress: 260 of 26
- 30/70 : MaterialFootprint_lithium | 100.0% | Progress: 52 of 52
- 31/70 : MaterialFootprint_magnesium | 100.0% | Progress: 312 o
- 32/70 : MaterialFootprint_natural gas | 100.0% | Progress: 4035 of
- 33/70 : MaterialFootprint_nickel | 100.0% | Progress: 436 of 43
- 34/70 : MaterialFootprint_palladium | 100.0% | Progress: 35 of 3
- 35/70 : MaterialFootprint_petroleum | 100.0% | Progress: 508 of
- 36/70 : MaterialFootprint_phosphate rock | 100.0% | Progress: 207 o
- 37/70 : MaterialFootprint_platinum | 100.0% | Progress: 171 of 1
- 38/70 : MaterialFootprint_rare earth | 100.0% | Progress: 37 of 37
- 39/70 : MaterialFootprint_rhodium | 100.0% | Progress: 11 of 11
- 40/70 : MaterialFootprint_sand | 100.0% | Progress: 611 of 61
- 41/70 : MaterialFootprint_scandium | 100.0% | Progress: 1 of 1
- 42/70 : MaterialFootprint_selenium | 100.0% | Progress: 9 of 9
- 43/70 : MaterialFootprint_silicon | 100.0% | Progress: 375 of 375
- 44/70 : MaterialFootprint_silver | 100.0% | Progress: 50 of 50
- 45/70 : MaterialFootprint_strontium | 100.0% | Progress: 28 of 28
- 46/70 : MaterialFootprint_tantalum | 100.0% | Progress: 3 of 3
- 47/70 : MaterialFootprint_tellurium | 100.0% | Progress: 2 of 2
- 48/70 : MaterialFootprint_tin | 100.0% | Progress: 124 of 124
- 49/70 : MaterialFootprint_titanium | 100.0% | Progress: 457 of 45
- 50/70 : MaterialFootprint_tungsten | 100.0% | Progress: 5 of 5
- 51/70 : MaterialFootprint_uranium | 100.0% | Progress: 140 of 1
- 52/70 : MaterialFootprint_vegetable oil | 100.0% | Progress: 37 of 3
- 53/70 : MaterialFootprint_water | 100.0% | Progress: 11569 of 1
- 54/70 : MaterialFootprint_zinc | 100.0% | Progress: 670 of 670
- 55/70 : MaterialFootprint_zirconium | 100.0% | Progress: 11 of 1

- 56/70 : WasteFootprint_carbondioxide-kilogram | | 100.0% | Progress: 11
- 57/70 : WasteFootprint_composting-kilogram | | 100.0% | Progress: 14
- 58/70 : WasteFootprint_digestion-cubicmeter | | 100.0% | Progress: 6
- 59/70 : WasteFootprint_digestion-kilogram | | 100.0% | Progress: 4 o
- 60/70 : WasteFootprint_hazardous-cubicmeter | | 100.0% | Progress: 3(
- 61/70 : WasteFootprint_hazardous-kilogram | | 100.0% | Progress: 187
- 62/70 : WasteFootprint_incineration-cubicmeter | | 100.0% | Progress: 2
- 63/70 : WasteFootprint_incineration-kilogram | | 100.0% | Progress: 2637
- 64/70 : WasteFootprint_landfill-cubicmeter | | 100.0% | Progress: 2 of
- 65/70 : WasteFootprint_landfill-kilogram | | 100.0% | Progress: 1712 o
- 66/70 : WasteFootprint_openburning-kilogram | | 100.0% | Progress: 53
- 67/70 : WasteFootprint_radioactive-cubicmeter | | 100.0% | Progress: 30
- 68/70 : WasteFootprint_recycling-kilogram | | 100.0% | Progress: 84 c
- 69/70 : WasteFootprint_total-cubicmeter | | 100.0% | Progress: 4695 c
- 70/70 : WasteFootprint_total-kilogram | | 100.0% | Progress: 30759 o

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*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-Base_2045 in 0:24:23 (h:m:s) ***

****

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2045 in project TreX-premise-SSP2-cutoff **

Score: 1.26e-08
Method: Rare earth
Activity: heat production, mixed logs, at furnace 100kW
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2045

** Database verified successfully! **

==========

*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2045 ***
Duration: 0:24:40 (h:m:s)
*** Woah woah wee waa, great success!! ***

==========

** Processing database (8/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2050**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-Base_2050 ***

* Appending waste and material exchanges in biosphere_T-reX

- 1/70 : MaterialFootprint_aluminium | | 100.0% | Progress: 2101 of
- 2/70 : MaterialFootprint_antimony | | 100.0% | Progress: 27 of 27
- 3/70 : MaterialFootprint_bauxite | | 100.0% | Progress: 28 of 28
- 4/70 : MaterialFootprint_beryllium | | 100.0% | Progress: 1 of 1
- 5/70 : MaterialFootprint_borates | | 100.0% | Progress: 15 of 15
- 6/70 : MaterialFootprint_cadmium | | 100.0% | Progress: 17 of 1
- 7/70 : MaterialFootprint_cement | | 100.0% | Progress: 1555 of 1
- 8/70 : MaterialFootprint_cerium | | 100.0% | Progress: 3 of 3
- 9/70 : MaterialFootprint_chromium | | 100.0% | Progress: 473 of
- 10/70 : MaterialFootprint_coal(black) | | 100.0% | Progress: 1738 of
- 11/70 : MaterialFootprint_coal(brown) | | 100.0% | Progress: 589 of
- 12/70 : MaterialFootprint_cobalt | | 100.0% | Progress: 166 of 16
- 13/70 : MaterialFootprint_coke | | 100.0% | Progress: 110 of 11
- 14/70 : MaterialFootprint_copper | | 100.0% | Progress: 1244 of 1
- 15/70 : MaterialFootprint_dysprosium | | 100.0% | Progress: 1 of 1
- 16/70 : MaterialFootprint_electricity | | 100.0% | Progress: 19360 of 1
- 17/70 : MaterialFootprint_erbium | | 100.0% | Progress: 1 of 1
- 18/70 : MaterialFootprint_europium | | 100.0% | Progress: 1 of 1
- 19/70 : MaterialFootprint_fluorspar | | 100.0% | Progress: 29 of 29
- 20/70 : MaterialFootprint_gadolinium | | 100.0% | Progress: 1 of 1
- 21/70 : MaterialFootprint_gallium | | 100.0% | Progress: 4 of 4
- 22/70 : MaterialFootprint_gold | | 100.0% | Progress: 11 of 11

```
 - 23/70 : MaterialFootprint_graphite                | 100.0% | Progress:    33 of 33
 - 24/70 : MaterialFootprint_helium                  | 100.0% | Progress:    46 of 46
 - 25/70 : MaterialFootprint_holmium                 | 100.0% | Progress:     1 of 1
 - 26/70 : MaterialFootprint_hydrogen                | 100.0% | Progress:  1372 of
 - 27/70 : MaterialFootprint_indium                  | 100.0% | Progress:    13 of 13
 - 28/70 : MaterialFootprint_latex                   | 100.0% | Progress:    50 of 50
 - 29/70 : MaterialFootprint_lead                    | 100.0% | Progress:   260 of 26(
 - 30/70 : MaterialFootprint_lithium                 | 100.0% | Progress:    52 of 52
 - 31/70 : MaterialFootprint_magnesium               | 100.0% | Progress:   312 o
 - 32/70 : MaterialFootprint_natural gas             | 100.0% | Progress:  4035 of
 - 33/70 : MaterialFootprint_nickel                  | 100.0% | Progress:   436 of 43(
 - 34/70 : MaterialFootprint_palladium               | 100.0% | Progress:    35 of 3
 - 35/70 : MaterialFootprint_petroleum               | 100.0% | Progress:   508 of 5
 - 36/70 : MaterialFootprint_phosphate rock          | 100.0% | Progress:   207 c
 - 37/70 : MaterialFootprint_platinum                | 100.0% | Progress:   171 of 1
 - 38/70 : MaterialFootprint_rare earth              | 100.0% | Progress:    37 of 37
 - 39/70 : MaterialFootprint_rhodium                 | 100.0% | Progress:    11 of 11
 - 40/70 : MaterialFootprint_sand                    | 100.0% | Progress:   611 of 61
 - 41/70 : MaterialFootprint_scandium                | 100.0% | Progress:     1 of 1
 - 42/70 : MaterialFootprint_selenium                | 100.0% | Progress:     9 of 9
 - 43/70 : MaterialFootprint_silicon                 | 100.0% | Progress:   375 of 375
 - 44/70 : MaterialFootprint_silver                  | 100.0% | Progress:    50 of 50
 - 45/70 : MaterialFootprint_strontium               | 100.0% | Progress:    28 of 28
 - 46/70 : MaterialFootprint_tantalum                | 100.0% | Progress:     3 of 3
 - 47/70 : MaterialFootprint_tellurium               | 100.0% | Progress:     2 of 2
 - 48/70 : MaterialFootprint_tin                     | 100.0% | Progress:   124 of 124
 - 49/70 : MaterialFootprint_titanium                | 100.0% | Progress:   457 of 45
 - 50/70 : MaterialFootprint_tungsten                | 100.0% | Progress:     5 of 5
 - 51/70 : MaterialFootprint_uranium                 | 100.0% | Progress:   140 of 1
 - 52/70 : MaterialFootprint_vegetable oil           | 100.0% | Progress:    37 of 3
 - 53/70 : MaterialFootprint_water                   | 100.0% | Progress: 11569 of 1
 - 54/70 : MaterialFootprint_zinc                    | 100.0% | Progress:   670 of 670
 - 55/70 : MaterialFootprint_zirconium               | 100.0% | Progress:    11 of 11
 - 56/70 : WasteFootprint_carbondioxide-kilogram     | 100.0% | Progress:  11
 - 57/70 : WasteFootprint_composting-kilogram        | 100.0% | Progress:    14
 - 58/70 : WasteFootprint_digestion-cubicmeter       | 100.0% | Progress:     6
 - 59/70 : WasteFootprint_digestion-kilogram         | 100.0% | Progress:     4 o
 - 60/70 : WasteFootprint_hazardous-cubicmeter       | 100.0% | Progress:    3(
 - 61/70 : WasteFootprint_hazardous-kilogram         | 100.0% | Progress:   187
 - 62/70 : WasteFootprint_incineration-cubicmeter    | 100.0% | Progress:     2
 - 63/70 : WasteFootprint_incineration-kilogram      | 100.0% | Progress:  2637
 - 64/70 : WasteFootprint_landfill-cubicmeter        | 100.0% | Progress:     2 of
 - 65/70 : WasteFootprint_landfill-kilogram          | 100.0% | Progress:  1712 of
 - 66/70 : WasteFootprint_openburning-kilogram       | 100.0% | Progress:    53
 - 67/70 : WasteFootprint_radioactive-cubicmeter     | 100.0% | Progress:    30
 - 68/70 : WasteFootprint_recycling-kilogram         | 100.0% | Progress:    84 c
 - 69/70 : WasteFootprint_total-cubicmeter           | 100.0% | Progress:  4695 c
 - 70/70 : WasteFootprint_total-kilogram             | 100.0% | Progress: 30759 o
**********************************************************************************************************

 *** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-Base_2050 in 0:24:28 (h:m:s) ***

**********************************************************************************************************

 ** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2050 in project TreX-premise-SSP2-cutoff **

       Score: 7.56e+04
       Method: Coke
       Activity: Medium duty truck, diesel, 18t gross weight, 2005, EURO-IV, long haul
       Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2050

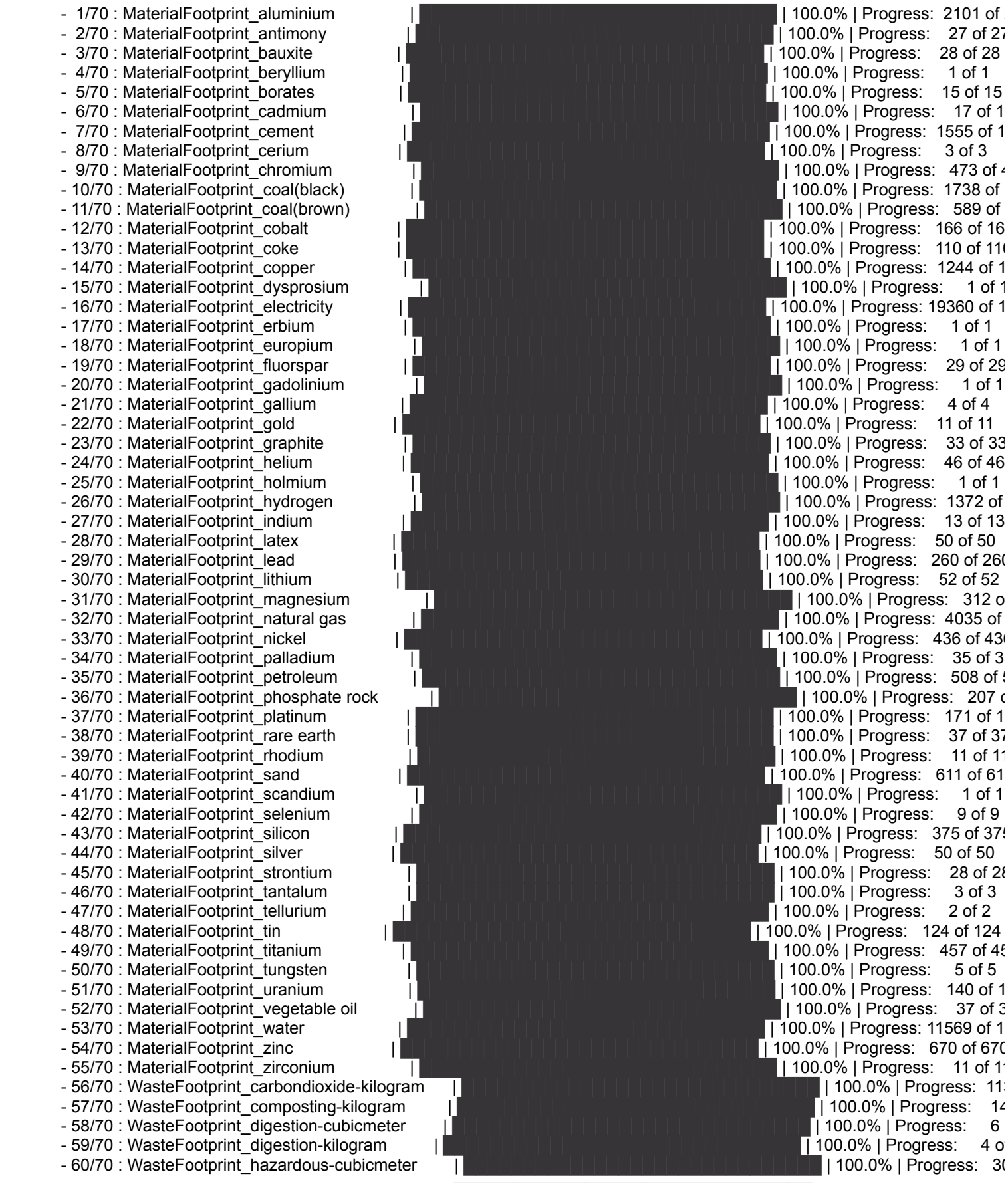
 ** Database verified successfully! **

 ==========================================================================================
       *** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2050 ***
                Duration: 0:24:44 (h:m:s)
       *** Woah woah wee waa, great success!! ***
 ==========================================================================================
 ------------------------------------------------------------------------------
```

** Processing database (9/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2055**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-Base_2055 ***

* Appending waste and material exchanges in biosphere_T-reX



- 61/70 : WasteFootprint_hazardous-kilogram | 100.0% | Progress: 187
- 62/70 : WasteFootprint_incineration-cubicmeter | 100.0% | Progress: 2
- 63/70 : WasteFootprint_incineration-kilogram | 100.0% | Progress: 2637
- 64/70 : WasteFootprint_landfill-cubicmeter | 100.0% | Progress: 2 of
- 65/70 : WasteFootprint_landfill-kilogram | 100.0% | Progress: 1712 o
- 66/70 : WasteFootprint_openburning-kilogram | 100.0% | Progress: 53
- 67/70 : WasteFootprint_radioactive-cubicmeter | 100.0% | Progress: 30
- 68/70 : WasteFootprint_recycling-kilogram | 100.0% | Progress: 84 c
- 69/70 : WasteFootprint_total-cubicmeter | 100.0% | Progress: 4695 c
- 70/70 : WasteFootprint_total-kilogram | 100.0% | Progress: 30759 o

****

*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-Base_2055 in 0:24:21 (h:m:s) ***

****

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2055 in project TreX-premise-SSP2-cutoff **

Score: 1.15e-01
Method: Electricity
Activity: chloroacetic acid production
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2055

** Database verified successfully! **

==========

*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2055 ***
Duration: 0:24:39 (h:m:s)
*** Woah woah wee waa, great success!! ***

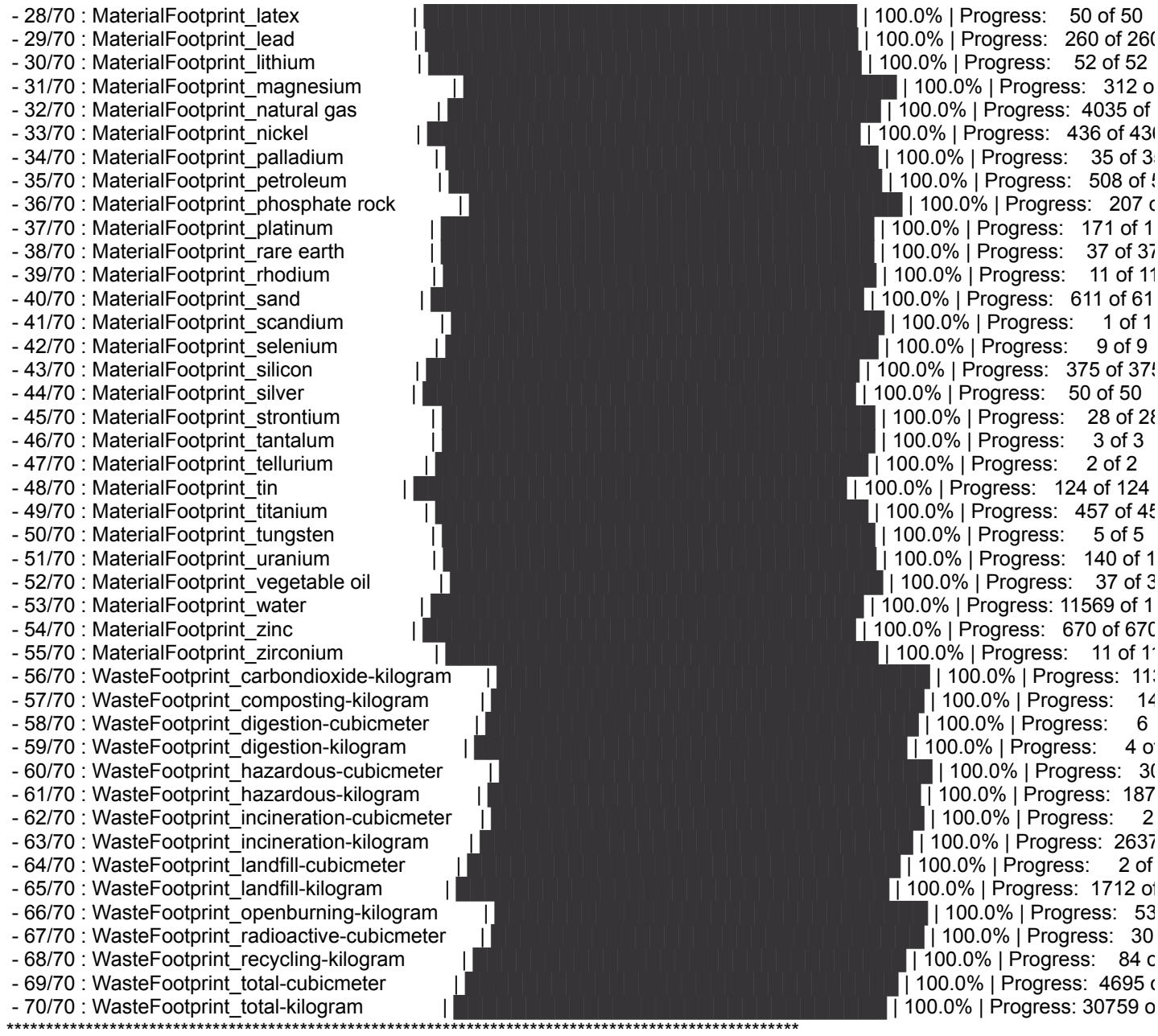
==========

** Processing database (10/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2060**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-Base_2060 ***

* Appending waste and material exchanges in biosphere_T-reX

- 1/70 : MaterialFootprint_aluminium | 100.0% | Progress: 2101 of
- 2/70 : MaterialFootprint_antimony | 100.0% | Progress: 27 of 27
- 3/70 : MaterialFootprint_bauxite | 100.0% | Progress: 28 of 28
- 4/70 : MaterialFootprint_beryllium | 100.0% | Progress: 1 of 1
- 5/70 : MaterialFootprint_borates | 100.0% | Progress: 15 of 15
- 6/70 : MaterialFootprint_cadmium | 100.0% | Progress: 17 of 1
- 7/70 : MaterialFootprint_cement | 100.0% | Progress: 1555 of 1
- 8/70 : MaterialFootprint_cerium | 100.0% | Progress: 3 of 3
- 9/70 : MaterialFootprint_chromium | 100.0% | Progress: 473 of 4
- 10/70 : MaterialFootprint_coal(black) | 100.0% | Progress: 1738 of
- 11/70 : MaterialFootprint_coal(brown) | 100.0% | Progress: 589 of
- 12/70 : MaterialFootprint_cobalt | 100.0% | Progress: 166 of 16
- 13/70 : MaterialFootprint_coke | 100.0% | Progress: 110 of 11
- 14/70 : MaterialFootprint_copper | 100.0% | Progress: 1244 of 1
- 15/70 : MaterialFootprint_dysprosium | 100.0% | Progress: 1 of 1
- 16/70 : MaterialFootprint_electricity | 100.0% | Progress: 19360 of 1
- 17/70 : MaterialFootprint_erbium | 100.0% | Progress: 1 of 1
- 18/70 : MaterialFootprint_europium | 100.0% | Progress: 1 of 1
- 19/70 : MaterialFootprint_fluorspar | 100.0% | Progress: 29 of 29
- 20/70 : MaterialFootprint_gadolinium | 100.0% | Progress: 1 of 1
- 21/70 : MaterialFootprint_gallium | 100.0% | Progress: 4 of 4
- 22/70 : MaterialFootprint_gold | 100.0% | Progress: 11 of 11
- 23/70 : MaterialFootprint_graphite | 100.0% | Progress: 33 of 33
- 24/70 : MaterialFootprint_helium | 100.0% | Progress: 46 of 46
- 25/70 : MaterialFootprint_holmium | 100.0% | Progress: 1 of 1
- 26/70 : MaterialFootprint_hydrogen | 100.0% | Progress: 1372 of
- 27/70 : MaterialFootprint_indium | 100.0% | Progress: 13 of 13



****

*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-Base_2060 in 0:24:30 (h:m:s) ***

****

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2060 in project TreX-premise-SSP2-cutoff **

Score: 2.30e-10
Method: Gallium
Activity: barley grain to generic market for energy feed
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2060

** Database verified successfully! **

==========

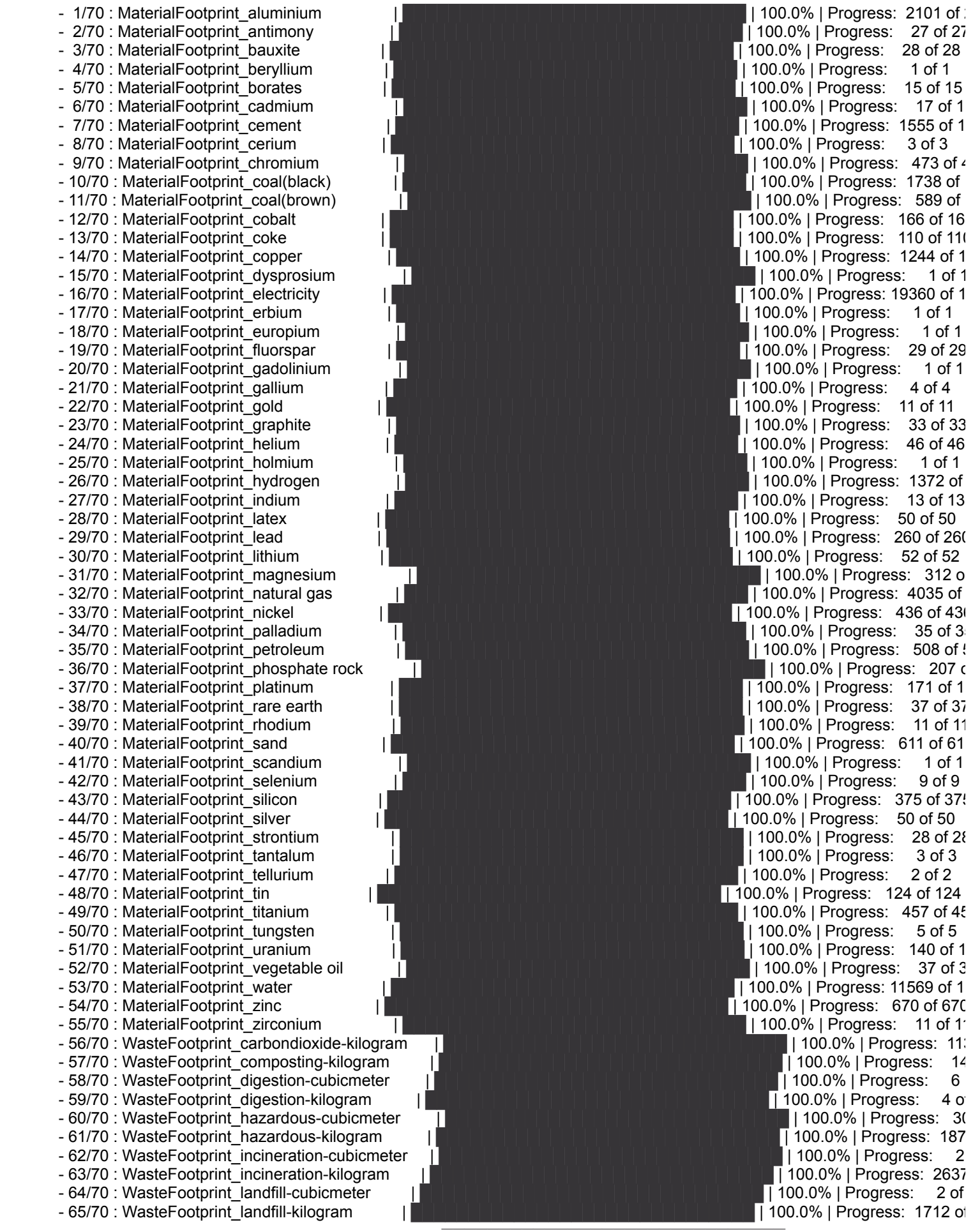
*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2060 ***
Duration: 0:24:48 (h:m:s)
*** Woah woah wee waa, great success!! ***

==========

** Processing database (11/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2065**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-Base_2065 ***

* Appending waste and material exchanges in biosphere_T-reX



- 66/70 : WasteFootprint_openburning-kilogram | | 100.0% | Progress: 53
- 67/70 : WasteFootprint_radioactive-cubicmeter | | 100.0% | Progress: 30
- 68/70 : WasteFootprint_recycling-kilogram | | 100.0% | Progress: 84 c
- 69/70 : WasteFootprint_total-cubicmeter | | 100.0% | Progress: 4695 c
- 70/70 : WasteFootprint_total-kilogram | | 100.0% | Progress: 30759 o

****

*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-Base_2065 in 0:24:25 (h:m:s) ***

****

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2065 in project TreX-premise-SSP2-cutoff **

Score: 1.02e-03
Method: Hazardous (kg)
Activity: transport, passenger car, plugin diesel hybrid, Lower medium, 2040, EURO-6d
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2065

** Database verified successfully! **

==========

*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2065 ***
Duration: 0:24:45 (h:m:s)
*** Woah woah wee waa, great success!! ***

==========

** Processing database (12/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2070**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-Base_2070 ***

* Appending waste and material exchanges in biosphere_T-reX

- 1/70 : MaterialFootprint_aluminium | | 100.0% | Progress: 2101 of
- 2/70 : MaterialFootprint_antimony | | 100.0% | Progress: 27 of 27
- 3/70 : MaterialFootprint_bauxite | | 100.0% | Progress: 28 of 28
- 4/70 : MaterialFootprint_beryllium | | 100.0% | Progress: 1 of 1
- 5/70 : MaterialFootprint_borates | | 100.0% | Progress: 15 of 15
- 6/70 : MaterialFootprint_cadmium | | 100.0% | Progress: 17 of 1
- 7/70 : MaterialFootprint_cement | | 100.0% | Progress: 1555 of 1
- 8/70 : MaterialFootprint_cerium | | 100.0% | Progress: 3 of 3
- 9/70 : MaterialFootprint_chromium | | 100.0% | Progress: 473 of 4
- 10/70 : MaterialFootprint_coal(black) | | 100.0% | Progress: 1738 of
- 11/70 : MaterialFootprint_coal(brown) | | 100.0% | Progress: 589 of
- 12/70 : MaterialFootprint_cobalt | | 100.0% | Progress: 166 of 16
- 13/70 : MaterialFootprint_coke | | 100.0% | Progress: 110 of 11
- 14/70 : MaterialFootprint_copper | | 100.0% | Progress: 1244 of 1
- 15/70 : MaterialFootprint_dysprosium | | 100.0% | Progress: 1 of 1
- 16/70 : MaterialFootprint_electricity | | 100.0% | Progress: 19360 of 1
- 17/70 : MaterialFootprint_erbium | | 100.0% | Progress: 1 of 1
- 18/70 : MaterialFootprint_europium | | 100.0% | Progress: 1 of 1
- 19/70 : MaterialFootprint_fluorspar | | 100.0% | Progress: 29 of 29
- 20/70 : MaterialFootprint_gadolinium | | 100.0% | Progress: 1 of 1
- 21/70 : MaterialFootprint_gallium | | 100.0% | Progress: 4 of 4
- 22/70 : MaterialFootprint_gold | | 100.0% | Progress: 11 of 11
- 23/70 : MaterialFootprint_graphite | | 100.0% | Progress: 33 of 33
- 24/70 : MaterialFootprint_helium | | 100.0% | Progress: 46 of 46
- 25/70 : MaterialFootprint_holmium | | 100.0% | Progress: 1 of 1
- 26/70 : MaterialFootprint_hydrogen | | 100.0% | Progress: 1372 of
- 27/70 : MaterialFootprint_indium | | 100.0% | Progress: 13 of 13
- 28/70 : MaterialFootprint_latex | | 100.0% | Progress: 50 of 50
- 29/70 : MaterialFootprint_lead | | 100.0% | Progress: 260 of 26
- 30/70 : MaterialFootprint_lithium | | 100.0% | Progress: 52 of 52
- 31/70 : MaterialFootprint_magnesium | | 100.0% | Progress: 312 o
- 32/70 : MaterialFootprint_natural gas | | 100.0% | Progress: 4035 of

```
 - 33/70 : MaterialFootprint_nickel                | 100.0% | Progress:   436 of 43
 - 34/70 : MaterialFootprint_palladium             | 100.0% | Progress:    35 of 3
 - 35/70 : MaterialFootprint_petroleum             | 100.0% | Progress:   508 of 5
 - 36/70 : MaterialFootprint_phosphate rock        | 100.0% | Progress:   207 o
 - 37/70 : MaterialFootprint_platinum              | 100.0% | Progress:   171 of 1
 - 38/70 : MaterialFootprint_rare earth            | 100.0% | Progress:    37 of 37
 - 39/70 : MaterialFootprint_rhodium               | 100.0% | Progress:    11 of 11
 - 40/70 : MaterialFootprint_sand                  | 100.0% | Progress:   611 of 61
 - 41/70 : MaterialFootprint_scandium              | 100.0% | Progress:     1 of 1
 - 42/70 : MaterialFootprint_selenium              | 100.0% | Progress:     9 of 9
 - 43/70 : MaterialFootprint_silicon               | 100.0% | Progress:   375 of 375
 - 44/70 : MaterialFootprint_silver                | 100.0% | Progress:    50 of 50
 - 45/70 : MaterialFootprint_strontium             | 100.0% | Progress:    28 of 28
 - 46/70 : MaterialFootprint_tantalum              | 100.0% | Progress:     3 of 3
 - 47/70 : MaterialFootprint_tellurium             | 100.0% | Progress:     2 of 2
 - 48/70 : MaterialFootprint_tin                   | 100.0% | Progress:   124 of 124
 - 49/70 : MaterialFootprint_titanium              | 100.0% | Progress:   457 of 45
 - 50/70 : MaterialFootprint_tungsten              | 100.0% | Progress:     5 of 5
 - 51/70 : MaterialFootprint_uranium               | 100.0% | Progress:   140 of 1
 - 52/70 : MaterialFootprint_vegetable oil         | 100.0% | Progress:    37 of 3
 - 53/70 : MaterialFootprint_water                 | 100.0% | Progress: 11569 of 1
 - 54/70 : MaterialFootprint_zinc                  | 100.0% | Progress:   670 of 670
 - 55/70 : MaterialFootprint_zirconium             | 100.0% | Progress:    11 of 11
 - 56/70 : WasteFootprint_carbondioxide-kilogram   | 100.0% | Progress:  11
 - 57/70 : WasteFootprint_composting-kilogram      | 100.0% | Progress:    14
 - 58/70 : WasteFootprint_digestion-cubicmeter     | 100.0% | Progress:     6
 - 59/70 : WasteFootprint_digestion-kilogram       | 100.0% | Progress:     4 o
 - 60/70 : WasteFootprint_hazardous-cubicmeter     | 100.0% | Progress:  30
 - 61/70 : WasteFootprint_hazardous-kilogram       | 100.0% | Progress:  187
 - 62/70 : WasteFootprint_incineration-cubicmeter  | 100.0% | Progress:     2
 - 63/70 : WasteFootprint_incineration-kilogram    | 100.0% | Progress:  2637
 - 64/70 : WasteFootprint_landfill-cubicmeter      | 100.0% | Progress:     2 of
 - 65/70 : WasteFootprint_landfill-kilogram        | 100.0% | Progress:  1712 o
 - 66/70 : WasteFootprint_openburning-kilogram     | 100.0% | Progress:   53
 - 67/70 : WasteFootprint_radioactive-cubicmeter   | 100.0% | Progress:   30
 - 68/70 : WasteFootprint_recycling-kilogram       | 100.0% | Progress:    84 o
 - 69/70 : WasteFootprint_total-cubicmeter         | 100.0% | Progress:  4695 o
 - 70/70 : WasteFootprint_total-kilogram           | 100.0% | Progress: 30759 o
****************************************************************************************************

*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-Base_2070 in 0:24:29 (h:m:s) ***

****************************************************************************************************

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2070 in project TreX-premise-SSP2-cutoff **

        Score: 5.00e+01
        Method: Coal(black)
        Activity: market for concrete, 35MPa
        Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2070

** Database verified successfully! **

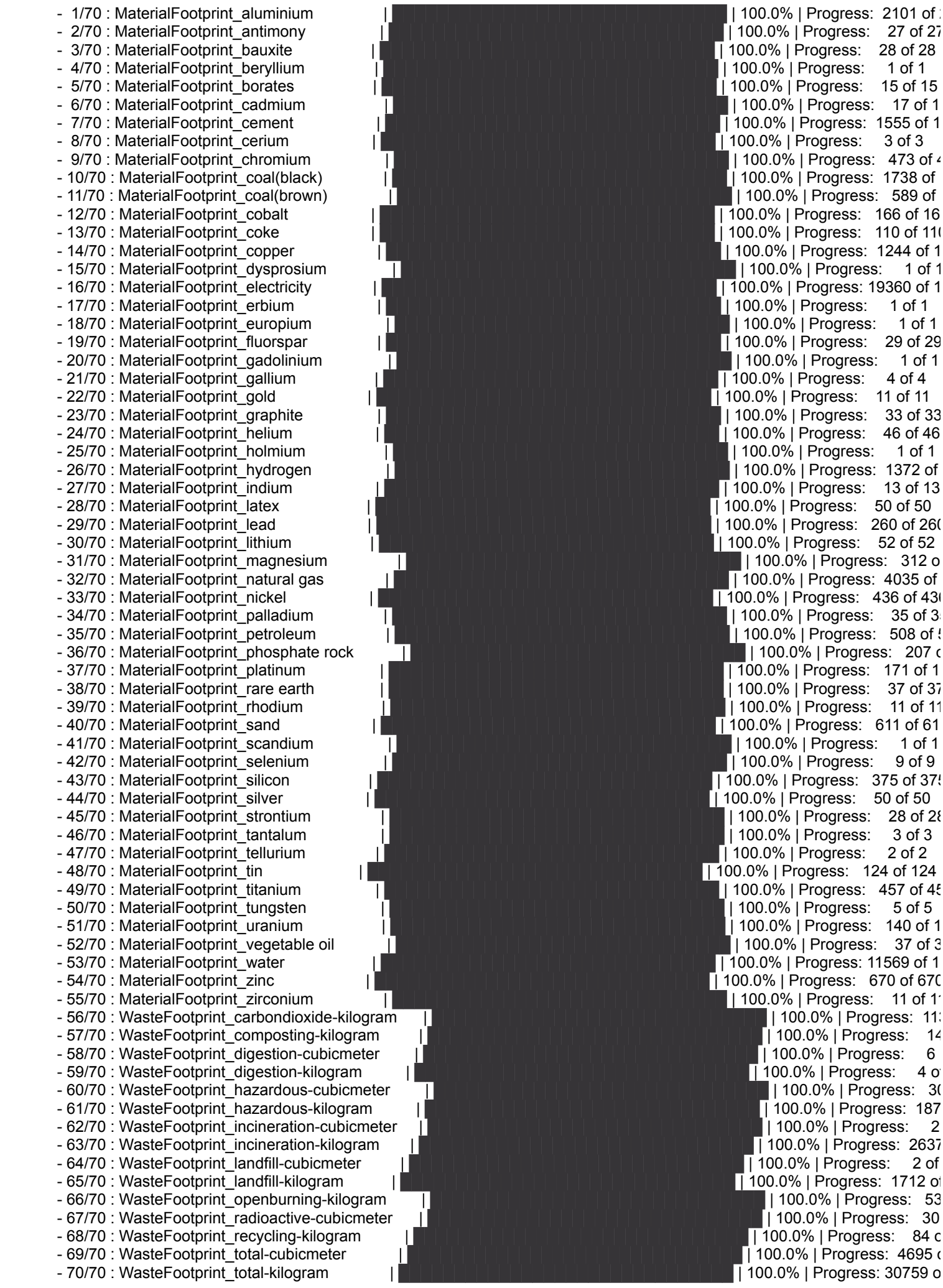
====================================================================================================
        *** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2070 ***
                Duration: 0:24:45 (h:m:s)
        *** Woah woah wee waa, great success!! ***
====================================================================================================
----------------------------------------------------------------------------


----------------------------------------------------------------------------

** Processing database (13/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2075**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S


*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-Base_2075 ***

* Appending waste and material exchanges in biosphere_T-reX
```


- 1/70 : MaterialFootprint_aluminium | 100.0% | Progress: 2101 of
- 2/70 : MaterialFootprint_antimony | 100.0% | Progress: 27 of 27
- 3/70 : MaterialFootprint_bauxite | 100.0% | Progress: 28 of 28
- 4/70 : MaterialFootprint_beryllium | 100.0% | Progress: 1 of 1
- 5/70 : MaterialFootprint_borates | 100.0% | Progress: 15 of 15
- 6/70 : MaterialFootprint_cadmium | 100.0% | Progress: 17 of 1
- 7/70 : MaterialFootprint_cement | 100.0% | Progress: 1555 of 1
- 8/70 : MaterialFootprint_cerium | 100.0% | Progress: 3 of 3
- 9/70 : MaterialFootprint_chromium | 100.0% | Progress: 473 of
- 10/70 : MaterialFootprint_coal(black) | 100.0% | Progress: 1738 of
- 11/70 : MaterialFootprint_coal(brown) | 100.0% | Progress: 589 of
- 12/70 : MaterialFootprint_cobalt | 100.0% | Progress: 166 of 16
- 13/70 : MaterialFootprint_coke | 100.0% | Progress: 110 of 11
- 14/70 : MaterialFootprint_copper | 100.0% | Progress: 1244 of 1
- 15/70 : MaterialFootprint_dysprosium | 100.0% | Progress: 1 of 1
- 16/70 : MaterialFootprint_electricity | 100.0% | Progress: 19360 of 1
- 17/70 : MaterialFootprint_erbium | 100.0% | Progress: 1 of 1
- 18/70 : MaterialFootprint_europium | 100.0% | Progress: 1 of 1
- 19/70 : MaterialFootprint_fluorspar | 100.0% | Progress: 29 of 29
- 20/70 : MaterialFootprint_gadolinium | 100.0% | Progress: 1 of 1
- 21/70 : MaterialFootprint_gallium | 100.0% | Progress: 4 of 4
- 22/70 : MaterialFootprint_gold | 100.0% | Progress: 11 of 11
- 23/70 : MaterialFootprint_graphite | 100.0% | Progress: 33 of 33
- 24/70 : MaterialFootprint_helium | 100.0% | Progress: 46 of 46
- 25/70 : MaterialFootprint_holmium | 100.0% | Progress: 1 of 1
- 26/70 : MaterialFootprint_hydrogen | 100.0% | Progress: 1372 of
- 27/70 : MaterialFootprint_indium | 100.0% | Progress: 13 of 13
- 28/70 : MaterialFootprint_latex | 100.0% | Progress: 50 of 50
- 29/70 : MaterialFootprint_lead | 100.0% | Progress: 260 of 26
- 30/70 : MaterialFootprint_lithium | 100.0% | Progress: 52 of 52
- 31/70 : MaterialFootprint_magnesium | 100.0% | Progress: 312 o
- 32/70 : MaterialFootprint_natural gas | 100.0% | Progress: 4035 of
- 33/70 : MaterialFootprint_nickel | 100.0% | Progress: 436 of 43
- 34/70 : MaterialFootprint_palladium | 100.0% | Progress: 35 of 3
- 35/70 : MaterialFootprint_petroleum | 100.0% | Progress: 508 of
- 36/70 : MaterialFootprint_phosphate rock | 100.0% | Progress: 207 o
- 37/70 : MaterialFootprint_platinum | 100.0% | Progress: 171 of 1
- 38/70 : MaterialFootprint_rare earth | 100.0% | Progress: 37 of 37
- 39/70 : MaterialFootprint_rhodium | 100.0% | Progress: 11 of 11
- 40/70 : MaterialFootprint_sand | 100.0% | Progress: 611 of 61
- 41/70 : MaterialFootprint_scandium | 100.0% | Progress: 1 of 1
- 42/70 : MaterialFootprint_selenium | 100.0% | Progress: 9 of 9
- 43/70 : MaterialFootprint_silicon | 100.0% | Progress: 375 of 375
- 44/70 : MaterialFootprint_silver | 100.0% | Progress: 50 of 50
- 45/70 : MaterialFootprint_strontium | 100.0% | Progress: 28 of 28
- 46/70 : MaterialFootprint_tantalum | 100.0% | Progress: 3 of 3
- 47/70 : MaterialFootprint_tellurium | 100.0% | Progress: 2 of 2
- 48/70 : MaterialFootprint_tin | 100.0% | Progress: 124 of 124
- 49/70 : MaterialFootprint_titanium | 100.0% | Progress: 457 of 45
- 50/70 : MaterialFootprint_tungsten | 100.0% | Progress: 5 of 5
- 51/70 : MaterialFootprint_uranium | 100.0% | Progress: 140 of 1
- 52/70 : MaterialFootprint_vegetable oil | 100.0% | Progress: 37 of 3
- 53/70 : MaterialFootprint_water | 100.0% | Progress: 11569 of 1
- 54/70 : MaterialFootprint_zinc | 100.0% | Progress: 670 of 670
- 55/70 : MaterialFootprint_zirconium | 100.0% | Progress: 11 of 1
- 56/70 : WasteFootprint_carbondioxide-kilogram | 100.0% | Progress: 11
- 57/70 : WasteFootprint_composting-kilogram | 100.0% | Progress: 14
- 58/70 : WasteFootprint_digestion-cubicmeter | 100.0% | Progress: 6
- 59/70 : WasteFootprint_digestion-kilogram | 100.0% | Progress: 4 o
- 60/70 : WasteFootprint_hazardous-cubicmeter | 100.0% | Progress: 3
- 61/70 : WasteFootprint_hazardous-kilogram | 100.0% | Progress: 187
- 62/70 : WasteFootprint_incineration-cubicmeter | 100.0% | Progress: 2
- 63/70 : WasteFootprint_incineration-kilogram | 100.0% | Progress: 2637
- 64/70 : WasteFootprint_landfill-cubicmeter | 100.0% | Progress: 2 of
- 65/70 : WasteFootprint_landfill-kilogram | 100.0% | Progress: 1712 o
- 66/70 : WasteFootprint_openburning-kilogram | 100.0% | Progress: 53
- 67/70 : WasteFootprint_radioactive-cubicmeter | 100.0% | Progress: 30
- 68/70 : WasteFootprint_recycling-kilogram | 100.0% | Progress: 84 o
- 69/70 : WasteFootprint_total-cubicmeter | 100.0% | Progress: 4695 o
- 70/70 : WasteFootprint_total-kilogram | 100.0% | Progress: 30759 o

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*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-Base_2075 in 0:24:26 (h:m:s) ***

****

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2075 in project TreX-premise-SSP2-cutoff **

Score: 4.84e+03
Method: Aluminium
Activity: Medium duty truck, compressed gas, 18t gross weight, 2020, EURO-VI, urban delivery
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2075

** Database verified successfully! **

==========

*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2075 ***
Duration: 0:24:42 (h:m:s)
*** Woah woah wee waa, great success!! ***

==========

** Processing database (14/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2080**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-Base_2080 ***

* Appending waste and material exchanges in biosphere_T-reX

- 1/70 : MaterialFootprint_aluminium | 100.0% | Progress: 2101 of
- 2/70 : MaterialFootprint_antimony | 100.0% | Progress: 27 of 27
- 3/70 : MaterialFootprint_bauxite | 100.0% | Progress: 28 of 28
- 4/70 : MaterialFootprint_beryllium | 100.0% | Progress: 1 of 1
- 5/70 : MaterialFootprint_borates | 100.0% | Progress: 15 of 15
- 6/70 : MaterialFootprint_cadmium | 100.0% | Progress: 17 of 1
- 7/70 : MaterialFootprint_cement | 100.0% | Progress: 1555 of 1
- 8/70 : MaterialFootprint_cerium | 100.0% | Progress: 3 of 3
- 9/70 : MaterialFootprint_chromium | 100.0% | Progress: 473 of
- 10/70 : MaterialFootprint_coal(black) | 100.0% | Progress: 1738 of
- 11/70 : MaterialFootprint_coal(brown) | 100.0% | Progress: 589 of
- 12/70 : MaterialFootprint_cobalt | 100.0% | Progress: 166 of 16
- 13/70 : MaterialFootprint_coke | 100.0% | Progress: 110 of 11
- 14/70 : MaterialFootprint_copper | 100.0% | Progress: 1244 of 1
- 15/70 : MaterialFootprint_dysprosium | 100.0% | Progress: 1 of 1
- 16/70 : MaterialFootprint_electricity | 100.0% | Progress: 19360 of 1
- 17/70 : MaterialFootprint_erbium | 100.0% | Progress: 1 of 1
- 18/70 : MaterialFootprint_europium | 100.0% | Progress: 1 of 1
- 19/70 : MaterialFootprint_fluorspar | 100.0% | Progress: 29 of 29
- 20/70 : MaterialFootprint_gadolinium | 100.0% | Progress: 1 of 1
- 21/70 : MaterialFootprint_gallium | 100.0% | Progress: 4 of 4
- 22/70 : MaterialFootprint_gold | 100.0% | Progress: 11 of 11
- 23/70 : MaterialFootprint_graphite | 100.0% | Progress: 33 of 33
- 24/70 : MaterialFootprint_helium | 100.0% | Progress: 46 of 46
- 25/70 : MaterialFootprint_holmium | 100.0% | Progress: 1 of 1
- 26/70 : MaterialFootprint_hydrogen | 100.0% | Progress: 1372 of
- 27/70 : MaterialFootprint_indium | 100.0% | Progress: 13 of 13
- 28/70 : MaterialFootprint_latex | 100.0% | Progress: 50 of 50
- 29/70 : MaterialFootprint_lead | 100.0% | Progress: 260 of 26
- 30/70 : MaterialFootprint_lithium | 100.0% | Progress: 52 of 52
- 31/70 : MaterialFootprint_magnesium | 100.0% | Progress: 312 o
- 32/70 : MaterialFootprint_natural gas | 100.0% | Progress: 4035 of
- 33/70 : MaterialFootprint_nickel | 100.0% | Progress: 436 of 43
- 34/70 : MaterialFootprint_palladium | 100.0% | Progress: 35 of 3
- 35/70 : MaterialFootprint_petroleum | 100.0% | Progress: 508 of
- 36/70 : MaterialFootprint_phosphate rock | 100.0% | Progress: 207 o
- 37/70 : MaterialFootprint_platinum | 100.0% | Progress: 171 of 1

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 - 38/70 : MaterialFootprint_rare earth          | ████████████████████████████████████ | 100.0% | Progress:    37 of 37
 - 39/70 : MaterialFootprint_rhodium             | ████████████████████████████████████ | 100.0% | Progress:    11 of 11
 - 40/70 : MaterialFootprint_sand                | ████████████████████████████████████ | 100.0% | Progress:   611 of 61
 - 41/70 : MaterialFootprint_scandium            | ████████████████████████████████████ | 100.0% | Progress:     1 of 1
 - 42/70 : MaterialFootprint_selenium            | ████████████████████████████████████ | 100.0% | Progress:     9 of 9
 - 43/70 : MaterialFootprint_silicon             | ████████████████████████████████████ | 100.0% | Progress:   375 of 375
 - 44/70 : MaterialFootprint_silver              | ████████████████████████████████████ | 100.0% | Progress:    50 of 50
 - 45/70 : MaterialFootprint_strontium           | ████████████████████████████████████ | 100.0% | Progress:    28 of 28
 - 46/70 : MaterialFootprint_tantalum            | ████████████████████████████████████ | 100.0% | Progress:     3 of 3
 - 47/70 : MaterialFootprint_tellurium           | ████████████████████████████████████ | 100.0% | Progress:     2 of 2
 - 48/70 : MaterialFootprint_tin                 | ████████████████████████████████████ | 100.0% | Progress:   124 of 124
 - 49/70 : MaterialFootprint_titanium            | ████████████████████████████████████ | 100.0% | Progress:   457 of 45
 - 50/70 : MaterialFootprint_tungsten            | ████████████████████████████████████ | 100.0% | Progress:     5 of 5
 - 51/70 : MaterialFootprint_uranium             | ████████████████████████████████████ | 100.0% | Progress:   140 of 1
 - 52/70 : MaterialFootprint_vegetable oil       | ████████████████████████████████████ | 100.0% | Progress:    37 of 3
 - 53/70 : MaterialFootprint_water               | ████████████████████████████████████ | 100.0% | Progress: 11569 of 1
 - 54/70 : MaterialFootprint_zinc                | ████████████████████████████████████ | 100.0% | Progress:   670 of 670
 - 55/70 : MaterialFootprint_zirconium           | ████████████████████████████████████ | 100.0% | Progress:    11 of 11
 - 56/70 : WasteFootprint_carbondioxide-kilogram | ████████████████████████████████████ | 100.0% | Progress:  113
 - 57/70 : WasteFootprint_composting-kilogram    | ████████████████████████████████████ | 100.0% | Progress:    14
 - 58/70 : WasteFootprint_digestion-cubicmeter   | ████████████████████████████████████ | 100.0% | Progress:     6
 - 59/70 : WasteFootprint_digestion-kilogram     | ████████████████████████████████████ | 100.0% | Progress:     4 o
 - 60/70 : WasteFootprint_hazardous-cubicmeter   | ████████████████████████████████████ | 100.0% | Progress:   30
 - 61/70 : WasteFootprint_hazardous-kilogram     | ████████████████████████████████████ | 100.0% | Progress:  187
 - 62/70 : WasteFootprint_incineration-cubicmeter| ████████████████████████████████████ | 100.0% | Progress:     2
 - 63/70 : WasteFootprint_incineration-kilogram  | ████████████████████████████████████ | 100.0% | Progress:  2637
 - 64/70 : WasteFootprint_landfill-cubicmeter    | ████████████████████████████████████ | 100.0% | Progress:     2 of
 - 65/70 : WasteFootprint_landfill-kilogram      | ████████████████████████████████████ | 100.0% | Progress:  1712 of
 - 66/70 : WasteFootprint_openburning-kilogram   | ████████████████████████████████████ | 100.0% | Progress:   53
 - 67/70 : WasteFootprint_radioactive-cubicmeter | ████████████████████████████████████ | 100.0% | Progress:   30
 - 68/70 : WasteFootprint_recycling-kilogram     | ████████████████████████████████████ | 100.0% | Progress:    84 o
 - 69/70 : WasteFootprint_total-cubicmeter       | ████████████████████████████████████ | 100.0% | Progress:  4695 o
 - 70/70 : WasteFootprint_total-kilogram         | ████████████████████████████████████ | 100.0% | Progress: 30759 o
**********************************************************************************************

*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-Base_2080 in 0:24:25 (h:m:s) ***

**********************************************************************************************

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2080 in project TreX-premise-SSP2-cutoff **

        Score: 3.82e-03
        Method: Digestion (kg)
        Activity: market for sawnwood, lath, softwood, dried (u=20%), planed
        Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2080

** Database verified successfully! **

==============================================================================================
        *** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2080 ***
                Duration: 0:24:40 (h:m:s)
        *** Woah woah wee waa, great success!! ***
==============================================================================================
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** Processing database (15/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2085**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S


*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-Base_2085 ***

* Appending waste and material exchanges in biosphere_T-reX

 -  1/70 : MaterialFootprint_aluminium          | ████████████████████████████████████ | 100.0% | Progress:  2101 of
 -  2/70 : MaterialFootprint_antimony           | ████████████████████████████████████ | 100.0% | Progress:    27 of 27
 -  3/70 : MaterialFootprint_bauxite            | ████████████████████████████████████ | 100.0% | Progress:    28 of 28
 -  4/70 : MaterialFootprint_beryllium          | ████████████████████████████████████ | 100.0% | Progress:     1 of 1
```

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 -  5/70 : MaterialFootprint_borates                | 100.0% | Progress:    15 of 15
 -  6/70 : MaterialFootprint_cadmium                | 100.0% | Progress:    17 of 1
 -  7/70 : MaterialFootprint_cement                 | 100.0% | Progress:  1555 of 1
 -  8/70 : MaterialFootprint_cerium                 | 100.0% | Progress:     3 of 3
 -  9/70 : MaterialFootprint_chromium               | 100.0% | Progress:   473 of 4
 - 10/70 : MaterialFootprint_coal(black)            | 100.0% | Progress:  1738 of
 - 11/70 : MaterialFootprint_coal(brown)            | 100.0% | Progress:   589 of
 - 12/70 : MaterialFootprint_cobalt                 | 100.0% | Progress:   166 of 16
 - 13/70 : MaterialFootprint_coke                   | 100.0% | Progress:   110 of 11
 - 14/70 : MaterialFootprint_copper                 | 100.0% | Progress:  1244 of 1
 - 15/70 : MaterialFootprint_dysprosium             | 100.0% | Progress:     1 of 1
 - 16/70 : MaterialFootprint_electricity            | 100.0% | Progress: 19360 of 1
 - 17/70 : MaterialFootprint_erbium                 | 100.0% | Progress:     1 of 1
 - 18/70 : MaterialFootprint_europium               | 100.0% | Progress:     1 of 1
 - 19/70 : MaterialFootprint_fluorspar              | 100.0% | Progress:    29 of 29
 - 20/70 : MaterialFootprint_gadolinium             | 100.0% | Progress:     1 of 1
 - 21/70 : MaterialFootprint_gallium                | 100.0% | Progress:     4 of 4
 - 22/70 : MaterialFootprint_gold                   | 100.0% | Progress:    11 of 11
 - 23/70 : MaterialFootprint_graphite               | 100.0% | Progress:    33 of 33
 - 24/70 : MaterialFootprint_helium                 | 100.0% | Progress:    46 of 46
 - 25/70 : MaterialFootprint_holmium                | 100.0% | Progress:     1 of 1
 - 26/70 : MaterialFootprint_hydrogen               | 100.0% | Progress:  1372 of
 - 27/70 : MaterialFootprint_indium                 | 100.0% | Progress:    13 of 13
 - 28/70 : MaterialFootprint_latex                  | 100.0% | Progress:    50 of 50
 - 29/70 : MaterialFootprint_lead                   | 100.0% | Progress:   260 of 26
 - 30/70 : MaterialFootprint_lithium                | 100.0% | Progress:    52 of 52
 - 31/70 : MaterialFootprint_magnesium              | 100.0% | Progress:   312 o
 - 32/70 : MaterialFootprint_natural gas            | 100.0% | Progress:  4035 of
 - 33/70 : MaterialFootprint_nickel                 | 100.0% | Progress:   436 of 43
 - 34/70 : MaterialFootprint_palladium              | 100.0% | Progress:    35 of 3
 - 35/70 : MaterialFootprint_petroleum              | 100.0% | Progress:   508 of 5
 - 36/70 : MaterialFootprint_phosphate rock         | 100.0% | Progress:   207 o
 - 37/70 : MaterialFootprint_platinum               | 100.0% | Progress:   171 of 1
 - 38/70 : MaterialFootprint_rare earth             | 100.0% | Progress:    37 of 37
 - 39/70 : MaterialFootprint_rhodium                | 100.0% | Progress:    11 of 11
 - 40/70 : MaterialFootprint_sand                   | 100.0% | Progress:   611 of 61
 - 41/70 : MaterialFootprint_scandium               | 100.0% | Progress:     1 of 1
 - 42/70 : MaterialFootprint_selenium               | 100.0% | Progress:     9 of 9
 - 43/70 : MaterialFootprint_silicon                | 100.0% | Progress:   375 of 375
 - 44/70 : MaterialFootprint_silver                 | 100.0% | Progress:    50 of 50
 - 45/70 : MaterialFootprint_strontium              | 100.0% | Progress:    28 of 28
 - 46/70 : MaterialFootprint_tantalum               | 100.0% | Progress:     3 of 3
 - 47/70 : MaterialFootprint_tellurium              | 100.0% | Progress:     2 of 2
 - 48/70 : MaterialFootprint_tin                    | 100.0% | Progress:   124 of 124
 - 49/70 : MaterialFootprint_titanium               | 100.0% | Progress:   457 of 45
 - 50/70 : MaterialFootprint_tungsten               | 100.0% | Progress:     5 of 5
 - 51/70 : MaterialFootprint_uranium                | 100.0% | Progress:   140 of 1
 - 52/70 : MaterialFootprint_vegetable oil          | 100.0% | Progress:    37 of 3
 - 53/70 : MaterialFootprint_water                  | 100.0% | Progress: 11569 of 1
 - 54/70 : MaterialFootprint_zinc                   | 100.0% | Progress:   670 of 670
 - 55/70 : MaterialFootprint_zirconium              | 100.0% | Progress:    11 of 1
 - 56/70 : WasteFootprint_carbondioxide-kilogram    | 100.0% | Progress:  11
 - 57/70 : WasteFootprint_composting-kilogram       | 100.0% | Progress:   14
 - 58/70 : WasteFootprint_digestion-cubicmeter      | 100.0% | Progress:    6
 - 59/70 : WasteFootprint_digestion-kilogram        | 100.0% | Progress:    4 o
 - 60/70 : WasteFootprint_hazardous-cubicmeter      | 100.0% | Progress:   3
 - 61/70 : WasteFootprint_hazardous-kilogram        | 100.0% | Progress:  187
 - 62/70 : WasteFootprint_incineration-cubicmeter   | 100.0% | Progress:    2
 - 63/70 : WasteFootprint_incineration-kilogram     | 100.0% | Progress:  2637
 - 64/70 : WasteFootprint_landfill-cubicmeter       | 100.0% | Progress:    2 of
 - 65/70 : WasteFootprint_landfill-kilogram         | 100.0% | Progress:  1712 o
 - 66/70 : WasteFootprint_openburning-kilogram      | 100.0% | Progress:   53
 - 67/70 : WasteFootprint_radioactive-cubicmeter    | 100.0% | Progress:   30
 - 68/70 : WasteFootprint_recycling-kilogram        | 100.0% | Progress:   84 c
 - 69/70 : WasteFootprint_total-cubicmeter          | 100.0% | Progress:  4695 c
 - 70/70 : WasteFootprint_total-kilogram            | 100.0% | Progress: 30759 o
**********************************************************************************************

 *** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-Base_2085 in 0:24:23 (h:m:s) ***

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** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2085 in project TreX-premise-SSP2-cutoff **

Score: 5.94e-01
Method: Landfill (kg)
Activity: market for sodium nitrate
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2085

** Database verified successfully! **

==========
*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2085 ***
Duration: 0:24:37 (h:m:s)
*** Woah woah wee waa, great success!! ***
==========

** Processing database (16/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2090**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-Base_2090 ***

* Appending waste and material exchanges in biosphere_T-reX

- 1/70 : MaterialFootprint_aluminium | 100.0% | Progress: 2101 of
- 2/70 : MaterialFootprint_antimony | 100.0% | Progress: 27 of 27
- 3/70 : MaterialFootprint_bauxite | 100.0% | Progress: 28 of 28
- 4/70 : MaterialFootprint_beryllium | 100.0% | Progress: 1 of 1
- 5/70 : MaterialFootprint_borates | 100.0% | Progress: 15 of 15
- 6/70 : MaterialFootprint_cadmium | 100.0% | Progress: 17 of 1
- 7/70 : MaterialFootprint_cement | 100.0% | Progress: 1555 of 1
- 8/70 : MaterialFootprint_cerium | 100.0% | Progress: 3 of 3
- 9/70 : MaterialFootprint_chromium | 100.0% | Progress: 473 of
- 10/70 : MaterialFootprint_coal(black) | 100.0% | Progress: 1738 of
- 11/70 : MaterialFootprint_coal(brown) | 100.0% | Progress: 589 of
- 12/70 : MaterialFootprint_cobalt | 100.0% | Progress: 166 of 16
- 13/70 : MaterialFootprint_coke | 100.0% | Progress: 110 of 11
- 14/70 : MaterialFootprint_copper | 100.0% | Progress: 1244 of 1
- 15/70 : MaterialFootprint_dysprosium | 100.0% | Progress: 1 of 1
- 16/70 : MaterialFootprint_electricity | 100.0% | Progress: 19360 of 1
- 17/70 : MaterialFootprint_erbium | 100.0% | Progress: 1 of 1
- 18/70 : MaterialFootprint_europium | 100.0% | Progress: 1 of 1
- 19/70 : MaterialFootprint_fluorspar | 100.0% | Progress: 29 of 29
- 20/70 : MaterialFootprint_gadolinium | 100.0% | Progress: 1 of 1
- 21/70 : MaterialFootprint_gallium | 100.0% | Progress: 4 of 4
- 22/70 : MaterialFootprint_gold | 100.0% | Progress: 11 of 11
- 23/70 : MaterialFootprint_graphite | 100.0% | Progress: 33 of 33
- 24/70 : MaterialFootprint_helium | 100.0% | Progress: 46 of 46
- 25/70 : MaterialFootprint_holmium | 100.0% | Progress: 1 of 1
- 26/70 : MaterialFootprint_hydrogen | 100.0% | Progress: 1372 of
- 27/70 : MaterialFootprint_indium | 100.0% | Progress: 13 of 13
- 28/70 : MaterialFootprint_latex | 100.0% | Progress: 50 of 50
- 29/70 : MaterialFootprint_lead | 100.0% | Progress: 260 of 26
- 30/70 : MaterialFootprint_lithium | 100.0% | Progress: 52 of 52
- 31/70 : MaterialFootprint_magnesium | 100.0% | Progress: 312 o
- 32/70 : MaterialFootprint_natural gas | 100.0% | Progress: 4035 of
- 33/70 : MaterialFootprint_nickel | 100.0% | Progress: 436 of 43
- 34/70 : MaterialFootprint_palladium | 100.0% | Progress: 35 of 3
- 35/70 : MaterialFootprint_petroleum | 100.0% | Progress: 508 of
- 36/70 : MaterialFootprint_phosphate rock | 100.0% | Progress: 207 o
- 37/70 : MaterialFootprint_platinum | 100.0% | Progress: 171 of 1
- 38/70 : MaterialFootprint_rare earth | 100.0% | Progress: 37 of 37
- 39/70 : MaterialFootprint_rhodium | 100.0% | Progress: 11 of 11
- 40/70 : MaterialFootprint_sand | 100.0% | Progress: 611 of 61
- 41/70 : MaterialFootprint_scandium | 100.0% | Progress: 1 of 1
- 42/70 : MaterialFootprint_selenium | 100.0% | Progress: 9 of 9

```
 - 43/70 : MaterialFootprint_silicon          | | 100.0% | Progress:   375 of 375
 - 44/70 : MaterialFootprint_silver           | | 100.0% | Progress:    50 of 50
 - 45/70 : MaterialFootprint_strontium        | | 100.0% | Progress:    28 of 28
 - 46/70 : MaterialFootprint_tantalum         | | 100.0% | Progress:     3 of 3
 - 47/70 : MaterialFootprint_tellurium        | | 100.0% | Progress:     2 of 2
 - 48/70 : MaterialFootprint_tin              | | 100.0% | Progress:   124 of 124
 - 49/70 : MaterialFootprint_titanium         | | 100.0% | Progress:   457 of 457
 - 50/70 : MaterialFootprint_tungsten         | | 100.0% | Progress:     5 of 5
 - 51/70 : MaterialFootprint_uranium          | | 100.0% | Progress:   140 of 140
 - 52/70 : MaterialFootprint_vegetable oil    | | 100.0% | Progress:    37 of 37
 - 53/70 : MaterialFootprint_water            | | 100.0% | Progress: 11569 of 11569
 - 54/70 : MaterialFootprint_zinc             | | 100.0% | Progress:   670 of 670
 - 55/70 : MaterialFootprint_zirconium        | | 100.0% | Progress:    11 of 11
 - 56/70 : WasteFootprint_carbondioxide-kilogram | | 100.0% | Progress:  113
 - 57/70 : WasteFootprint_composting-kilogram | | 100.0% | Progress:    14
 - 58/70 : WasteFootprint_digestion-cubicmeter | | 100.0% | Progress:     6
 - 59/70 : WasteFootprint_digestion-kilogram  | | 100.0% | Progress:     4 of
 - 60/70 : WasteFootprint_hazardous-cubicmeter | | 100.0% | Progress:   30
 - 61/70 : WasteFootprint_hazardous-kilogram  | | 100.0% | Progress:  187
 - 62/70 : WasteFootprint_incineration-cubicmeter | | 100.0% | Progress:     2
 - 63/70 : WasteFootprint_incineration-kilogram | | 100.0% | Progress:  2637
 - 64/70 : WasteFootprint_landfill-cubicmeter | | 100.0% | Progress:     2 of
 - 65/70 : WasteFootprint_landfill-kilogram   | | 100.0% | Progress:  1712 of
 - 66/70 : WasteFootprint_openburning-kilogram | | 100.0% | Progress:   53
 - 67/70 : WasteFootprint_radioactive-cubicmeter | | 100.0% | Progress:   30
 - 68/70 : WasteFootprint_recycling-kilogram  | | 100.0% | Progress:    84 o
 - 69/70 : WasteFootprint_total-cubicmeter    | | 100.0% | Progress:  4695 o
 - 70/70 : WasteFootprint_total-kilogram      | | 100.0% | Progress: 30759 o
********************************************************************************************************

*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-Base_2090 in 0:24:39 (h:m:s) ***

********************************************************************************************************

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2090 in project TreX-premise-SSP2-cutoff **

        Score: 6.44e-22
        Method: Holmium
        Activity: market for diesel, burned in building machine
        Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2090

** Database verified successfully! **

================================================================================================
        *** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2090 ***
                Duration: 0:24:55 (h:m:s)
        *** Woah woah wee waa, great success!! ***
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------------------------------------------------------------------------------

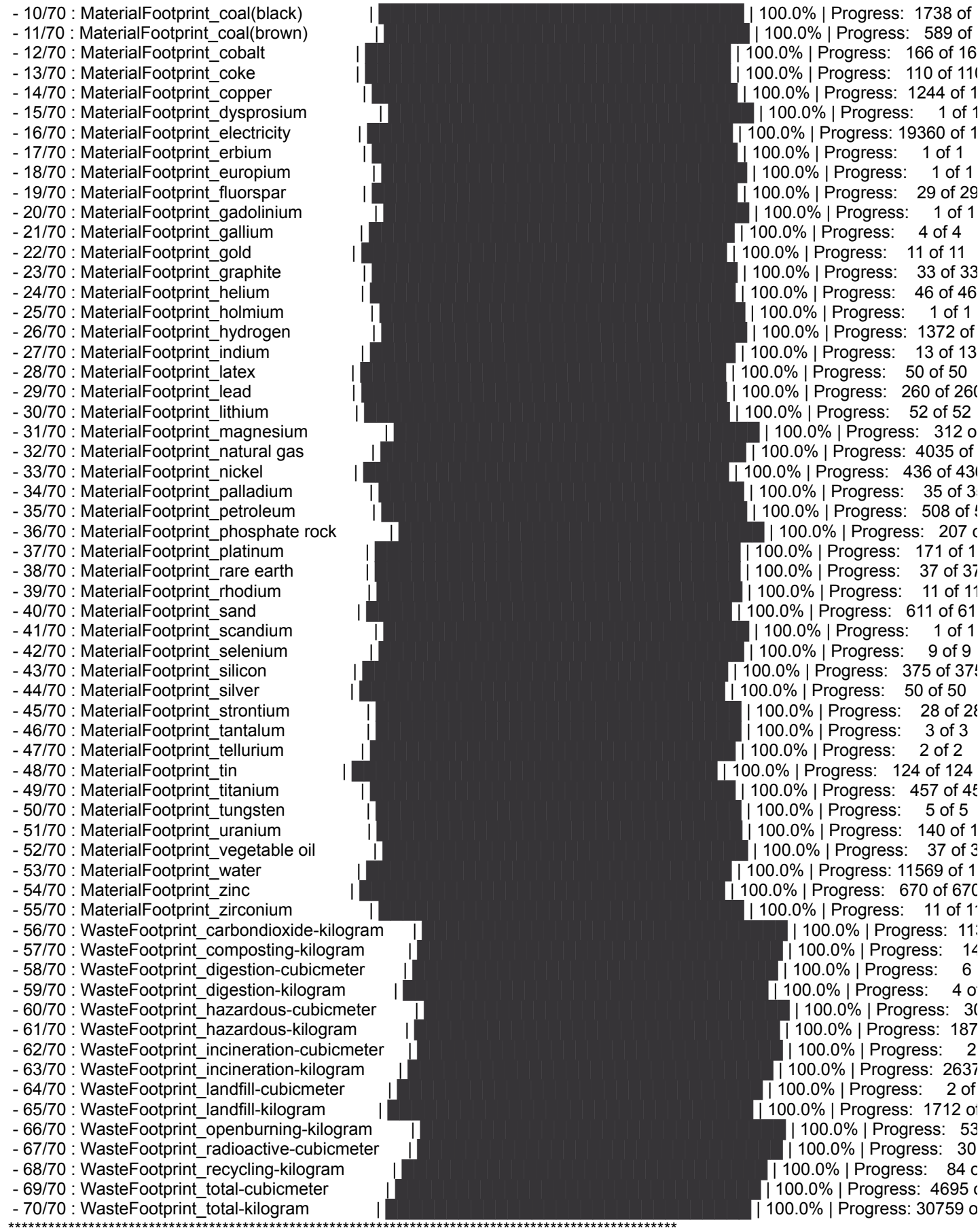

------------------------------------------------------------------------------

** Processing database (17/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2095**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S


*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-Base_2095 ***

* Appending waste and material exchanges in biosphere_T-reX

 -  1/70 : MaterialFootprint_aluminium        | | 100.0% | Progress:  2101 of
 -  2/70 : MaterialFootprint_antimony         | | 100.0% | Progress:    27 of 27
 -  3/70 : MaterialFootprint_bauxite          | | 100.0% | Progress:    28 of 28
 -  4/70 : MaterialFootprint_beryllium        | | 100.0% | Progress:     1 of 1
 -  5/70 : MaterialFootprint_borates          | | 100.0% | Progress:    15 of 15
 -  6/70 : MaterialFootprint_cadmium          | | 100.0% | Progress:    17 of 17
 -  7/70 : MaterialFootprint_cement           | | 100.0% | Progress:  1555 of 1
 -  8/70 : MaterialFootprint_cerium           | | 100.0% | Progress:     3 of 3
 -  9/70 : MaterialFootprint_chromium         | | 100.0% | Progress:   473 of 4
```



****

*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-Base_2095 in 0:24:47 (h:m:s) ***

****

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2095 in project TreX-premise-SSP2-cutoff **

Score: 1.13e-06
Method: Uranium

Activity: chromium oxide production, flakes
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2095

** Database verified successfully! **

==========

*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2095 ***
Duration: 0:25:04 (h:m:s)
*** Woah woah wee waa, great success!! ***

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** Processing database (18/35): ecoinvent_cutoff_3.9_remind_SSP2-Base_2100**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-Base_2100 ***

* Appending waste and material exchanges in biosphere_T-reX

- 1/70 : MaterialFootprint_aluminium | 100.0% | Progress: 2101 of
- 2/70 : MaterialFootprint_antimony | 100.0% | Progress: 27 of 27
- 3/70 : MaterialFootprint_bauxite | 100.0% | Progress: 28 of 28
- 4/70 : MaterialFootprint_beryllium | 100.0% | Progress: 1 of 1
- 5/70 : MaterialFootprint_borates | 100.0% | Progress: 15 of 15
- 6/70 : MaterialFootprint_cadmium | 100.0% | Progress: 17 of 1
- 7/70 : MaterialFootprint_cement | 100.0% | Progress: 1555 of 1
- 8/70 : MaterialFootprint_cerium | 100.0% | Progress: 3 of 3
- 9/70 : MaterialFootprint_chromium | 100.0% | Progress: 473 of 4
- 10/70 : MaterialFootprint_coal(black) | 100.0% | Progress: 1738 of
- 11/70 : MaterialFootprint_coal(brown) | 100.0% | Progress: 589 of
- 12/70 : MaterialFootprint_cobalt | 100.0% | Progress: 166 of 16
- 13/70 : MaterialFootprint_coke | 100.0% | Progress: 110 of 11
- 14/70 : MaterialFootprint_copper | 100.0% | Progress: 1244 of 1
- 15/70 : MaterialFootprint_dysprosium | 100.0% | Progress: 1 of 1
- 16/70 : MaterialFootprint_electricity | 100.0% | Progress: 19360 of 1
- 17/70 : MaterialFootprint_erbium | 100.0% | Progress: 1 of 1
- 18/70 : MaterialFootprint_europium | 100.0% | Progress: 1 of 1
- 19/70 : MaterialFootprint_fluorspar | 100.0% | Progress: 29 of 29
- 20/70 : MaterialFootprint_gadolinium | 100.0% | Progress: 1 of 1
- 21/70 : MaterialFootprint_gallium | 100.0% | Progress: 4 of 4
- 22/70 : MaterialFootprint_gold | 100.0% | Progress: 11 of 11
- 23/70 : MaterialFootprint_graphite | 100.0% | Progress: 33 of 33
- 24/70 : MaterialFootprint_helium | 100.0% | Progress: 46 of 46
- 25/70 : MaterialFootprint_holmium | 100.0% | Progress: 1 of 1
- 26/70 : MaterialFootprint_hydrogen | 100.0% | Progress: 1372 of
- 27/70 : MaterialFootprint_indium | 100.0% | Progress: 13 of 13
- 28/70 : MaterialFootprint_latex | 100.0% | Progress: 50 of 50
- 29/70 : MaterialFootprint_lead | 100.0% | Progress: 260 of 26
- 30/70 : MaterialFootprint_lithium | 100.0% | Progress: 52 of 52
- 31/70 : MaterialFootprint_magnesium | 100.0% | Progress: 312 o
- 32/70 : MaterialFootprint_natural gas | 100.0% | Progress: 4035 of
- 33/70 : MaterialFootprint_nickel | 100.0% | Progress: 436 of 43
- 34/70 : MaterialFootprint_palladium | 100.0% | Progress: 35 of 3
- 35/70 : MaterialFootprint_petroleum | 100.0% | Progress: 508 of
- 36/70 : MaterialFootprint_phosphate rock | 100.0% | Progress: 207 o
- 37/70 : MaterialFootprint_platinum | 100.0% | Progress: 171 of 1
- 38/70 : MaterialFootprint_rare earth | 100.0% | Progress: 37 of 37
- 39/70 : MaterialFootprint_rhodium | 100.0% | Progress: 11 of 11
- 40/70 : MaterialFootprint_sand | 100.0% | Progress: 611 of 61
- 41/70 : MaterialFootprint_scandium | 100.0% | Progress: 1 of 1
- 42/70 : MaterialFootprint_selenium | 100.0% | Progress: 9 of 9
- 43/70 : MaterialFootprint_silicon | 100.0% | Progress: 375 of 375
- 44/70 : MaterialFootprint_silver | 100.0% | Progress: 50 of 50
- 45/70 : MaterialFootprint_strontium | 100.0% | Progress: 28 of 28
- 46/70 : MaterialFootprint_tantalum | 100.0% | Progress: 3 of 3
- 47/70 : MaterialFootprint_tellurium | 100.0% | Progress: 2 of 2

- 48/70 : MaterialFootprint_tin | 100.0% | Progress: 124 of 124
- 49/70 : MaterialFootprint_titanium | 100.0% | Progress: 457 of 45
- 50/70 : MaterialFootprint_tungsten | 100.0% | Progress: 5 of 5
- 51/70 : MaterialFootprint_uranium | 100.0% | Progress: 140 of 1
- 52/70 : MaterialFootprint_vegetable oil | 100.0% | Progress: 37 of 3
- 53/70 : MaterialFootprint_water | 100.0% | Progress: 11569 of 1
- 54/70 : MaterialFootprint_zinc | 100.0% | Progress: 670 of 670
- 55/70 : MaterialFootprint_zirconium | 100.0% | Progress: 11 of 1
- 56/70 : WasteFootprint_carbondioxide-kilogram | 100.0% | Progress: 11
- 57/70 : WasteFootprint_composting-kilogram | 100.0% | Progress: 14
- 58/70 : WasteFootprint_digestion-cubicmeter | 100.0% | Progress: 6
- 59/70 : WasteFootprint_digestion-kilogram | 100.0% | Progress: 4 o
- 60/70 : WasteFootprint_hazardous-cubicmeter | 100.0% | Progress: 3(
- 61/70 : WasteFootprint_hazardous-kilogram | 100.0% | Progress: 187
- 62/70 : WasteFootprint_incineration-cubicmeter | 100.0% | Progress: 2
- 63/70 : WasteFootprint_incineration-kilogram | 100.0% | Progress: 2637
- 64/70 : WasteFootprint_landfill-cubicmeter | 100.0% | Progress: 2 of
- 65/70 : WasteFootprint_landfill-kilogram | 100.0% | Progress: 1712 o
- 66/70 : WasteFootprint_openburning-kilogram | 100.0% | Progress: 53
- 67/70 : WasteFootprint_radioactive-cubicmeter | 100.0% | Progress: 30
- 68/70 : WasteFootprint_recycling-kilogram | 100.0% | Progress: 84 c
- 69/70 : WasteFootprint_total-cubicmeter | 100.0% | Progress: 4695 c
- 70/70 : WasteFootprint_total-kilogram | 100.0% | Progress: 30759 o

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*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-Base_2100 in 0:25:26 (h:m:s) ***

****

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2100 in project TreX-premise-SSP2-cutoff **

Score: 8.44e-07
Method: Latex
Activity: electricity production, photovoltaic, photovoltaic slanted-roof installation, 3 kWp, single-Si, laminated, integrated
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2100

** Database verified successfully! **

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*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-Base_2100 ***
Duration: 0:25:40 (h:m:s)
*** Woah woah wee waa, great success!! ***

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** Processing database (19/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2020**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2020 ***

* Appending waste and material exchanges in biosphere_T-reX

- 1/70 : MaterialFootprint_aluminium | 100.0% | Progress: 2101 of
- 2/70 : MaterialFootprint_antimony | 100.0% | Progress: 27 of 27
- 3/70 : MaterialFootprint_bauxite | 100.0% | Progress: 28 of 28
- 4/70 : MaterialFootprint_beryllium | 100.0% | Progress: 1 of 1
- 5/70 : MaterialFootprint_borates | 100.0% | Progress: 15 of 15
- 6/70 : MaterialFootprint_cadmium | 100.0% | Progress: 17 of 1
- 7/70 : MaterialFootprint_cement | 100.0% | Progress: 1555 of 1
- 8/70 : MaterialFootprint_cerium | 100.0% | Progress: 3 of 3
- 9/70 : MaterialFootprint_chromium | 100.0% | Progress: 473 of 4
- 10/70 : MaterialFootprint_coal(black) | 100.0% | Progress: 1738 of
- 11/70 : MaterialFootprint_coal(brown) | 100.0% | Progress: 589 of
- 12/70 : MaterialFootprint_cobalt | 100.0% | Progress: 166 of 16
- 13/70 : MaterialFootprint_coke | 100.0% | Progress: 110 of 11
- 14/70 : MaterialFootprint_copper | 100.0% | Progress: 1244 of 1

- 15/70 : MaterialFootprint_dysprosium | 100.0% | Progress: 1 of 1
- 16/70 : MaterialFootprint_electricity | 100.0% | Progress: 19360 of 1
- 17/70 : MaterialFootprint_erbium | 100.0% | Progress: 1 of 1
- 18/70 : MaterialFootprint_europium | 100.0% | Progress: 1 of 1
- 19/70 : MaterialFootprint_fluorspar | 100.0% | Progress: 29 of 29
- 20/70 : MaterialFootprint_gadolinium | 100.0% | Progress: 1 of 1
- 21/70 : MaterialFootprint_gallium | 100.0% | Progress: 4 of 4
- 22/70 : MaterialFootprint_gold | 100.0% | Progress: 11 of 11
- 23/70 : MaterialFootprint_graphite | 100.0% | Progress: 33 of 33
- 24/70 : MaterialFootprint_helium | 100.0% | Progress: 46 of 46
- 25/70 : MaterialFootprint_holmium | 100.0% | Progress: 1 of 1
- 26/70 : MaterialFootprint_hydrogen | 100.0% | Progress: 686 of
- 27/70 : MaterialFootprint_indium | 100.0% | Progress: 13 of 13
- 28/70 : MaterialFootprint_latex | 100.0% | Progress: 50 of 50
- 29/70 : MaterialFootprint_lead | 100.0% | Progress: 260 of 26
- 30/70 : MaterialFootprint_lithium | 100.0% | Progress: 52 of 52
- 31/70 : MaterialFootprint_magnesium | 100.0% | Progress: 312 o
- 32/70 : MaterialFootprint_natural gas | 100.0% | Progress: 4105 of
- 33/70 : MaterialFootprint_nickel | 100.0% | Progress: 436 of 43
- 34/70 : MaterialFootprint_palladium | 100.0% | Progress: 35 of 3
- 35/70 : MaterialFootprint_petroleum | 100.0% | Progress: 508 of
- 36/70 : MaterialFootprint_phosphate rock | 100.0% | Progress: 207
- 37/70 : MaterialFootprint_platinum | 100.0% | Progress: 171 of 1
- 38/70 : MaterialFootprint_rare earth | 100.0% | Progress: 37 of 37
- 39/70 : MaterialFootprint_rhodium | 100.0% | Progress: 11 of 11
- 40/70 : MaterialFootprint_sand | 100.0% | Progress: 611 of 61
- 41/70 : MaterialFootprint_scandium | 100.0% | Progress: 1 of 1
- 42/70 : MaterialFootprint_selenium | 100.0% | Progress: 9 of 9
- 43/70 : MaterialFootprint_silicon | 100.0% | Progress: 375 of 375
- 44/70 : MaterialFootprint_silver | 100.0% | Progress: 50 of 50
- 45/70 : MaterialFootprint_strontium | 100.0% | Progress: 28 of 28
- 46/70 : MaterialFootprint_tantalum | 100.0% | Progress: 3 of 3
- 47/70 : MaterialFootprint_tellurium | 100.0% | Progress: 2 of 2
- 48/70 : MaterialFootprint_tin | 100.0% | Progress: 124 of 124
- 49/70 : MaterialFootprint_titanium | 100.0% | Progress: 457 of 45
- 50/70 : MaterialFootprint_tungsten | 100.0% | Progress: 5 of 5
- 51/70 : MaterialFootprint_uranium | 100.0% | Progress: 140 of 1
- 52/70 : MaterialFootprint_vegetable oil | 100.0% | Progress: 37 of 3
- 53/70 : MaterialFootprint_water | 100.0% | Progress: 11569 of 1
- 54/70 : MaterialFootprint_zinc | 100.0% | Progress: 670 of 670
- 55/70 : MaterialFootprint_zirconium | 100.0% | Progress: 11 of 1
- 56/70 : WasteFootprint_carbondioxide-kilogram | 100.0% | Progress: 11
- 57/70 : WasteFootprint_composting-kilogram | 100.0% | Progress: 14
- 58/70 : WasteFootprint_digestion-cubicmeter | 100.0% | Progress: 6
- 59/70 : WasteFootprint_digestion-kilogram | 100.0% | Progress: 4 o
- 60/70 : WasteFootprint_hazardous-cubicmeter | 100.0% | Progress: 3
- 61/70 : WasteFootprint_hazardous-kilogram | 100.0% | Progress: 187
- 62/70 : WasteFootprint_incineration-cubicmeter | 100.0% | Progress: 2
- 63/70 : WasteFootprint_incineration-kilogram | 100.0% | Progress: 2637
- 64/70 : WasteFootprint_landfill-cubicmeter | 100.0% | Progress: 2 of
- 65/70 : WasteFootprint_landfill-kilogram | 100.0% | Progress: 1712 o
- 66/70 : WasteFootprint_openburning-kilogram | 100.0% | Progress: 53
- 67/70 : WasteFootprint_radioactive-cubicmeter | 100.0% | Progress: 30
- 68/70 : WasteFootprint_recycling-kilogram | 100.0% | Progress: 84 c
- 69/70 : WasteFootprint_total-cubicmeter | 100.0% | Progress: 4695 c
- 70/70 : WasteFootprint_total-kilogram | 100.0% | Progress: 30759 o

****

*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2020 in 0:24:46 (h:m:s) ***

****

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2020 in project TreX-premise-SSP2-cutoff **

Score: 5.20e-07
Method: Fluorspar
Activity: heat production, softwood chips from forest, at furnace 300kW, state-of-the-art 2014
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2020

** Database verified successfully! **

```
================================================================================================
      *** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2020 ***
                  Duration: 0:25:00 (h:m:s)
      *** Woah woah wee waa, great success!! ***
================================================================================================
------------------------------------------------------------------------------


------------------------------------------------------------------------------

** Processing database (20/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2025**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S


*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2025 ***

* Appending waste and material exchanges in biosphere_T-reX

 -  1/70 : MaterialFootprint_aluminium          | | 100.0% | Progress:  2101 of
 -  2/70 : MaterialFootprint_antimony           | | 100.0% | Progress:    27 of 27
 -  3/70 : MaterialFootprint_bauxite            | | 100.0% | Progress:    28 of 28
 -  4/70 : MaterialFootprint_beryllium          | | 100.0% | Progress:     1 of 1
 -  5/70 : MaterialFootprint_borates            | | 100.0% | Progress:    15 of 15
 -  6/70 : MaterialFootprint_cadmium            | | 100.0% | Progress:    17 of 1
 -  7/70 : MaterialFootprint_cement             | | 100.0% | Progress:  1555 of 1
 -  8/70 : MaterialFootprint_cerium             | | 100.0% | Progress:     3 of 3
 -  9/70 : MaterialFootprint_chromium           | | 100.0% | Progress:   473 of
 - 10/70 : MaterialFootprint_coal(black)        | | 100.0% | Progress:  1738 of
 - 11/70 : MaterialFootprint_coal(brown)        | | 100.0% | Progress:   589 of
 - 12/70 : MaterialFootprint_cobalt             | | 100.0% | Progress:   166 of 16
 - 13/70 : MaterialFootprint_coke               | | 100.0% | Progress:   110 of 11
 - 14/70 : MaterialFootprint_copper             | | 100.0% | Progress:  1244 of 1
 - 15/70 : MaterialFootprint_dysprosium         | | 100.0% | Progress:     1 of 1
 - 16/70 : MaterialFootprint_electricity        | | 100.0% | Progress: 19360 of 1
 - 17/70 : MaterialFootprint_erbium             | | 100.0% | Progress:     1 of 1
 - 18/70 : MaterialFootprint_europium           | | 100.0% | Progress:     1 of 1
 - 19/70 : MaterialFootprint_fluorspar          | | 100.0% | Progress:    29 of 29
 - 20/70 : MaterialFootprint_gadolinium         | | 100.0% | Progress:     1 of 1
 - 21/70 : MaterialFootprint_gallium            | | 100.0% | Progress:     4 of 4
 - 22/70 : MaterialFootprint_gold               | | 100.0% | Progress:    11 of 11
 - 23/70 : MaterialFootprint_graphite           | | 100.0% | Progress:    33 of 33
 - 24/70 : MaterialFootprint_helium             | | 100.0% | Progress:    46 of 46
 - 25/70 : MaterialFootprint_holmium            | | 100.0% | Progress:     1 of 1
 - 26/70 : MaterialFootprint_hydrogen           | | 100.0% | Progress:   952 of
 - 27/70 : MaterialFootprint_indium             | | 100.0% | Progress:    13 of 13
 - 28/70 : MaterialFootprint_latex              | | 100.0% | Progress:    50 of 50
 - 29/70 : MaterialFootprint_lead               | | 100.0% | Progress:   260 of 26
 - 30/70 : MaterialFootprint_lithium            | | 100.0% | Progress:    52 of 52
 - 31/70 : MaterialFootprint_magnesium          | | 100.0% | Progress:   312 o
 - 32/70 : MaterialFootprint_natural gas        | | 100.0% | Progress:  4035 of
 - 33/70 : MaterialFootprint_nickel             | | 100.0% | Progress:   436 of 43
 - 34/70 : MaterialFootprint_palladium          | | 100.0% | Progress:    35 of 3
 - 35/70 : MaterialFootprint_petroleum          | | 100.0% | Progress:   508 of
 - 36/70 : MaterialFootprint_phosphate rock     | | 100.0% | Progress:   207 c
 - 37/70 : MaterialFootprint_platinum           | | 100.0% | Progress:   171 of 1
 - 38/70 : MaterialFootprint_rare earth         | | 100.0% | Progress:    37 of 37
 - 39/70 : MaterialFootprint_rhodium            | | 100.0% | Progress:    11 of 11
 - 40/70 : MaterialFootprint_sand               | | 100.0% | Progress:   611 of 61
 - 41/70 : MaterialFootprint_scandium           | | 100.0% | Progress:     1 of 1
 - 42/70 : MaterialFootprint_selenium           | | 100.0% | Progress:     9 of 9
 - 43/70 : MaterialFootprint_silicon            | | 100.0% | Progress:   375 of 375
 - 44/70 : MaterialFootprint_silver             | | 100.0% | Progress:    50 of 50
 - 45/70 : MaterialFootprint_strontium          | | 100.0% | Progress:    28 of 28
 - 46/70 : MaterialFootprint_tantalum           | | 100.0% | Progress:     3 of 3
 - 47/70 : MaterialFootprint_tellurium          | | 100.0% | Progress:     2 of 2
 - 48/70 : MaterialFootprint_tin                | | 100.0% | Progress:   124 of 124
 - 49/70 : MaterialFootprint_titanium           | | 100.0% | Progress:   457 of 45
 - 50/70 : MaterialFootprint_tungsten           | | 100.0% | Progress:     5 of 5
 - 51/70 : MaterialFootprint_uranium            | | 100.0% | Progress:   140 of 1
 - 52/70 : MaterialFootprint_vegetable oil      | | 100.0% | Progress:    37 of 3
```

- 53/70 : MaterialFootprint_water | | 100.0% | Progress: 11581 of 1
- 54/70 : MaterialFootprint_zinc | | 100.0% | Progress: 670 of 67
- 55/70 : MaterialFootprint_zirconium | | 100.0% | Progress: 11 of 1
- 56/70 : WasteFootprint_carbondioxide-kilogram | | 100.0% | Progress: 11
- 57/70 : WasteFootprint_composting-kilogram | | 100.0% | Progress: 14
- 58/70 : WasteFootprint_digestion-cubicmeter | | 100.0% | Progress: 6
- 59/70 : WasteFootprint_digestion-kilogram | | 100.0% | Progress: 4 o
- 60/70 : WasteFootprint_hazardous-cubicmeter | | 100.0% | Progress: 3
- 61/70 : WasteFootprint_hazardous-kilogram | | 100.0% | Progress: 187
- 62/70 : WasteFootprint_incineration-cubicmeter | | 100.0% | Progress: 2
- 63/70 : WasteFootprint_incineration-kilogram | | 100.0% | Progress: 2637
- 64/70 : WasteFootprint_landfill-cubicmeter | | 100.0% | Progress: 2 of
- 65/70 : WasteFootprint_landfill-kilogram | | 100.0% | Progress: 1712 o
- 66/70 : WasteFootprint_openburning-kilogram | | 100.0% | Progress: 53
- 67/70 : WasteFootprint_radioactive-cubicmeter | | 100.0% | Progress: 30
- 68/70 : WasteFootprint_recycling-kilogram | | 100.0% | Progress: 84 c
- 69/70 : WasteFootprint_total-cubicmeter | | 100.0% | Progress: 4695 c
- 70/70 : WasteFootprint_total-kilogram | | 100.0% | Progress: 30759 o

****

*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2025 in 0:25:02 (h:m:s) ***

****

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2025 in project TreX-premise-SSP2-cutoff **

Score: 9.82e-15
Method: Selenium
Activity: municipal waste collection service by 21 metric ton lorry
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2025

** Database verified successfully! **

==========

*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2025 ***
Duration: 0:25:18 (h:m:s)
*** Woah woah wee waa, great success!! ***

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** Processing database (21/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2030**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2030 ***

* Appending waste and material exchanges in biosphere_T-reX

- 1/70 : MaterialFootprint_aluminium | | 100.0% | Progress: 2101 of
- 2/70 : MaterialFootprint_antimony | | 100.0% | Progress: 27 of 27
- 3/70 : MaterialFootprint_bauxite | | 100.0% | Progress: 28 of 28
- 4/70 : MaterialFootprint_beryllium | | 100.0% | Progress: 1 of 1
- 5/70 : MaterialFootprint_borates | | 100.0% | Progress: 15 of 15
- 6/70 : MaterialFootprint_cadmium | | 100.0% | Progress: 17 of 1
- 7/70 : MaterialFootprint_cement | | 100.0% | Progress: 1555 of 1
- 8/70 : MaterialFootprint_cerium | | 100.0% | Progress: 3 of 3
- 9/70 : MaterialFootprint_chromium | | 100.0% | Progress: 473 of 4
- 10/70 : MaterialFootprint_coal(black) | | 100.0% | Progress: 1738 of
- 11/70 : MaterialFootprint_coal(brown) | | 100.0% | Progress: 589 of
- 12/70 : MaterialFootprint_cobalt | | 100.0% | Progress: 166 of 16
- 13/70 : MaterialFootprint_coke | | 100.0% | Progress: 110 of 11
- 14/70 : MaterialFootprint_copper | | 100.0% | Progress: 1244 of 1
- 15/70 : MaterialFootprint_dysprosium | | 100.0% | Progress: 1 of 1
- 16/70 : MaterialFootprint_electricity | | 100.0% | Progress: 19360 of 1
- 17/70 : MaterialFootprint_erbium | | 100.0% | Progress: 1 of 1
- 18/70 : MaterialFootprint_europium | | 100.0% | Progress: 1 of 1
- 19/70 : MaterialFootprint_fluorspar | | 100.0% | Progress: 29 of 29

- 20/70 : MaterialFootprint_gadolinium | 100.0% | Progress: 1 of 1
- 21/70 : MaterialFootprint_gallium | 100.0% | Progress: 4 of 4
- 22/70 : MaterialFootprint_gold | 100.0% | Progress: 11 of 11
- 23/70 : MaterialFootprint_graphite | 100.0% | Progress: 33 of 33
- 24/70 : MaterialFootprint_helium | 100.0% | Progress: 46 of 46
- 25/70 : MaterialFootprint_holmium | 100.0% | Progress: 1 of 1
- 26/70 : MaterialFootprint_hydrogen | 100.0% | Progress: 1204 of
- 27/70 : MaterialFootprint_indium | 100.0% | Progress: 13 of 13
- 28/70 : MaterialFootprint_latex | 100.0% | Progress: 50 of 50
- 29/70 : MaterialFootprint_lead | 100.0% | Progress: 260 of 26(
- 30/70 : MaterialFootprint_lithium | 100.0% | Progress: 52 of 52
- 31/70 : MaterialFootprint_magnesium | 100.0% | Progress: 312 o
- 32/70 : MaterialFootprint_natural gas | 100.0% | Progress: 4021 of
- 33/70 : MaterialFootprint_nickel | 100.0% | Progress: 436 of 43(
- 34/70 : MaterialFootprint_palladium | 100.0% | Progress: 35 of 3
- 35/70 : MaterialFootprint_petroleum | 100.0% | Progress: 508 of 5
- 36/70 : MaterialFootprint_phosphate rock | 100.0% | Progress: 207 c
- 37/70 : MaterialFootprint_platinum | 100.0% | Progress: 171 of 1
- 38/70 : MaterialFootprint_rare earth | 100.0% | Progress: 37 of 37
- 39/70 : MaterialFootprint_rhodium | 100.0% | Progress: 11 of 11
- 40/70 : MaterialFootprint_sand | 100.0% | Progress: 611 of 61
- 41/70 : MaterialFootprint_scandium | 100.0% | Progress: 1 of 1
- 42/70 : MaterialFootprint_selenium | 100.0% | Progress: 9 of 9
- 43/70 : MaterialFootprint_silicon | 100.0% | Progress: 375 of 375
- 44/70 : MaterialFootprint_silver | 100.0% | Progress: 50 of 50
- 45/70 : MaterialFootprint_strontium | 100.0% | Progress: 28 of 28
- 46/70 : MaterialFootprint_tantalum | 100.0% | Progress: 3 of 3
- 47/70 : MaterialFootprint_tellurium | 100.0% | Progress: 2 of 2
- 48/70 : MaterialFootprint_tin | 100.0% | Progress: 124 of 124
- 49/70 : MaterialFootprint_titanium | 100.0% | Progress: 457 of 45
- 50/70 : MaterialFootprint_tungsten | 100.0% | Progress: 5 of 5
- 51/70 : MaterialFootprint_uranium | 100.0% | Progress: 140 of 1
- 52/70 : MaterialFootprint_vegetable oil | 100.0% | Progress: 37 of 3
- 53/70 : MaterialFootprint_water | 100.0% | Progress: 11597 of 1
- 54/70 : MaterialFootprint_zinc | 100.0% | Progress: 670 of 670
- 55/70 : MaterialFootprint_zirconium | 100.0% | Progress: 11 of 1
- 56/70 : WasteFootprint_carbondioxide-kilogram | 100.0% | Progress: 12
- 57/70 : WasteFootprint_composting-kilogram | 100.0% | Progress: 14
- 58/70 : WasteFootprint_digestion-cubicmeter | 100.0% | Progress: 6
- 59/70 : WasteFootprint_digestion-kilogram | 100.0% | Progress: 4 o
- 60/70 : WasteFootprint_hazardous-cubicmeter | 100.0% | Progress: 3(
- 61/70 : WasteFootprint_hazardous-kilogram | 100.0% | Progress: 187
- 62/70 : WasteFootprint_incineration-cubicmeter | 100.0% | Progress: 2
- 63/70 : WasteFootprint_incineration-kilogram | 100.0% | Progress: 2637
- 64/70 : WasteFootprint_landfill-cubicmeter | 100.0% | Progress: 2 of
- 65/70 : WasteFootprint_landfill-kilogram | 100.0% | Progress: 1712 o
- 66/70 : WasteFootprint_openburning-kilogram | 100.0% | Progress: 53
- 67/70 : WasteFootprint_radioactive-cubicmeter | 100.0% | Progress: 30
- 68/70 : WasteFootprint_recycling-kilogram | 100.0% | Progress: 84 c
- 69/70 : WasteFootprint_total-cubicmeter | 100.0% | Progress: 4695 c
- 70/70 : WasteFootprint_total-kilogram | 100.0% | Progress: 30759 o

****

*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2030 in 0:25:03 (h:m:s) ***

****

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2030 in project TreX-premise-SSP2-cutoff **

Score: 0.00e+00
Method: Borates
Activity: treatment of waste polyvinylchloride, open dump, hyperarid infiltration class (-250mm)
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2030

Score: -2.52e-12
Method: Palladium
Activity: market for waste polystyrene
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2030

** Database verified successfully! **

```
================================================================================================
      *** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2030 ***
                  Duration: 0:25:21 (h:m:s)
      *** Woah woah wee waa, great success!! ***
================================================================================================
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------------------------------------------------------------------------------

** Processing database (22/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2035**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S


*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2035 ***

* Appending waste and material exchanges in biosphere_T-reX

 -  1/70 : MaterialFootprint_aluminium          | 100.0% | Progress:  2101 of
 -  2/70 : MaterialFootprint_antimony           | 100.0% | Progress:    27 of 27
 -  3/70 : MaterialFootprint_bauxite            | 100.0% | Progress:    28 of 28
 -  4/70 : MaterialFootprint_beryllium          | 100.0% | Progress:     1 of 1
 -  5/70 : MaterialFootprint_borates            | 100.0% | Progress:    15 of 15
 -  6/70 : MaterialFootprint_cadmium            | 100.0% | Progress:    17 of 1
 -  7/70 : MaterialFootprint_cement             | 100.0% | Progress:  1555 of 1
 -  8/70 : MaterialFootprint_cerium             | 100.0% | Progress:     3 of 3
 -  9/70 : MaterialFootprint_chromium           | 100.0% | Progress:   473 of 4
 - 10/70 : MaterialFootprint_coal(black)        | 100.0% | Progress:  1738 of
 - 11/70 : MaterialFootprint_coal(brown)        | 100.0% | Progress:   589 of
 - 12/70 : MaterialFootprint_cobalt             | 100.0% | Progress:   166 of 16
 - 13/70 : MaterialFootprint_coke               | 100.0% | Progress:   110 of 11
 - 14/70 : MaterialFootprint_copper             | 100.0% | Progress:  1244 of 1
 - 15/70 : MaterialFootprint_dysprosium         | 100.0% | Progress:     1 of 1
 - 16/70 : MaterialFootprint_electricity        | 100.0% | Progress: 19360 of 1
 - 17/70 : MaterialFootprint_erbium             | 100.0% | Progress:     1 of 1
 - 18/70 : MaterialFootprint_europium           | 100.0% | Progress:     1 of 1
 - 19/70 : MaterialFootprint_fluorspar          | 100.0% | Progress:    29 of 29
 - 20/70 : MaterialFootprint_gadolinium         | 100.0% | Progress:     1 of 1
 - 21/70 : MaterialFootprint_gallium            | 100.0% | Progress:     4 of 4
 - 22/70 : MaterialFootprint_gold               | 100.0% | Progress:    11 of 11
 - 23/70 : MaterialFootprint_graphite           | 100.0% | Progress:    33 of 33
 - 24/70 : MaterialFootprint_helium             | 100.0% | Progress:    46 of 46
 - 25/70 : MaterialFootprint_holmium            | 100.0% | Progress:     1 of 1
 - 26/70 : MaterialFootprint_hydrogen           | 100.0% | Progress:  1302 of
 - 27/70 : MaterialFootprint_indium             | 100.0% | Progress:    13 of 13
 - 28/70 : MaterialFootprint_latex              | 100.0% | Progress:    50 of 50
 - 29/70 : MaterialFootprint_lead               | 100.0% | Progress:   260 of 26
 - 30/70 : MaterialFootprint_lithium            | 100.0% | Progress:    52 of 52
 - 31/70 : MaterialFootprint_magnesium          | 100.0% | Progress:   312 o
 - 32/70 : MaterialFootprint_natural gas        | 100.0% | Progress:  4021 of
 - 33/70 : MaterialFootprint_nickel             | 100.0% | Progress:   436 of 43
 - 34/70 : MaterialFootprint_palladium          | 100.0% | Progress:    35 of 3
 - 35/70 : MaterialFootprint_petroleum          | 100.0% | Progress:   508 of 5
 - 36/70 : MaterialFootprint_phosphate rock     | 100.0% | Progress:   207 o
 - 37/70 : MaterialFootprint_platinum           | 100.0% | Progress:   171 of 1
 - 38/70 : MaterialFootprint_rare earth         | 100.0% | Progress:    37 of 37
 - 39/70 : MaterialFootprint_rhodium            | 100.0% | Progress:    11 of 11
 - 40/70 : MaterialFootprint_sand               | 100.0% | Progress:   611 of 61
 - 41/70 : MaterialFootprint_scandium           | 100.0% | Progress:     1 of 1
 - 42/70 : MaterialFootprint_selenium           | 100.0% | Progress:     9 of 9
 - 43/70 : MaterialFootprint_silicon            | 100.0% | Progress:   375 of 375
 - 44/70 : MaterialFootprint_silver             | 100.0% | Progress:    50 of 50
 - 45/70 : MaterialFootprint_strontium          | 100.0% | Progress:    28 of 28
 - 46/70 : MaterialFootprint_tantalum           | 100.0% | Progress:     3 of 3
 - 47/70 : MaterialFootprint_tellurium          | 100.0% | Progress:     2 of 2
 - 48/70 : MaterialFootprint_tin                | 100.0% | Progress:   124 of 124
 - 49/70 : MaterialFootprint_titanium           | 100.0% | Progress:   457 of 45
 - 50/70 : MaterialFootprint_tungsten           | 100.0% | Progress:     5 of 5
 - 51/70 : MaterialFootprint_uranium            | 100.0% | Progress:   140 of 1
 - 52/70 : MaterialFootprint_vegetable oil      | 100.0% | Progress:    37 of 3
```

- 53/70 : MaterialFootprint_water | | 100.0% | Progress: 11609 of 1
- 54/70 : MaterialFootprint_zinc | | 100.0% | Progress: 670 of 67
- 55/70 : MaterialFootprint_zirconium | | 100.0% | Progress: 11 of 1
- 56/70 : WasteFootprint_carbondioxide-kilogram | | 100.0% | Progress: 12
- 57/70 : WasteFootprint_composting-kilogram | | 100.0% | Progress: 14
- 58/70 : WasteFootprint_digestion-cubicmeter | | 100.0% | Progress: 6
- 59/70 : WasteFootprint_digestion-kilogram | | 100.0% | Progress: 4 o
- 60/70 : WasteFootprint_hazardous-cubicmeter | | 100.0% | Progress: 3
- 61/70 : WasteFootprint_hazardous-kilogram | | 100.0% | Progress: 187
- 62/70 : WasteFootprint_incineration-cubicmeter | | 100.0% | Progress: 2
- 63/70 : WasteFootprint_incineration-kilogram | | 100.0% | Progress: 2637
- 64/70 : WasteFootprint_landfill-cubicmeter | | 100.0% | Progress: 2 of
- 65/70 : WasteFootprint_landfill-kilogram | | 100.0% | Progress: 1712 o
- 66/70 : WasteFootprint_openburning-kilogram | | 100.0% | Progress: 53
- 67/70 : WasteFootprint_radioactive-cubicmeter | | 100.0% | Progress: 30
- 68/70 : WasteFootprint_recycling-kilogram | | 100.0% | Progress: 84 c
- 69/70 : WasteFootprint_total-cubicmeter | | 100.0% | Progress: 4695 c
- 70/70 : WasteFootprint_total-kilogram | | 100.0% | Progress: 30759 o

****

*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2035 in 0:24:57 (h:m:s) ***

****

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2035 in project TreX-premise-SSP2-cutoff **

Score: 0.00e+00
Method: Gadolinium
Activity: carbon dioxide, captured from atmosphere and stored, with a sorbent-based direct air capture system, 100ktCO2,
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2035

Score: 1.13e+01
Method: Hydrogen
Activity: Passenger bus, compressed gas, 13m single deck urban bus, 2020, EURO-VI
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2035

** Database verified successfully! **

==========

*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2035 ***
Duration: 0:25:17 (h:m:s)
*** Woah woah wee waa, great success!! ***

==========

** Processing database (23/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2040**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2040 ***

* Appending waste and material exchanges in biosphere_T-reX

- 1/70 : MaterialFootprint_aluminium | | 100.0% | Progress: 2101 of
- 2/70 : MaterialFootprint_antimony | | 100.0% | Progress: 27 of 27
- 3/70 : MaterialFootprint_bauxite | | 100.0% | Progress: 28 of 28
- 4/70 : MaterialFootprint_beryllium | | 100.0% | Progress: 1 of 1
- 5/70 : MaterialFootprint_borates | | 100.0% | Progress: 15 of 15
- 6/70 : MaterialFootprint_cadmium | | 100.0% | Progress: 17 of 1
- 7/70 : MaterialFootprint_cement | | 100.0% | Progress: 1555 of 1
- 8/70 : MaterialFootprint_cerium | | 100.0% | Progress: 3 of 3
- 9/70 : MaterialFootprint_chromium | | 100.0% | Progress: 473 of 4
- 10/70 : MaterialFootprint_coal(black) | | 100.0% | Progress: 1738 of
- 11/70 : MaterialFootprint_coal(brown) | | 100.0% | Progress: 589 of
- 12/70 : MaterialFootprint_cobalt | | 100.0% | Progress: 166 of 16
- 13/70 : MaterialFootprint_coke | | 100.0% | Progress: 110 of 11
- 14/70 : MaterialFootprint_copper | | 100.0% | Progress: 1244 of 1

- 15/70 : MaterialFootprint_dysprosium | 100.0% | Progress: 1 of 1
- 16/70 : MaterialFootprint_electricity | 100.0% | Progress: 19360 of 1
- 17/70 : MaterialFootprint_erbium | 100.0% | Progress: 1 of 1
- 18/70 : MaterialFootprint_europium | 100.0% | Progress: 1 of 1
- 19/70 : MaterialFootprint_fluorspar | 100.0% | Progress: 29 of 29
- 20/70 : MaterialFootprint_gadolinium | 100.0% | Progress: 1 of 1
- 21/70 : MaterialFootprint_gallium | 100.0% | Progress: 4 of 4
- 22/70 : MaterialFootprint_gold | 100.0% | Progress: 11 of 11
- 23/70 : MaterialFootprint_graphite | 100.0% | Progress: 33 of 33
- 24/70 : MaterialFootprint_helium | 100.0% | Progress: 46 of 46
- 25/70 : MaterialFootprint_holmium | 100.0% | Progress: 1 of 1
- 26/70 : MaterialFootprint_hydrogen | 100.0% | Progress: 1372 of
- 27/70 : MaterialFootprint_indium | 100.0% | Progress: 13 of 13
- 28/70 : MaterialFootprint_latex | 100.0% | Progress: 50 of 50
- 29/70 : MaterialFootprint_lead | 100.0% | Progress: 260 of 26(
- 30/70 : MaterialFootprint_lithium | 100.0% | Progress: 52 of 52
- 31/70 : MaterialFootprint_magnesium | 100.0% | Progress: 312 o
- 32/70 : MaterialFootprint_natural gas | 100.0% | Progress: 4035 of
- 33/70 : MaterialFootprint_nickel | 100.0% | Progress: 436 of 43(
- 34/70 : MaterialFootprint_palladium | 100.0% | Progress: 35 of 3
- 35/70 : MaterialFootprint_petroleum | 100.0% | Progress: 508 of 5
- 36/70 : MaterialFootprint_phosphate rock | 100.0% | Progress: 207 c
- 37/70 : MaterialFootprint_platinum | 100.0% | Progress: 171 of 1
- 38/70 : MaterialFootprint_rare earth | 100.0% | Progress: 37 of 37
- 39/70 : MaterialFootprint_rhodium | 100.0% | Progress: 11 of 11
- 40/70 : MaterialFootprint_sand | 100.0% | Progress: 611 of 61
- 41/70 : MaterialFootprint_scandium | 100.0% | Progress: 1 of 1
- 42/70 : MaterialFootprint_selenium | 100.0% | Progress: 9 of 9
- 43/70 : MaterialFootprint_silicon | 100.0% | Progress: 375 of 375
- 44/70 : MaterialFootprint_silver | 100.0% | Progress: 50 of 50
- 45/70 : MaterialFootprint_strontium | 100.0% | Progress: 28 of 28
- 46/70 : MaterialFootprint_tantalum | 100.0% | Progress: 3 of 3
- 47/70 : MaterialFootprint_tellurium | 100.0% | Progress: 2 of 2
- 48/70 : MaterialFootprint_tin | 100.0% | Progress: 124 of 124
- 49/70 : MaterialFootprint_titanium | 100.0% | Progress: 457 of 45
- 50/70 : MaterialFootprint_tungsten | 100.0% | Progress: 5 of 5
- 51/70 : MaterialFootprint_uranium | 100.0% | Progress: 140 of 1
- 52/70 : MaterialFootprint_vegetable oil | 100.0% | Progress: 37 of 3
- 53/70 : MaterialFootprint_water | 100.0% | Progress: 11611 of 1
- 54/70 : MaterialFootprint_zinc | 100.0% | Progress: 670 of 670
- 55/70 : MaterialFootprint_zirconium | 100.0% | Progress: 11 of 1
- 56/70 : WasteFootprint_carbondioxide-kilogram | 100.0% | Progress: 12
- 57/70 : WasteFootprint_composting-kilogram | 100.0% | Progress: 14
- 58/70 : WasteFootprint_digestion-cubicmeter | 100.0% | Progress: 6
- 59/70 : WasteFootprint_digestion-kilogram | 100.0% | Progress: 4 o
- 60/70 : WasteFootprint_hazardous-cubicmeter | 100.0% | Progress: 3(
- 61/70 : WasteFootprint_hazardous-kilogram | 100.0% | Progress: 187
- 62/70 : WasteFootprint_incineration-cubicmeter | 100.0% | Progress: 2
- 63/70 : WasteFootprint_incineration-kilogram | 100.0% | Progress: 2637
- 64/70 : WasteFootprint_landfill-cubicmeter | 100.0% | Progress: 2 of
- 65/70 : WasteFootprint_landfill-kilogram | 100.0% | Progress: 1712 o
- 66/70 : WasteFootprint_openburning-kilogram | 100.0% | Progress: 53
- 67/70 : WasteFootprint_radioactive-cubicmeter | 100.0% | Progress: 30
- 68/70 : WasteFootprint_recycling-kilogram | 100.0% | Progress: 84 c
- 69/70 : WasteFootprint_total-cubicmeter | 100.0% | Progress: 4695 c
- 70/70 : WasteFootprint_total-kilogram | 100.0% | Progress: 30759 o

****

*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2040 in 0:24:54 (h:m:s) ***

****

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2040 in project TreX-premise-SSP2-cutoff **

Score: 1.88e+00
Method: Sand
Activity: tillage, hoeing and earthing-up, potatoes
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2040

** Database verified successfully! **

```
================================================================================================
      *** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2040 ***
                  Duration: 0:25:09 (h:m:s)
      *** Woah woah wee waa, great success!! ***
================================================================================================
------------------------------------------------------------------------------


------------------------------------------------------------------------------

** Processing database (24/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2045**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S


*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2045 ***

* Appending waste and material exchanges in biosphere_T-reX

 -  1/70 : MaterialFootprint_aluminium          | | 100.0% | Progress:  2101 of
 -  2/70 : MaterialFootprint_antimony           | | 100.0% | Progress:    27 of 27
 -  3/70 : MaterialFootprint_bauxite            | | 100.0% | Progress:    28 of 28
 -  4/70 : MaterialFootprint_beryllium          | | 100.0% | Progress:     1 of 1
 -  5/70 : MaterialFootprint_borates            | | 100.0% | Progress:    15 of 15
 -  6/70 : MaterialFootprint_cadmium            | | 100.0% | Progress:    17 of 1
 -  7/70 : MaterialFootprint_cement             | | 100.0% | Progress:  1555 of 1
 -  8/70 : MaterialFootprint_cerium             | | 100.0% | Progress:     3 of 3
 -  9/70 : MaterialFootprint_chromium           | | 100.0% | Progress:   473 of
 - 10/70 : MaterialFootprint_coal(black)        | | 100.0% | Progress:  1738 of
 - 11/70 : MaterialFootprint_coal(brown)        | | 100.0% | Progress:   589 of
 - 12/70 : MaterialFootprint_cobalt             | | 100.0% | Progress:   166 of 16
 - 13/70 : MaterialFootprint_coke               | | 100.0% | Progress:   110 of 11
 - 14/70 : MaterialFootprint_copper             | | 100.0% | Progress:  1244 of 1
 - 15/70 : MaterialFootprint_dysprosium         | | 100.0% | Progress:     1 of 1
 - 16/70 : MaterialFootprint_electricity        | | 100.0% | Progress: 19360 of 1
 - 17/70 : MaterialFootprint_erbium             | | 100.0% | Progress:     1 of 1
 - 18/70 : MaterialFootprint_europium           | | 100.0% | Progress:     1 of 1
 - 19/70 : MaterialFootprint_fluorspar          | | 100.0% | Progress:    29 of 29
 - 20/70 : MaterialFootprint_gadolinium         | | 100.0% | Progress:     1 of 1
 - 21/70 : MaterialFootprint_gallium            | | 100.0% | Progress:     4 of 4
 - 22/70 : MaterialFootprint_gold               | | 100.0% | Progress:    11 of 11
 - 23/70 : MaterialFootprint_graphite           | | 100.0% | Progress:    33 of 33
 - 24/70 : MaterialFootprint_helium             | | 100.0% | Progress:    46 of 46
 - 25/70 : MaterialFootprint_holmium            | | 100.0% | Progress:     1 of 1
 - 26/70 : MaterialFootprint_hydrogen           | | 100.0% | Progress:  1372 of
 - 27/70 : MaterialFootprint_indium             | | 100.0% | Progress:    13 of 13
 - 28/70 : MaterialFootprint_latex              | | 100.0% | Progress:    50 of 50
 - 29/70 : MaterialFootprint_lead               | | 100.0% | Progress:   260 of 26
 - 30/70 : MaterialFootprint_lithium            | | 100.0% | Progress:    52 of 52
 - 31/70 : MaterialFootprint_magnesium          | | 100.0% | Progress:   312 o
 - 32/70 : MaterialFootprint_natural gas        | | 100.0% | Progress:  4035 of
 - 33/70 : MaterialFootprint_nickel             | | 100.0% | Progress:   436 of 43
 - 34/70 : MaterialFootprint_palladium          | | 100.0% | Progress:    35 of 3
 - 35/70 : MaterialFootprint_petroleum          | | 100.0% | Progress:   508 of
 - 36/70 : MaterialFootprint_phosphate rock     | | 100.0% | Progress:   207 c
 - 37/70 : MaterialFootprint_platinum           | | 100.0% | Progress:   171 of 1
 - 38/70 : MaterialFootprint_rare earth         | | 100.0% | Progress:    37 of 37
 - 39/70 : MaterialFootprint_rhodium            | | 100.0% | Progress:    11 of 11
 - 40/70 : MaterialFootprint_sand               | | 100.0% | Progress:   611 of 61
 - 41/70 : MaterialFootprint_scandium           | | 100.0% | Progress:     1 of 1
 - 42/70 : MaterialFootprint_selenium           | | 100.0% | Progress:     9 of 9
 - 43/70 : MaterialFootprint_silicon            | | 100.0% | Progress:   375 of 375
 - 44/70 : MaterialFootprint_silver             | | 100.0% | Progress:    50 of 50
 - 45/70 : MaterialFootprint_strontium          | | 100.0% | Progress:    28 of 28
 - 46/70 : MaterialFootprint_tantalum           | | 100.0% | Progress:     3 of 3
 - 47/70 : MaterialFootprint_tellurium          | | 100.0% | Progress:     2 of 2
 - 48/70 : MaterialFootprint_tin                | | 100.0% | Progress:   124 of 124
 - 49/70 : MaterialFootprint_titanium           | | 100.0% | Progress:   457 of 45
 - 50/70 : MaterialFootprint_tungsten           | | 100.0% | Progress:     5 of 5
 - 51/70 : MaterialFootprint_uranium            | | 100.0% | Progress:   140 of 1
 - 52/70 : MaterialFootprint_vegetable oil      | | 100.0% | Progress:    37 of 3
```

- 53/70 : MaterialFootprint_water | | 100.0% | Progress: 11611 of 1
- 54/70 : MaterialFootprint_zinc | | 100.0% | Progress: 670 of 670
- 55/70 : MaterialFootprint_zirconium | | 100.0% | Progress: 11 of 1
- 56/70 : WasteFootprint_carbondioxide-kilogram | | 100.0% | Progress: 12
- 57/70 : WasteFootprint_composting-kilogram | | 100.0% | Progress: 14
- 58/70 : WasteFootprint_digestion-cubicmeter | | 100.0% | Progress: 6
- 59/70 : WasteFootprint_digestion-kilogram | | 100.0% | Progress: 4 o
- 60/70 : WasteFootprint_hazardous-cubicmeter | | 100.0% | Progress: 3(
- 61/70 : WasteFootprint_hazardous-kilogram | | 100.0% | Progress: 187
- 62/70 : WasteFootprint_incineration-cubicmeter | | 100.0% | Progress: 2
- 63/70 : WasteFootprint_incineration-kilogram | | 100.0% | Progress: 2637
- 64/70 : WasteFootprint_landfill-cubicmeter | | 100.0% | Progress: 2 of
- 65/70 : WasteFootprint_landfill-kilogram | | 100.0% | Progress: 1712 o
- 66/70 : WasteFootprint_openburning-kilogram | | 100.0% | Progress: 53
- 67/70 : WasteFootprint_radioactive-cubicmeter | | 100.0% | Progress: 30
- 68/70 : WasteFootprint_recycling-kilogram | | 100.0% | Progress: 84 c
- 69/70 : WasteFootprint_total-cubicmeter | | 100.0% | Progress: 4695 c
- 70/70 : WasteFootprint_total-kilogram | | 100.0% | Progress: 30759 o

****

*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2045 in 0:24:55 (h:m:s) ***

****

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2045 in project TreX-premise-SSP2-cutoff **

Score: 1.10e-07
Method: Chromium
Activity: electricity, high voltage, residual mix
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2045

** Database verified successfully! **

==========

*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2045 ***
Duration: 0:25:09 (h:m:s)
*** Woah woah wee waa, great success!! ***

==========

** Processing database (25/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2050**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2050 ***

* Appending waste and material exchanges in biosphere_T-reX

- 1/70 : MaterialFootprint_aluminium | | 100.0% | Progress: 2101 of
- 2/70 : MaterialFootprint_antimony | | 100.0% | Progress: 27 of 27
- 3/70 : MaterialFootprint_bauxite | | 100.0% | Progress: 28 of 28
- 4/70 : MaterialFootprint_beryllium | | 100.0% | Progress: 1 of 1
- 5/70 : MaterialFootprint_borates | | 100.0% | Progress: 15 of 15
- 6/70 : MaterialFootprint_cadmium | | 100.0% | Progress: 17 of 1
- 7/70 : MaterialFootprint_cement | | 100.0% | Progress: 1555 of 1
- 8/70 : MaterialFootprint_cerium | | 100.0% | Progress: 3 of 3
- 9/70 : MaterialFootprint_chromium | | 100.0% | Progress: 473 of 4
- 10/70 : MaterialFootprint_coal(black) | | 100.0% | Progress: 1738 of
- 11/70 : MaterialFootprint_coal(brown) | | 100.0% | Progress: 589 of
- 12/70 : MaterialFootprint_cobalt | | 100.0% | Progress: 166 of 16
- 13/70 : MaterialFootprint_coke | | 100.0% | Progress: 110 of 11(
- 14/70 : MaterialFootprint_copper | | 100.0% | Progress: 1244 of 1
- 15/70 : MaterialFootprint_dysprosium | | 100.0% | Progress: 1 of 1
- 16/70 : MaterialFootprint_electricity | | 100.0% | Progress: 19360 of 1
- 17/70 : MaterialFootprint_erbium | | 100.0% | Progress: 1 of 1
- 18/70 : MaterialFootprint_europium | | 100.0% | Progress: 1 of 1
- 19/70 : MaterialFootprint_fluorspar | | 100.0% | Progress: 29 of 29

```
 - 20/70 : MaterialFootprint_gadolinium          | | 100.0% | Progress:     1 of 1
 - 21/70 : MaterialFootprint_gallium             | | 100.0% | Progress:     4 of 4
 - 22/70 : MaterialFootprint_gold                | | 100.0% | Progress:    11 of 11
 - 23/70 : MaterialFootprint_graphite            | | 100.0% | Progress:    33 of 33
 - 24/70 : MaterialFootprint_helium              | | 100.0% | Progress:    46 of 46
 - 25/70 : MaterialFootprint_holmium             | | 100.0% | Progress:     1 of 1
 - 26/70 : MaterialFootprint_hydrogen            | | 100.0% | Progress:  1372 of
 - 27/70 : MaterialFootprint_indium              | | 100.0% | Progress:    13 of 13
 - 28/70 : MaterialFootprint_latex               | | 100.0% | Progress:    50 of 50
 - 29/70 : MaterialFootprint_lead                | | 100.0% | Progress:   260 of 26(
 - 30/70 : MaterialFootprint_lithium             | | 100.0% | Progress:    52 of 52
 - 31/70 : MaterialFootprint_magnesium           | | 100.0% | Progress:   312 o
 - 32/70 : MaterialFootprint_natural gas         | | 100.0% | Progress:  4035 of
 - 33/70 : MaterialFootprint_nickel              | | 100.0% | Progress:   436 of 43(
 - 34/70 : MaterialFootprint_palladium           | | 100.0% | Progress:    35 of 3
 - 35/70 : MaterialFootprint_petroleum           | | 100.0% | Progress:   508 of 5
 - 36/70 : MaterialFootprint_phosphate rock      | | 100.0% | Progress:   207 o
 - 37/70 : MaterialFootprint_platinum            | | 100.0% | Progress:   171 of 1
 - 38/70 : MaterialFootprint_rare earth          | | 100.0% | Progress:    37 of 37
 - 39/70 : MaterialFootprint_rhodium             | | 100.0% | Progress:    11 of 11
 - 40/70 : MaterialFootprint_sand                | | 100.0% | Progress:   611 of 61
 - 41/70 : MaterialFootprint_scandium            | | 100.0% | Progress:     1 of 1
 - 42/70 : MaterialFootprint_selenium            | | 100.0% | Progress:     9 of 9
 - 43/70 : MaterialFootprint_silicon             | | 100.0% | Progress:   375 of 375
 - 44/70 : MaterialFootprint_silver              | | 100.0% | Progress:    50 of 50
 - 45/70 : MaterialFootprint_strontium           | | 100.0% | Progress:    28 of 28
 - 46/70 : MaterialFootprint_tantalum            | | 100.0% | Progress:     3 of 3
 - 47/70 : MaterialFootprint_tellurium           | | 100.0% | Progress:     2 of 2
 - 48/70 : MaterialFootprint_tin                 | | 100.0% | Progress:   124 of 124
 - 49/70 : MaterialFootprint_titanium            | | 100.0% | Progress:   457 of 45
 - 50/70 : MaterialFootprint_tungsten            | | 100.0% | Progress:     5 of 5
 - 51/70 : MaterialFootprint_uranium             | | 100.0% | Progress:   140 of 1
 - 52/70 : MaterialFootprint_vegetable oil       | | 100.0% | Progress:    37 of 3
 - 53/70 : MaterialFootprint_water               | | 100.0% | Progress: 11611 of 1
 - 54/70 : MaterialFootprint_zinc                | | 100.0% | Progress:   670 of 670
 - 55/70 : MaterialFootprint_zirconium           | | 100.0% | Progress:    11 of 1
 - 56/70 : WasteFootprint_carbondioxide-kilogram | | 100.0% | Progress:  12
 - 57/70 : WasteFootprint_composting-kilogram    | | 100.0% | Progress:   14
 - 58/70 : WasteFootprint_digestion-cubicmeter   | | 100.0% | Progress:    6
 - 59/70 : WasteFootprint_digestion-kilogram     | | 100.0% | Progress:    4 o
 - 60/70 : WasteFootprint_hazardous-cubicmeter   | | 100.0% | Progress:   3(
 - 61/70 : WasteFootprint_hazardous-kilogram     | | 100.0% | Progress:  187
 - 62/70 : WasteFootprint_incineration-cubicmeter| | 100.0% | Progress:    2
 - 63/70 : WasteFootprint_incineration-kilogram  | | 100.0% | Progress:  2637
 - 64/70 : WasteFootprint_landfill-cubicmeter    | | 100.0% | Progress:    2 of
 - 65/70 : WasteFootprint_landfill-kilogram      | | 100.0% | Progress:  1712 o
 - 66/70 : WasteFootprint_openburning-kilogram   | | 100.0% | Progress:   53
 - 67/70 : WasteFootprint_radioactive-cubicmeter | | 100.0% | Progress:   30
 - 68/70 : WasteFootprint_recycling-kilogram     | | 100.0% | Progress:   84 c
 - 69/70 : WasteFootprint_total-cubicmeter       | | 100.0% | Progress:  4695 c
 - 70/70 : WasteFootprint_total-kilogram         | | 100.0% | Progress: 30759 o
**********************************************************************************************************

 *** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2050 in 0:24:59 (h:m:s) ***

 **********************************************************************************************************

 ** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2050 in project TreX-premise-SSP2-cutoff **

       Score: 4.63e-02
       Method: Coal(black)
       Activity: market for cement, type IP
       Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2050

 ** Database verified successfully! **

 ==========================================================================================
       *** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2050 ***
                   Duration: 0:25:14 (h:m:s)
       *** Woah woah wee waa, great success!! ***
 ==========================================================================================
```

** Processing database (26/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2055**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2055 ***

* Appending waste and material exchanges in biosphere_T-reX

- 1/70 : MaterialFootprint_aluminium | 100.0% | Progress: 2101 of
- 2/70 : MaterialFootprint_antimony | 100.0% | Progress: 27 of 27
- 3/70 : MaterialFootprint_bauxite | 100.0% | Progress: 28 of 28
- 4/70 : MaterialFootprint_beryllium | 100.0% | Progress: 1 of 1
- 5/70 : MaterialFootprint_borates | 100.0% | Progress: 15 of 15
- 6/70 : MaterialFootprint_cadmium | 100.0% | Progress: 17 of 1
- 7/70 : MaterialFootprint_cement | 100.0% | Progress: 1555 of 1
- 8/70 : MaterialFootprint_cerium | 100.0% | Progress: 3 of 3
- 9/70 : MaterialFootprint_chromium | 100.0% | Progress: 473 of 4
- 10/70 : MaterialFootprint_coal(black) | 100.0% | Progress: 1738 of
- 11/70 : MaterialFootprint_coal(brown) | 100.0% | Progress: 589 of
- 12/70 : MaterialFootprint_cobalt | 100.0% | Progress: 166 of 16
- 13/70 : MaterialFootprint_coke | 100.0% | Progress: 110 of 11
- 14/70 : MaterialFootprint_copper | 100.0% | Progress: 1244 of 1
- 15/70 : MaterialFootprint_dysprosium | 100.0% | Progress: 1 of 1
- 16/70 : MaterialFootprint_electricity | 100.0% | Progress: 19360 of 1
- 17/70 : MaterialFootprint_erbium | 100.0% | Progress: 1 of 1
- 18/70 : MaterialFootprint_europium | 100.0% | Progress: 1 of 1
- 19/70 : MaterialFootprint_fluorspar | 100.0% | Progress: 29 of 29
- 20/70 : MaterialFootprint_gadolinium | 100.0% | Progress: 1 of 1
- 21/70 : MaterialFootprint_gallium | 100.0% | Progress: 4 of 4
- 22/70 : MaterialFootprint_gold | 100.0% | Progress: 11 of 11
- 23/70 : MaterialFootprint_graphite | 100.0% | Progress: 33 of 33
- 24/70 : MaterialFootprint_helium | 100.0% | Progress: 46 of 46
- 25/70 : MaterialFootprint_holmium | 100.0% | Progress: 1 of 1
- 26/70 : MaterialFootprint_hydrogen | 100.0% | Progress: 1372 of
- 27/70 : MaterialFootprint_indium | 100.0% | Progress: 13 of 13
- 28/70 : MaterialFootprint_latex | 100.0% | Progress: 50 of 50
- 29/70 : MaterialFootprint_lead | 100.0% | Progress: 260 of 26
- 30/70 : MaterialFootprint_lithium | 100.0% | Progress: 52 of 52
- 31/70 : MaterialFootprint_magnesium | 100.0% | Progress: 312 o
- 32/70 : MaterialFootprint_natural gas | 100.0% | Progress: 4035 of
- 33/70 : MaterialFootprint_nickel | 100.0% | Progress: 436 of 43
- 34/70 : MaterialFootprint_palladium | 100.0% | Progress: 35 of 3
- 35/70 : MaterialFootprint_petroleum | 100.0% | Progress: 508 of
- 36/70 : MaterialFootprint_phosphate rock | 100.0% | Progress: 207 o
- 37/70 : MaterialFootprint_platinum | 100.0% | Progress: 171 of 1
- 38/70 : MaterialFootprint_rare earth | 100.0% | Progress: 37 of 37
- 39/70 : MaterialFootprint_rhodium | 100.0% | Progress: 11 of 11
- 40/70 : MaterialFootprint_sand | 100.0% | Progress: 611 of 61
- 41/70 : MaterialFootprint_scandium | 100.0% | Progress: 1 of 1
- 42/70 : MaterialFootprint_selenium | 100.0% | Progress: 9 of 9
- 43/70 : MaterialFootprint_silicon | 100.0% | Progress: 375 of 375
- 44/70 : MaterialFootprint_silver | 100.0% | Progress: 50 of 50
- 45/70 : MaterialFootprint_strontium | 100.0% | Progress: 28 of 28
- 46/70 : MaterialFootprint_tantalum | 100.0% | Progress: 3 of 3
- 47/70 : MaterialFootprint_tellurium | 100.0% | Progress: 2 of 2
- 48/70 : MaterialFootprint_tin | 100.0% | Progress: 124 of 124
- 49/70 : MaterialFootprint_titanium | 100.0% | Progress: 457 of 45
- 50/70 : MaterialFootprint_tungsten | 100.0% | Progress: 5 of 5
- 51/70 : MaterialFootprint_uranium | 100.0% | Progress: 140 of 1
- 52/70 : MaterialFootprint_vegetable oil | 100.0% | Progress: 37 of 3
- 53/70 : MaterialFootprint_water | 100.0% | Progress: 11611 of 1
- 54/70 : MaterialFootprint_zinc | 100.0% | Progress: 670 of 670
- 55/70 : MaterialFootprint_zirconium | 100.0% | Progress: 11 of 1
- 56/70 : WasteFootprint_carbondioxide-kilogram | 100.0% | Progress: 12
- 57/70 : WasteFootprint_composting-kilogram | 100.0% | Progress: 14

- 58/70 : WasteFootprint_digestion-cubicmeter | | 100.0% | Progress: 6
- 59/70 : WasteFootprint_digestion-kilogram | | 100.0% | Progress: 4 o
- 60/70 : WasteFootprint_hazardous-cubicmeter | | 100.0% | Progress: 3(
- 61/70 : WasteFootprint_hazardous-kilogram | | 100.0% | Progress: 187
- 62/70 : WasteFootprint_incineration-cubicmeter | | 100.0% | Progress: 2
- 63/70 : WasteFootprint_incineration-kilogram | | 100.0% | Progress: 2637
- 64/70 : WasteFootprint_landfill-cubicmeter | | 100.0% | Progress: 2 of
- 65/70 : WasteFootprint_landfill-kilogram | | 100.0% | Progress: 1712 o
- 66/70 : WasteFootprint_openburning-kilogram | | 100.0% | Progress: 53
- 67/70 : WasteFootprint_radioactive-cubicmeter | | 100.0% | Progress: 30
- 68/70 : WasteFootprint_recycling-kilogram | | 100.0% | Progress: 84 c
- 69/70 : WasteFootprint_total-cubicmeter | | 100.0% | Progress: 4695 c
- 70/70 : WasteFootprint_total-kilogram | | 100.0% | Progress: 30759 o

****

*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2055 in 0:24:59 (h:m:s) ***

****

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2055 in project TreX-premise-SSP2-cutoff **

Score: 1.31e-04
Method: Magnesium
Activity: transport, freight, lorry, battery electric, NMC-622 battery, 7.5t gross weight, 2045, regional delivery
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2055

** Database verified successfully! **

==========

*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2055 ***
Duration: 0:25:15 (h:m:s)
*** Woah woah wee waa, great success!! ***

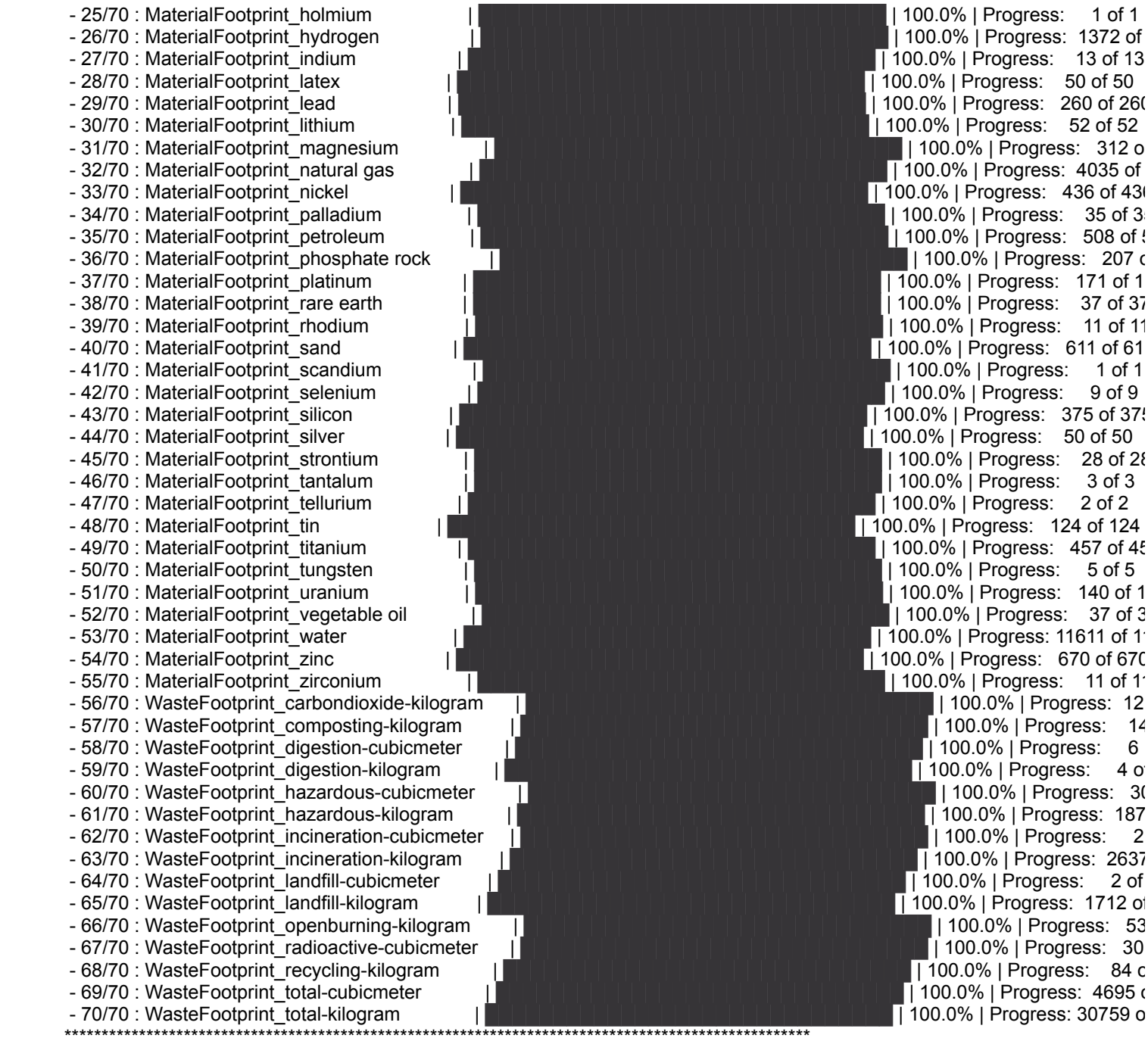
==========

** Processing database (27/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2060**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2060 ***

* Appending waste and material exchanges in biosphere_T-reX

- 1/70 : MaterialFootprint_aluminium | | 100.0% | Progress: 2101 of
- 2/70 : MaterialFootprint_antimony | | 100.0% | Progress: 27 of 27
- 3/70 : MaterialFootprint_bauxite | | 100.0% | Progress: 28 of 28
- 4/70 : MaterialFootprint_beryllium | | 100.0% | Progress: 1 of 1
- 5/70 : MaterialFootprint_borates | | 100.0% | Progress: 15 of 15
- 6/70 : MaterialFootprint_cadmium | | 100.0% | Progress: 17 of 1
- 7/70 : MaterialFootprint_cement | | 100.0% | Progress: 1591 of 1
- 8/70 : MaterialFootprint_cerium | | 100.0% | Progress: 3 of 3
- 9/70 : MaterialFootprint_chromium | | 100.0% | Progress: 473 of 4
- 10/70 : MaterialFootprint_coal(black) | | 100.0% | Progress: 1738 of
- 11/70 : MaterialFootprint_coal(brown) | | 100.0% | Progress: 589 of
- 12/70 : MaterialFootprint_cobalt | | 100.0% | Progress: 166 of 16
- 13/70 : MaterialFootprint_coke | | 100.0% | Progress: 110 of 11(
- 14/70 : MaterialFootprint_copper | | 100.0% | Progress: 1244 of 1
- 15/70 : MaterialFootprint_dysprosium | | 100.0% | Progress: 1 of 1
- 16/70 : MaterialFootprint_electricity | | 100.0% | Progress: 19360 of 1
- 17/70 : MaterialFootprint_erbium | | 100.0% | Progress: 1 of 1
- 18/70 : MaterialFootprint_europium | | 100.0% | Progress: 1 of 1
- 19/70 : MaterialFootprint_fluorspar | | 100.0% | Progress: 29 of 29
- 20/70 : MaterialFootprint_gadolinium | | 100.0% | Progress: 1 of 1
- 21/70 : MaterialFootprint_gallium | | 100.0% | Progress: 4 of 4
- 22/70 : MaterialFootprint_gold | | 100.0% | Progress: 11 of 11
- 23/70 : MaterialFootprint_graphite | | 100.0% | Progress: 33 of 33
- 24/70 : MaterialFootprint_helium | | 100.0% | Progress: 46 of 46



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*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2060 in 0:24:59 (h:m:s) ***

****

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2060 in project TreX-premise-SSP2-cutoff **

Score: 8.02e-05
Method: Titanium
Activity: market group for light fuel oil
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2060

** Database verified successfully! **

==========

*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2060 ***
Duration: 0:25:20 (h:m:s)
*** Woah woah wee waa, great success!! ***

==========

** Processing database (28/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2065**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2065 ***

* Appending waste and material exchanges in biosphere_T-reX

- 1/70 : MaterialFootprint_aluminium | 100.0% | Progress: 2101 of
- 2/70 : MaterialFootprint_antimony | 100.0% | Progress: 27 of 27
- 3/70 : MaterialFootprint_bauxite | 100.0% | Progress: 28 of 28
- 4/70 : MaterialFootprint_beryllium | 100.0% | Progress: 1 of 1
- 5/70 : MaterialFootprint_borates | 100.0% | Progress: 15 of 15
- 6/70 : MaterialFootprint_cadmium | 100.0% | Progress: 17 of 1
- 7/70 : MaterialFootprint_cement | 100.0% | Progress: 1591 of 1
- 8/70 : MaterialFootprint_cerium | 100.0% | Progress: 3 of 3
- 9/70 : MaterialFootprint_chromium | 100.0% | Progress: 473 of 4
- 10/70 : MaterialFootprint_coal(black) | 100.0% | Progress: 1738 of
- 11/70 : MaterialFootprint_coal(brown) | 100.0% | Progress: 589 of
- 12/70 : MaterialFootprint_cobalt | 100.0% | Progress: 166 of 16
- 13/70 : MaterialFootprint_coke | 100.0% | Progress: 110 of 11
- 14/70 : MaterialFootprint_copper | 100.0% | Progress: 1244 of 1
- 15/70 : MaterialFootprint_dysprosium | 100.0% | Progress: 1 of 1
- 16/70 : MaterialFootprint_electricity | 100.0% | Progress: 19360 of 1
- 17/70 : MaterialFootprint_erbium | 100.0% | Progress: 1 of 1
- 18/70 : MaterialFootprint_europium | 100.0% | Progress: 1 of 1
- 19/70 : MaterialFootprint_fluorspar | 100.0% | Progress: 29 of 29
- 20/70 : MaterialFootprint_gadolinium | 100.0% | Progress: 1 of 1
- 21/70 : MaterialFootprint_gallium | 100.0% | Progress: 4 of 4
- 22/70 : MaterialFootprint_gold | 100.0% | Progress: 11 of 11
- 23/70 : MaterialFootprint_graphite | 100.0% | Progress: 33 of 33
- 24/70 : MaterialFootprint_helium | 100.0% | Progress: 46 of 46
- 25/70 : MaterialFootprint_holmium | 100.0% | Progress: 1 of 1
- 26/70 : MaterialFootprint_hydrogen | 100.0% | Progress: 1372 of
- 27/70 : MaterialFootprint_indium | 100.0% | Progress: 13 of 13
- 28/70 : MaterialFootprint_latex | 100.0% | Progress: 50 of 50
- 29/70 : MaterialFootprint_lead | 100.0% | Progress: 260 of 26
- 30/70 : MaterialFootprint_lithium | 100.0% | Progress: 52 of 52
- 31/70 : MaterialFootprint_magnesium | 100.0% | Progress: 312 o
- 32/70 : MaterialFootprint_natural gas | 100.0% | Progress: 4035 of
- 33/70 : MaterialFootprint_nickel | 100.0% | Progress: 436 of 43
- 34/70 : MaterialFootprint_palladium | 100.0% | Progress: 35 of 3
- 35/70 : MaterialFootprint_petroleum | 100.0% | Progress: 508 of 5
- 36/70 : MaterialFootprint_phosphate rock | 100.0% | Progress: 207 o
- 37/70 : MaterialFootprint_platinum | 100.0% | Progress: 171 of 1
- 38/70 : MaterialFootprint_rare earth | 100.0% | Progress: 37 of 37
- 39/70 : MaterialFootprint_rhodium | 100.0% | Progress: 11 of 11
- 40/70 : MaterialFootprint_sand | 100.0% | Progress: 611 of 61
- 41/70 : MaterialFootprint_scandium | 100.0% | Progress: 1 of 1
- 42/70 : MaterialFootprint_selenium | 100.0% | Progress: 9 of 9
- 43/70 : MaterialFootprint_silicon | 100.0% | Progress: 375 of 375
- 44/70 : MaterialFootprint_silver | 100.0% | Progress: 50 of 50
- 45/70 : MaterialFootprint_strontium | 100.0% | Progress: 28 of 28
- 46/70 : MaterialFootprint_tantalum | 100.0% | Progress: 3 of 3
- 47/70 : MaterialFootprint_tellurium | 100.0% | Progress: 2 of 2
- 48/70 : MaterialFootprint_tin | 100.0% | Progress: 124 of 124
- 49/70 : MaterialFootprint_titanium | 100.0% | Progress: 457 of 45
- 50/70 : MaterialFootprint_tungsten | 100.0% | Progress: 5 of 5
- 51/70 : MaterialFootprint_uranium | 100.0% | Progress: 140 of 1
- 52/70 : MaterialFootprint_vegetable oil | 100.0% | Progress: 37 of 3
- 53/70 : MaterialFootprint_water | 100.0% | Progress: 11611 of 1
- 54/70 : MaterialFootprint_zinc | 100.0% | Progress: 670 of 670
- 55/70 : MaterialFootprint_zirconium | 100.0% | Progress: 11 of 1
- 56/70 : WasteFootprint_carbondioxide-kilogram | 100.0% | Progress: 12
- 57/70 : WasteFootprint_composting-kilogram | 100.0% | Progress: 14
- 58/70 : WasteFootprint_digestion-cubicmeter | 100.0% | Progress: 6
- 59/70 : WasteFootprint_digestion-kilogram | 100.0% | Progress: 4 o
- 60/70 : WasteFootprint_hazardous-cubicmeter | 100.0% | Progress: 3
- 61/70 : WasteFootprint_hazardous-kilogram | 100.0% | Progress: 187
- 62/70 : WasteFootprint_incineration-cubicmeter | 100.0% | Progress: 2

- 63/70 : WasteFootprint_incineration-kilogram | | 100.0% | Progress: 2637
- 64/70 : WasteFootprint_landfill-cubicmeter | | 100.0% | Progress: 2 of
- 65/70 : WasteFootprint_landfill-kilogram | | 100.0% | Progress: 1712 o
- 66/70 : WasteFootprint_openburning-kilogram | | 100.0% | Progress: 53
- 67/70 : WasteFootprint_radioactive-cubicmeter | | 100.0% | Progress: 30
- 68/70 : WasteFootprint_recycling-kilogram | | 100.0% | Progress: 84 c
- 69/70 : WasteFootprint_total-cubicmeter | | 100.0% | Progress: 4695 c
- 70/70 : WasteFootprint_total-kilogram | | 100.0% | Progress: 30759 o

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*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2065 in 0:24:58 (h:m:s) ***

****

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2065 in project TreX-premise-SSP2-cutoff **

Score: 4.94e-01
Method: Total (kg)
Activity: transport, freight, lorry, fuel cell electric, 26t gross weight, 2040, long haul
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2065

** Database verified successfully! **

==========

*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2065 ***
Duration: 0:25:20 (h:m:s)
*** Woah woah wee waa, great success!! ***

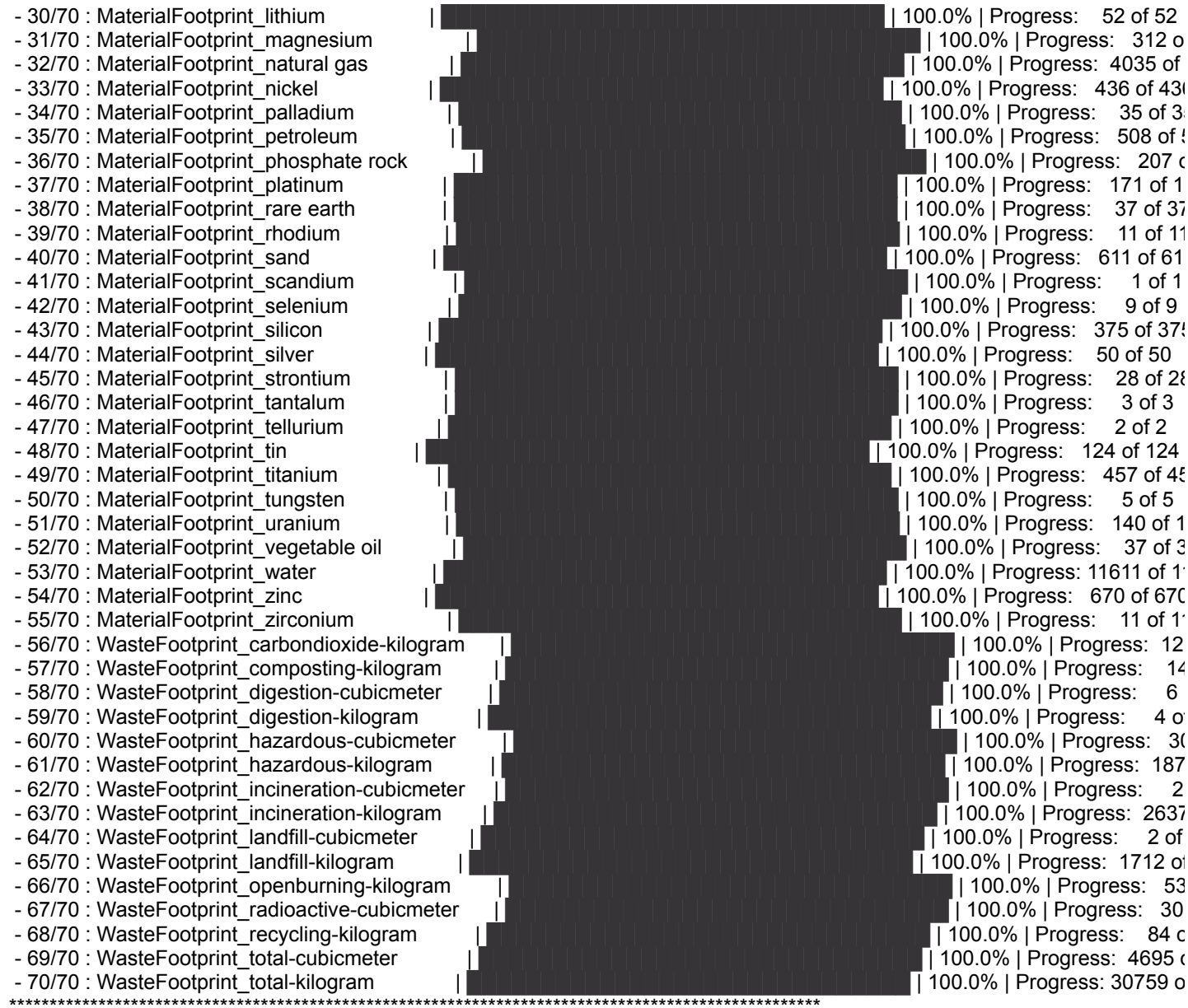
==========

** Processing database (29/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2070**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2070 ***

* Appending waste and material exchanges in biosphere_T-reX

- 1/70 : MaterialFootprint_aluminium | | 100.0% | Progress: 2101 of
- 2/70 : MaterialFootprint_antimony | | 100.0% | Progress: 27 of 27
- 3/70 : MaterialFootprint_bauxite | | 100.0% | Progress: 28 of 28
- 4/70 : MaterialFootprint_beryllium | | 100.0% | Progress: 1 of 1
- 5/70 : MaterialFootprint_borates | | 100.0% | Progress: 15 of 15
- 6/70 : MaterialFootprint_cadmium | | 100.0% | Progress: 17 of 1
- 7/70 : MaterialFootprint_cement | | 100.0% | Progress: 1591 of 1
- 8/70 : MaterialFootprint_cerium | | 100.0% | Progress: 3 of 3
- 9/70 : MaterialFootprint_chromium | | 100.0% | Progress: 473 of 4
- 10/70 : MaterialFootprint_coal(black) | | 100.0% | Progress: 1738 of
- 11/70 : MaterialFootprint_coal(brown) | | 100.0% | Progress: 589 of
- 12/70 : MaterialFootprint_cobalt | | 100.0% | Progress: 166 of 16
- 13/70 : MaterialFootprint_coke | | 100.0% | Progress: 110 of 11
- 14/70 : MaterialFootprint_copper | | 100.0% | Progress: 1244 of 1
- 15/70 : MaterialFootprint_dysprosium | | 100.0% | Progress: 1 of 1
- 16/70 : MaterialFootprint_electricity | | 100.0% | Progress: 19360 of 1
- 17/70 : MaterialFootprint_erbium | | 100.0% | Progress: 1 of 1
- 18/70 : MaterialFootprint_europium | | 100.0% | Progress: 1 of 1
- 19/70 : MaterialFootprint_fluorspar | | 100.0% | Progress: 29 of 29
- 20/70 : MaterialFootprint_gadolinium | | 100.0% | Progress: 1 of 1
- 21/70 : MaterialFootprint_gallium | | 100.0% | Progress: 4 of 4
- 22/70 : MaterialFootprint_gold | | 100.0% | Progress: 11 of 11
- 23/70 : MaterialFootprint_graphite | | 100.0% | Progress: 33 of 33
- 24/70 : MaterialFootprint_helium | | 100.0% | Progress: 46 of 46
- 25/70 : MaterialFootprint_holmium | | 100.0% | Progress: 1 of 1
- 26/70 : MaterialFootprint_hydrogen | | 100.0% | Progress: 1372 of
- 27/70 : MaterialFootprint_indium | | 100.0% | Progress: 13 of 13
- 28/70 : MaterialFootprint_latex | | 100.0% | Progress: 50 of 50
- 29/70 : MaterialFootprint_lead | | 100.0% | Progress: 260 of 26



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*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2070 in 0:22:09 (h:m:s) ***

****

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2070 in project TreX-premise-SSP2-cutoff **

Score: 4.31e-02
Method: Coke
Activity: transport, passenger car, battery electric, NMC-622 battery, Lower medium, 2040
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2070

** Database verified successfully! **

==========

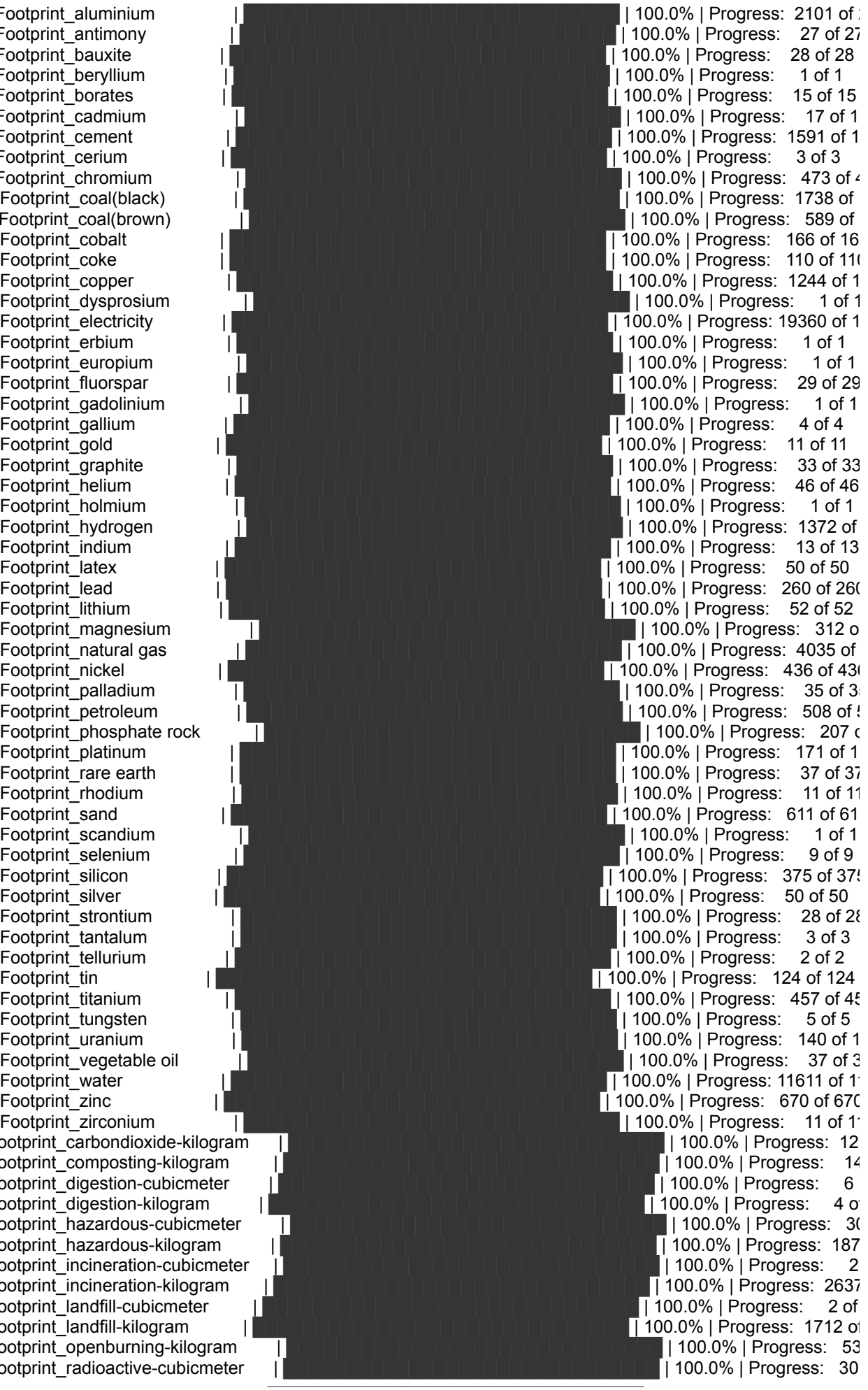
*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2070 ***
Duration: 0:22:31 (h:m:s)
*** Woah woah wee waa, great success!! ***

==========

** Processing database (30/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2075**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2075 ***

* Appending waste and material exchanges in biosphere_T-reX



- 68/70 : WasteFootprint_recycling-kilogram | | 100.0% | Progress: 84 c
- 69/70 : WasteFootprint_total-cubicmeter | | 100.0% | Progress: 4695 c
- 70/70 : WasteFootprint_total-kilogram | | 100.0% | Progress: 30759 o

****

*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2075 in 0:25:23 (h:m:s) ***

****

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2075 in project TreX-premise-SSP2-cutoff **

Score: 3.20e-06
Method: Indium
Activity: cement production, type S
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2075

** Database verified successfully! **

==========

*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2075 ***
Duration: 0:25:42 (h:m:s)
*** Woah woah wee waa, great success!! ***

==========

** Processing database (31/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2080**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2080 ***

* Appending waste and material exchanges in biosphere_T-reX

- 1/70 : MaterialFootprint_aluminium | | 100.0% | Progress: 2101 of
- 2/70 : MaterialFootprint_antimony | | 100.0% | Progress: 27 of 27
- 3/70 : MaterialFootprint_bauxite | | 100.0% | Progress: 28 of 28
- 4/70 : MaterialFootprint_beryllium | | 100.0% | Progress: 1 of 1
- 5/70 : MaterialFootprint_borates | | 100.0% | Progress: 15 of 15
- 6/70 : MaterialFootprint_cadmium | | 100.0% | Progress: 17 of 1
- 7/70 : MaterialFootprint_cement | | 100.0% | Progress: 1591 of 1
- 8/70 : MaterialFootprint_cerium | | 100.0% | Progress: 3 of 3
- 9/70 : MaterialFootprint_chromium | | 100.0% | Progress: 473 of
- 10/70 : MaterialFootprint_coal(black) | | 100.0% | Progress: 1738 of
- 11/70 : MaterialFootprint_coal(brown) | | 100.0% | Progress: 589 of
- 12/70 : MaterialFootprint_cobalt | | 100.0% | Progress: 166 of 16
- 13/70 : MaterialFootprint_coke | | 100.0% | Progress: 110 of 11
- 14/70 : MaterialFootprint_copper | | 100.0% | Progress: 1244 of 1
- 15/70 : MaterialFootprint_dysprosium | | 100.0% | Progress: 1 of 1
- 16/70 : MaterialFootprint_electricity | | 100.0% | Progress: 19360 of 1
- 17/70 : MaterialFootprint_erbium | | 100.0% | Progress: 1 of 1
- 18/70 : MaterialFootprint_europium | | 100.0% | Progress: 1 of 1
- 19/70 : MaterialFootprint_fluorspar | | 100.0% | Progress: 29 of 29
- 20/70 : MaterialFootprint_gadolinium | | 100.0% | Progress: 1 of 1
- 21/70 : MaterialFootprint_gallium | | 100.0% | Progress: 4 of 4
- 22/70 : MaterialFootprint_gold | | 100.0% | Progress: 11 of 11
- 23/70 : MaterialFootprint_graphite | | 100.0% | Progress: 33 of 33
- 24/70 : MaterialFootprint_helium | | 100.0% | Progress: 46 of 46
- 25/70 : MaterialFootprint_holmium | | 100.0% | Progress: 1 of 1
- 26/70 : MaterialFootprint_hydrogen | | 100.0% | Progress: 1372 of
- 27/70 : MaterialFootprint_indium | | 100.0% | Progress: 13 of 13
- 28/70 : MaterialFootprint_latex | | 100.0% | Progress: 50 of 50
- 29/70 : MaterialFootprint_lead | | 100.0% | Progress: 260 of 26
- 30/70 : MaterialFootprint_lithium | | 100.0% | Progress: 52 of 52
- 31/70 : MaterialFootprint_magnesium | | 100.0% | Progress: 312 o
- 32/70 : MaterialFootprint_natural gas | | 100.0% | Progress: 4035 of
- 33/70 : MaterialFootprint_nickel | | 100.0% | Progress: 436 of 43
- 34/70 : MaterialFootprint_palladium | | 100.0% | Progress: 35 of 3

- 35/70 : MaterialFootprint_petroleum | | 100.0% | Progress: 508 of 5
- 36/70 : MaterialFootprint_phosphate rock | | 100.0% | Progress: 207 c
- 37/70 : MaterialFootprint_platinum | | 100.0% | Progress: 171 of 1
- 38/70 : MaterialFootprint_rare earth | | 100.0% | Progress: 37 of 37
- 39/70 : MaterialFootprint_rhodium | | 100.0% | Progress: 11 of 11
- 40/70 : MaterialFootprint_sand | | 100.0% | Progress: 611 of 61
- 41/70 : MaterialFootprint_scandium | | 100.0% | Progress: 1 of 1
- 42/70 : MaterialFootprint_selenium | | 100.0% | Progress: 9 of 9
- 43/70 : MaterialFootprint_silicon | | 100.0% | Progress: 375 of 375
- 44/70 : MaterialFootprint_silver | | 100.0% | Progress: 50 of 50
- 45/70 : MaterialFootprint_strontium | | 100.0% | Progress: 28 of 28
- 46/70 : MaterialFootprint_tantalum | | 100.0% | Progress: 3 of 3
- 47/70 : MaterialFootprint_tellurium | | 100.0% | Progress: 2 of 2
- 48/70 : MaterialFootprint_tin | | 100.0% | Progress: 124 of 124
- 49/70 : MaterialFootprint_titanium | | 100.0% | Progress: 457 of 45
- 50/70 : MaterialFootprint_tungsten | | 100.0% | Progress: 5 of 5
- 51/70 : MaterialFootprint_uranium | | 100.0% | Progress: 140 of 1
- 52/70 : MaterialFootprint_vegetable oil | | 100.0% | Progress: 37 of 3
- 53/70 : MaterialFootprint_water | | 100.0% | Progress: 11611 of 1
- 54/70 : MaterialFootprint_zinc | | 100.0% | Progress: 670 of 670
- 55/70 : MaterialFootprint_zirconium | | 100.0% | Progress: 11 of 1
- 56/70 : WasteFootprint_carbondioxide-kilogram | | 100.0% | Progress: 12
- 57/70 : WasteFootprint_composting-kilogram | | 100.0% | Progress: 14
- 58/70 : WasteFootprint_digestion-cubicmeter | | 100.0% | Progress: 6
- 59/70 : WasteFootprint_digestion-kilogram | | 100.0% | Progress: 4 o
- 60/70 : WasteFootprint_hazardous-cubicmeter | | 100.0% | Progress: 3(
- 61/70 : WasteFootprint_hazardous-kilogram | | 100.0% | Progress: 187
- 62/70 : WasteFootprint_incineration-cubicmeter | | 100.0% | Progress: 2
- 63/70 : WasteFootprint_incineration-kilogram | | 100.0% | Progress: 2637
- 64/70 : WasteFootprint_landfill-cubicmeter | | 100.0% | Progress: 2 of
- 65/70 : WasteFootprint_landfill-kilogram | | 100.0% | Progress: 1712 o
- 66/70 : WasteFootprint_openburning-kilogram | | 100.0% | Progress: 53
- 67/70 : WasteFootprint_radioactive-cubicmeter | | 100.0% | Progress: 30
- 68/70 : WasteFootprint_recycling-kilogram | | 100.0% | Progress: 84 c
- 69/70 : WasteFootprint_total-cubicmeter | | 100.0% | Progress: 4695 c
- 70/70 : WasteFootprint_total-kilogram | | 100.0% | Progress: 30759 o

****

*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2080 in 0:24:56 (h:m:s) ***

****

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2080 in project TreX-premise-SSP2-cutoff **

Score: 3.35e-05
Method: Copper
Activity: operation, computer, laptop, off mode
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2080

** Database verified successfully! **

==========

*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2080 ***
Duration: 0:25:12 (h:m:s)
*** Woah woah wee waa, great success!! ***

==========

** Processing database (32/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2085**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2085 ***

* Appending waste and material exchanges in biosphere_T-reX

- 1/70 : MaterialFootprint_aluminium | | 100.0% | Progress: 2101 of

```
 -  2/70 : MaterialFootprint_antimony                | 100.0% | Progress:    27 of 27
 -  3/70 : MaterialFootprint_bauxite                 | 100.0% | Progress:    28 of 28
 -  4/70 : MaterialFootprint_beryllium               | 100.0% | Progress:     1 of 1
 -  5/70 : MaterialFootprint_borates                 | 100.0% | Progress:    15 of 15
 -  6/70 : MaterialFootprint_cadmium                 | 100.0% | Progress:    17 of 1
 -  7/70 : MaterialFootprint_cement                  | 100.0% | Progress:  1591 of 1
 -  8/70 : MaterialFootprint_cerium                  | 100.0% | Progress:     3 of 3
 -  9/70 : MaterialFootprint_chromium                | 100.0% | Progress:   473 of 4
 - 10/70 : MaterialFootprint_coal(black)             | 100.0% | Progress:  1738 of
 - 11/70 : MaterialFootprint_coal(brown)             | 100.0% | Progress:   589 of
 - 12/70 : MaterialFootprint_cobalt                  | 100.0% | Progress:   166 of 16
 - 13/70 : MaterialFootprint_coke                    | 100.0% | Progress:   110 of 11
 - 14/70 : MaterialFootprint_copper                  | 100.0% | Progress:  1244 of 1
 - 15/70 : MaterialFootprint_dysprosium              | 100.0% | Progress:     1 of 1
 - 16/70 : MaterialFootprint_electricity             | 100.0% | Progress: 19360 of 1
 - 17/70 : MaterialFootprint_erbium                  | 100.0% | Progress:     1 of 1
 - 18/70 : MaterialFootprint_europium                | 100.0% | Progress:     1 of 1
 - 19/70 : MaterialFootprint_fluorspar               | 100.0% | Progress:    29 of 29
 - 20/70 : MaterialFootprint_gadolinium              | 100.0% | Progress:     1 of 1
 - 21/70 : MaterialFootprint_gallium                 | 100.0% | Progress:     4 of 4
 - 22/70 : MaterialFootprint_gold                    | 100.0% | Progress:    11 of 11
 - 23/70 : MaterialFootprint_graphite                | 100.0% | Progress:    33 of 33
 - 24/70 : MaterialFootprint_helium                  | 100.0% | Progress:    46 of 46
 - 25/70 : MaterialFootprint_holmium                 | 100.0% | Progress:     1 of 1
 - 26/70 : MaterialFootprint_hydrogen                | 100.0% | Progress:  1372 of
 - 27/70 : MaterialFootprint_indium                  | 100.0% | Progress:    13 of 13
 - 28/70 : MaterialFootprint_latex                   | 100.0% | Progress:    50 of 50
 - 29/70 : MaterialFootprint_lead                    | 100.0% | Progress:   260 of 26
 - 30/70 : MaterialFootprint_lithium                 | 100.0% | Progress:    52 of 52
 - 31/70 : MaterialFootprint_magnesium               | 100.0% | Progress:   312 o
 - 32/70 : MaterialFootprint_natural gas             | 100.0% | Progress:  4035 of
 - 33/70 : MaterialFootprint_nickel                  | 100.0% | Progress:   436 of 43
 - 34/70 : MaterialFootprint_palladium               | 100.0% | Progress:    35 of 3
 - 35/70 : MaterialFootprint_petroleum               | 100.0% | Progress:   508 of 5
 - 36/70 : MaterialFootprint_phosphate rock          | 100.0% | Progress:   207 o
 - 37/70 : MaterialFootprint_platinum                | 100.0% | Progress:   171 of 1
 - 38/70 : MaterialFootprint_rare earth              | 100.0% | Progress:    37 of 37
 - 39/70 : MaterialFootprint_rhodium                 | 100.0% | Progress:    11 of 11
 - 40/70 : MaterialFootprint_sand                    | 100.0% | Progress:   611 of 61
 - 41/70 : MaterialFootprint_scandium                | 100.0% | Progress:     1 of 1
 - 42/70 : MaterialFootprint_selenium                | 100.0% | Progress:     9 of 9
 - 43/70 : MaterialFootprint_silicon                 | 100.0% | Progress:   375 of 375
 - 44/70 : MaterialFootprint_silver                  | 100.0% | Progress:    50 of 50
 - 45/70 : MaterialFootprint_strontium               | 100.0% | Progress:    28 of 28
 - 46/70 : MaterialFootprint_tantalum                | 100.0% | Progress:     3 of 3
 - 47/70 : MaterialFootprint_tellurium               | 100.0% | Progress:     2 of 2
 - 48/70 : MaterialFootprint_tin                     | 100.0% | Progress:   124 of 124
 - 49/70 : MaterialFootprint_titanium                | 100.0% | Progress:   457 of 45
 - 50/70 : MaterialFootprint_tungsten                | 100.0% | Progress:     5 of 5
 - 51/70 : MaterialFootprint_uranium                 | 100.0% | Progress:   140 of 1
 - 52/70 : MaterialFootprint_vegetable oil           | 100.0% | Progress:    37 of 3
 - 53/70 : MaterialFootprint_water                   | 100.0% | Progress: 11611 of 1
 - 54/70 : MaterialFootprint_zinc                    | 100.0% | Progress:   670 of 670
 - 55/70 : MaterialFootprint_zirconium               | 100.0% | Progress:    11 of 1
 - 56/70 : WasteFootprint_carbondioxide-kilogram     | 100.0% | Progress:  12
 - 57/70 : WasteFootprint_composting-kilogram        | 100.0% | Progress:   14
 - 58/70 : WasteFootprint_digestion-cubicmeter       | 100.0% | Progress:    6
 - 59/70 : WasteFootprint_digestion-kilogram         | 100.0% | Progress:    4 o
 - 60/70 : WasteFootprint_hazardous-cubicmeter       | 100.0% | Progress:   3
 - 61/70 : WasteFootprint_hazardous-kilogram         | 100.0% | Progress:  187
 - 62/70 : WasteFootprint_incineration-cubicmeter    | 100.0% | Progress:    2
 - 63/70 : WasteFootprint_incineration-kilogram      | 100.0% | Progress:  2637
 - 64/70 : WasteFootprint_landfill-cubicmeter        | 100.0% | Progress:    2 of
 - 65/70 : WasteFootprint_landfill-kilogram          | 100.0% | Progress:  1712 o
 - 66/70 : WasteFootprint_openburning-kilogram       | 100.0% | Progress:   53
 - 67/70 : WasteFootprint_radioactive-cubicmeter     | 100.0% | Progress:   30
 - 68/70 : WasteFootprint_recycling-kilogram         | 100.0% | Progress:   84 o
 - 69/70 : WasteFootprint_total-cubicmeter           | 100.0% | Progress:  4695 o
 - 70/70 : WasteFootprint_total-kilogram             | 100.0% | Progress: 30759 o
***************************************************************************************************
```

*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2085 in 0:24:57 (h:m:s) ***

****

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2085 in project TreX-premise-SSP2-cutoff **

Score: -1.96e-08
Method: Uranium
Activity: market for sewage sludge, 75% water, WWT, WW from soft fibreboard production
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2085

** Database verified successfully! **

==========

*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2085 ***
Duration: 0:25:15 (h:m:s)
*** Woah woah wee waa, great success!! ***

==========

** Processing database (33/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2090**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2090 ***

* Appending waste and material exchanges in biosphere_T-reX

- 1/70 : MaterialFootprint_aluminium | 100.0% | Progress: 2101 of
- 2/70 : MaterialFootprint_antimony | 100.0% | Progress: 27 of 27
- 3/70 : MaterialFootprint_bauxite | 100.0% | Progress: 28 of 28
- 4/70 : MaterialFootprint_beryllium | 100.0% | Progress: 1 of 1
- 5/70 : MaterialFootprint_borates | 100.0% | Progress: 15 of 15
- 6/70 : MaterialFootprint_cadmium | 100.0% | Progress: 17 of 1
- 7/70 : MaterialFootprint_cement | 100.0% | Progress: 1591 of 1
- 8/70 : MaterialFootprint_cerium | 100.0% | Progress: 3 of 3
- 9/70 : MaterialFootprint_chromium | 100.0% | Progress: 473 of 4
- 10/70 : MaterialFootprint_coal(black) | 100.0% | Progress: 1738 of
- 11/70 : MaterialFootprint_coal(brown) | 100.0% | Progress: 589 of
- 12/70 : MaterialFootprint_cobalt | 100.0% | Progress: 166 of 16
- 13/70 : MaterialFootprint_coke | 100.0% | Progress: 110 of 11
- 14/70 : MaterialFootprint_copper | 100.0% | Progress: 1244 of 1
- 15/70 : MaterialFootprint_dysprosium | 100.0% | Progress: 1 of 1
- 16/70 : MaterialFootprint_electricity | 100.0% | Progress: 19360 of 1
- 17/70 : MaterialFootprint_erbium | 100.0% | Progress: 1 of 1
- 18/70 : MaterialFootprint_europium | 100.0% | Progress: 1 of 1
- 19/70 : MaterialFootprint_fluorspar | 100.0% | Progress: 29 of 29
- 20/70 : MaterialFootprint_gadolinium | 100.0% | Progress: 1 of 1
- 21/70 : MaterialFootprint_gallium | 100.0% | Progress: 4 of 4
- 22/70 : MaterialFootprint_gold | 100.0% | Progress: 11 of 11
- 23/70 : MaterialFootprint_graphite | 100.0% | Progress: 33 of 33
- 24/70 : MaterialFootprint_helium | 100.0% | Progress: 46 of 46
- 25/70 : MaterialFootprint_holmium | 100.0% | Progress: 1 of 1
- 26/70 : MaterialFootprint_hydrogen | 100.0% | Progress: 1372 of
- 27/70 : MaterialFootprint_indium | 100.0% | Progress: 13 of 13
- 28/70 : MaterialFootprint_latex | 100.0% | Progress: 50 of 50
- 29/70 : MaterialFootprint_lead | 100.0% | Progress: 260 of 26
- 30/70 : MaterialFootprint_lithium | 100.0% | Progress: 52 of 52
- 31/70 : MaterialFootprint_magnesium | 100.0% | Progress: 312 o
- 32/70 : MaterialFootprint_natural gas | 100.0% | Progress: 4035 of
- 33/70 : MaterialFootprint_nickel | 100.0% | Progress: 436 of 43
- 34/70 : MaterialFootprint_palladium | 100.0% | Progress: 35 of 3
- 35/70 : MaterialFootprint_petroleum | 100.0% | Progress: 508 of
- 36/70 : MaterialFootprint_phosphate rock | 100.0% | Progress: 207 o
- 37/70 : MaterialFootprint_platinum | 100.0% | Progress: 171 of 1
- 38/70 : MaterialFootprint_rare earth | 100.0% | Progress: 37 of 37
- 39/70 : MaterialFootprint_rhodium | 100.0% | Progress: 11 of 11

- 40/70 : MaterialFootprint_sand | 100.0% | Progress: 611 of 61
- 41/70 : MaterialFootprint_scandium | 100.0% | Progress: 1 of 1
- 42/70 : MaterialFootprint_selenium | 100.0% | Progress: 9 of 9
- 43/70 : MaterialFootprint_silicon | 100.0% | Progress: 375 of 375
- 44/70 : MaterialFootprint_silver | 100.0% | Progress: 50 of 50
- 45/70 : MaterialFootprint_strontium | 100.0% | Progress: 28 of 28
- 46/70 : MaterialFootprint_tantalum | 100.0% | Progress: 3 of 3
- 47/70 : MaterialFootprint_tellurium | 100.0% | Progress: 2 of 2
- 48/70 : MaterialFootprint_tin | 100.0% | Progress: 124 of 124
- 49/70 : MaterialFootprint_titanium | 100.0% | Progress: 457 of 45
- 50/70 : MaterialFootprint_tungsten | 100.0% | Progress: 5 of 5
- 51/70 : MaterialFootprint_uranium | 100.0% | Progress: 140 of 1
- 52/70 : MaterialFootprint_vegetable oil | 100.0% | Progress: 37 of 3
- 53/70 : MaterialFootprint_water | 100.0% | Progress: 11611 of 1
- 54/70 : MaterialFootprint_zinc | 100.0% | Progress: 670 of 670
- 55/70 : MaterialFootprint_zirconium | 100.0% | Progress: 11 of 1
- 56/70 : WasteFootprint_carbondioxide-kilogram | 100.0% | Progress: 12
- 57/70 : WasteFootprint_composting-kilogram | 100.0% | Progress: 14
- 58/70 : WasteFootprint_digestion-cubicmeter | 100.0% | Progress: 6
- 59/70 : WasteFootprint_digestion-kilogram | 100.0% | Progress: 4 o
- 60/70 : WasteFootprint_hazardous-cubicmeter | 100.0% | Progress: 3(
- 61/70 : WasteFootprint_hazardous-kilogram | 100.0% | Progress: 187
- 62/70 : WasteFootprint_incineration-cubicmeter | 100.0% | Progress: 2
- 63/70 : WasteFootprint_incineration-kilogram | 100.0% | Progress: 2637
- 64/70 : WasteFootprint_landfill-cubicmeter | 100.0% | Progress: 2 of
- 65/70 : WasteFootprint_landfill-kilogram | 100.0% | Progress: 1712 o
- 66/70 : WasteFootprint_openburning-kilogram | 100.0% | Progress: 53
- 67/70 : WasteFootprint_radioactive-cubicmeter | 100.0% | Progress: 30
- 68/70 : WasteFootprint_recycling-kilogram | 100.0% | Progress: 84 c
- 69/70 : WasteFootprint_total-cubicmeter | 100.0% | Progress: 4695 c
- 70/70 : WasteFootprint_total-kilogram | 100.0% | Progress: 30759 o

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*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2090 in 0:24:58 (h:m:s) ***

****

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2090 in project TreX-premise-SSP2-cutoff **

Score: 1.02e+00
Method: Carbondioxide (kg)
Activity: transport, passenger car, diesel, Large SUV, 2035, EURO-6d
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2090

** Database verified successfully! **

==========

*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2090 ***
Duration: 0:25:19 (h:m:s)
*** Woah woah wee waa, great success!! ***

==========

** Processing database (34/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2095**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2095 ***

* Appending waste and material exchanges in biosphere_T-reX

- 1/70 : MaterialFootprint_aluminium | 100.0% | Progress: 2101 of
- 2/70 : MaterialFootprint_antimony | 100.0% | Progress: 27 of 27
- 3/70 : MaterialFootprint_bauxite | 100.0% | Progress: 28 of 28
- 4/70 : MaterialFootprint_beryllium | 100.0% | Progress: 1 of 1
- 5/70 : MaterialFootprint_borates | 100.0% | Progress: 15 of 15
- 6/70 : MaterialFootprint_cadmium | 100.0% | Progress: 17 of 1

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 -  7/70 : MaterialFootprint_cement                 | | 100.0% | Progress:  1591 of 1
 -  8/70 : MaterialFootprint_cerium                | | 100.0% | Progress:     3 of 3
 -  9/70 : MaterialFootprint_chromium               | | 100.0% | Progress:   473 of 4
 - 10/70 : MaterialFootprint_coal(black)            | | 100.0% | Progress:  1738 of
 - 11/70 : MaterialFootprint_coal(brown)            | | 100.0% | Progress:   589 of
 - 12/70 : MaterialFootprint_cobalt                 | | 100.0% | Progress:   166 of 16
 - 13/70 : MaterialFootprint_coke                   | | 100.0% | Progress:   110 of 11
 - 14/70 : MaterialFootprint_copper                 | | 100.0% | Progress:  1244 of 1
 - 15/70 : MaterialFootprint_dysprosium             | | 100.0% | Progress:     1 of 1
 - 16/70 : MaterialFootprint_electricity            | | 100.0% | Progress: 19360 of 1
 - 17/70 : MaterialFootprint_erbium                 | | 100.0% | Progress:     1 of 1
 - 18/70 : MaterialFootprint_europium               | | 100.0% | Progress:     1 of 1
 - 19/70 : MaterialFootprint_fluorspar              | | 100.0% | Progress:    29 of 29
 - 20/70 : MaterialFootprint_gadolinium             | | 100.0% | Progress:     1 of 1
 - 21/70 : MaterialFootprint_gallium                | | 100.0% | Progress:     4 of 4
 - 22/70 : MaterialFootprint_gold                   | | 100.0% | Progress:    11 of 11
 - 23/70 : MaterialFootprint_graphite               | | 100.0% | Progress:    33 of 33
 - 24/70 : MaterialFootprint_helium                 | | 100.0% | Progress:    46 of 46
 - 25/70 : MaterialFootprint_holmium                | | 100.0% | Progress:     1 of 1
 - 26/70 : MaterialFootprint_hydrogen               | | 100.0% | Progress:  1372 of
 - 27/70 : MaterialFootprint_indium                 | | 100.0% | Progress:    13 of 13
 - 28/70 : MaterialFootprint_latex                  | | 100.0% | Progress:    50 of 50
 - 29/70 : MaterialFootprint_lead                   | | 100.0% | Progress:   260 of 26
 - 30/70 : MaterialFootprint_lithium                | | 100.0% | Progress:    52 of 52
 - 31/70 : MaterialFootprint_magnesium              | | 100.0% | Progress:   312 o
 - 32/70 : MaterialFootprint_natural gas            | | 100.0% | Progress:  4035 of
 - 33/70 : MaterialFootprint_nickel                 | | 100.0% | Progress:   436 of 43
 - 34/70 : MaterialFootprint_palladium              | | 100.0% | Progress:    35 of 3
 - 35/70 : MaterialFootprint_petroleum              | | 100.0% | Progress:   508 of 5
 - 36/70 : MaterialFootprint_phosphate rock         | | 100.0% | Progress:   207 o
 - 37/70 : MaterialFootprint_platinum               | | 100.0% | Progress:   171 of 1
 - 38/70 : MaterialFootprint_rare earth             | | 100.0% | Progress:    37 of 37
 - 39/70 : MaterialFootprint_rhodium                | | 100.0% | Progress:    11 of 11
 - 40/70 : MaterialFootprint_sand                   | | 100.0% | Progress:   611 of 61
 - 41/70 : MaterialFootprint_scandium               | | 100.0% | Progress:     1 of 1
 - 42/70 : MaterialFootprint_selenium               | | 100.0% | Progress:     9 of 9
 - 43/70 : MaterialFootprint_silicon                | | 100.0% | Progress:   375 of 375
 - 44/70 : MaterialFootprint_silver                 | | 100.0% | Progress:    50 of 50
 - 45/70 : MaterialFootprint_strontium              | | 100.0% | Progress:    28 of 28
 - 46/70 : MaterialFootprint_tantalum               | | 100.0% | Progress:     3 of 3
 - 47/70 : MaterialFootprint_tellurium              | | 100.0% | Progress:     2 of 2
 - 48/70 : MaterialFootprint_tin                    | | 100.0% | Progress:   124 of 124
 - 49/70 : MaterialFootprint_titanium               | | 100.0% | Progress:   457 of 45
 - 50/70 : MaterialFootprint_tungsten               | | 100.0% | Progress:     5 of 5
 - 51/70 : MaterialFootprint_uranium                | | 100.0% | Progress:   140 of 1
 - 52/70 : MaterialFootprint_vegetable oil          | | 100.0% | Progress:    37 of 3
 - 53/70 : MaterialFootprint_water                  | | 100.0% | Progress: 11611 of 1
 - 54/70 : MaterialFootprint_zinc                   | | 100.0% | Progress:   670 of 670
 - 55/70 : MaterialFootprint_zirconium              | | 100.0% | Progress:    11 of 1
 - 56/70 : WasteFootprint_carbondioxide-kilogram    | | 100.0% | Progress:  12
 - 57/70 : WasteFootprint_composting-kilogram       | | 100.0% | Progress:   14
 - 58/70 : WasteFootprint_digestion-cubicmeter      | | 100.0% | Progress:     6
 - 59/70 : WasteFootprint_digestion-kilogram        | | 100.0% | Progress:     4 o
 - 60/70 : WasteFootprint_hazardous-cubicmeter      | | 100.0% | Progress:    3
 - 61/70 : WasteFootprint_hazardous-kilogram        | | 100.0% | Progress:   187
 - 62/70 : WasteFootprint_incineration-cubicmeter   | | 100.0% | Progress:     2
 - 63/70 : WasteFootprint_incineration-kilogram     | | 100.0% | Progress:  2637
 - 64/70 : WasteFootprint_landfill-cubicmeter       | | 100.0% | Progress:     2 of
 - 65/70 : WasteFootprint_landfill-kilogram         | | 100.0% | Progress:  1712 o
 - 66/70 : WasteFootprint_openburning-kilogram      | | 100.0% | Progress:    53
 - 67/70 : WasteFootprint_radioactive-cubicmeter    | | 100.0% | Progress:    30
 - 68/70 : WasteFootprint_recycling-kilogram        | | 100.0% | Progress:    84 o
 - 69/70 : WasteFootprint_total-cubicmeter          | | 100.0% | Progress:  4695 o
 - 70/70 : WasteFootprint_total-kilogram            | | 100.0% | Progress: 30759 o
****************************************************************************************************

*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2095 in 0:25:05 (h:m:s) ***

****************************************************************************************************

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2095 in project TreX-premise-SSP2-cutoff **
```

Score: 1.49e-04
Method: Hazardous (m3)
Activity: Light duty truck, diesel, 3.5t gross weight, 2035, EURO-VI, regional delivery
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2095

** Database verified successfully! **

==========
*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2095 ***
Duration: 0:25:26 (h:m:s)
*** Woah woah wee waa, great success!! ***
==========

** Processing database (35/35): ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2100**
Arguments:
{'project_base': 'premise-SSP2-cutoff', 'project_T_reX': 'TreX-premise-SSP2-cutoff', 'db_name': 'ecoinvent_cutoff_3.9_remind_S

*** ExchangeEditor() is running for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2100 ***

* Appending waste and material exchanges in biosphere_T-reX

- 1/70 : MaterialFootprint_aluminium | 100.0% | Progress: 2101 of
- 2/70 : MaterialFootprint_antimony | 100.0% | Progress: 27 of 27
- 3/70 : MaterialFootprint_bauxite | 100.0% | Progress: 28 of 28
- 4/70 : MaterialFootprint_beryllium | 100.0% | Progress: 1 of 1
- 5/70 : MaterialFootprint_borates | 100.0% | Progress: 15 of 15
- 6/70 : MaterialFootprint_cadmium | 100.0% | Progress: 17 of 1
- 7/70 : MaterialFootprint_cement | 100.0% | Progress: 1591 of 1
- 8/70 : MaterialFootprint_cerium | 100.0% | Progress: 3 of 3
- 9/70 : MaterialFootprint_chromium | 100.0% | Progress: 473 of
- 10/70 : MaterialFootprint_coal(black) | 100.0% | Progress: 1738 of
- 11/70 : MaterialFootprint_coal(brown) | 100.0% | Progress: 589 of
- 12/70 : MaterialFootprint_cobalt | 100.0% | Progress: 166 of 16
- 13/70 : MaterialFootprint_coke | 100.0% | Progress: 110 of 11
- 14/70 : MaterialFootprint_copper | 100.0% | Progress: 1244 of 1
- 15/70 : MaterialFootprint_dysprosium | 100.0% | Progress: 1 of 1
- 16/70 : MaterialFootprint_electricity | 100.0% | Progress: 19360 of 1
- 17/70 : MaterialFootprint_erbium | 100.0% | Progress: 1 of 1
- 18/70 : MaterialFootprint_europium | 100.0% | Progress: 1 of 1
- 19/70 : MaterialFootprint_fluorspar | 100.0% | Progress: 29 of 29
- 20/70 : MaterialFootprint_gadolinium | 100.0% | Progress: 1 of 1
- 21/70 : MaterialFootprint_gallium | 100.0% | Progress: 4 of 4
- 22/70 : MaterialFootprint_gold | 100.0% | Progress: 11 of 11
- 23/70 : MaterialFootprint_graphite | 100.0% | Progress: 33 of 33
- 24/70 : MaterialFootprint_helium | 100.0% | Progress: 46 of 46
- 25/70 : MaterialFootprint_holmium | 100.0% | Progress: 1 of 1
- 26/70 : MaterialFootprint_hydrogen | 100.0% | Progress: 1372 of
- 27/70 : MaterialFootprint_indium | 100.0% | Progress: 13 of 13
- 28/70 : MaterialFootprint_latex | 100.0% | Progress: 50 of 50
- 29/70 : MaterialFootprint_lead | 100.0% | Progress: 260 of 26
- 30/70 : MaterialFootprint_lithium | 100.0% | Progress: 52 of 52
- 31/70 : MaterialFootprint_magnesium | 100.0% | Progress: 312 o
- 32/70 : MaterialFootprint_natural gas | 100.0% | Progress: 4035 of
- 33/70 : MaterialFootprint_nickel | 100.0% | Progress: 436 of 43
- 34/70 : MaterialFootprint_palladium | 100.0% | Progress: 35 of 3
- 35/70 : MaterialFootprint_petroleum | 100.0% | Progress: 508 of
- 36/70 : MaterialFootprint_phosphate rock | 100.0% | Progress: 207 o
- 37/70 : MaterialFootprint_platinum | 100.0% | Progress: 171 of 1
- 38/70 : MaterialFootprint_rare earth | 100.0% | Progress: 37 of 37
- 39/70 : MaterialFootprint_rhodium | 100.0% | Progress: 11 of 11
- 40/70 : MaterialFootprint_sand | 100.0% | Progress: 611 of 61
- 41/70 : MaterialFootprint_scandium | 100.0% | Progress: 1 of 1
- 42/70 : MaterialFootprint_selenium | 100.0% | Progress: 9 of 9
- 43/70 : MaterialFootprint_silicon | 100.0% | Progress: 375 of 375
- 44/70 : MaterialFootprint_silver | 100.0% | Progress: 50 of 50

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 - 45/70 : MaterialFootprint_strontium          | | 100.0% | Progress:    28 of 28
 - 46/70 : MaterialFootprint_tantalum           | | 100.0% | Progress:     3 of 3
 - 47/70 : MaterialFootprint_tellurium          | | 100.0% | Progress:     2 of 2
 - 48/70 : MaterialFootprint_tin                | | 100.0% | Progress:   124 of 124
 - 49/70 : MaterialFootprint_titanium           | | 100.0% | Progress:   457 of 45
 - 50/70 : MaterialFootprint_tungsten           | | 100.0% | Progress:     5 of 5
 - 51/70 : MaterialFootprint_uranium            | | 100.0% | Progress:   140 of 1
 - 52/70 : MaterialFootprint_vegetable oil      | | 100.0% | Progress:    37 of 3
 - 53/70 : MaterialFootprint_water              | | 100.0% | Progress: 11611 of 1
 - 54/70 : MaterialFootprint_zinc               | | 100.0% | Progress:   670 of 670
 - 55/70 : MaterialFootprint_zirconium          | | 100.0% | Progress:    11 of 1
 - 56/70 : WasteFootprint_carbondioxide-kilogram | | 100.0% | Progress:  12
 - 57/70 : WasteFootprint_composting-kilogram   | | 100.0% | Progress:   14
 - 58/70 : WasteFootprint_digestion-cubicmeter  | | 100.0% | Progress:    6
 - 59/70 : WasteFootprint_digestion-kilogram    | | 100.0% | Progress:    4 o
 - 60/70 : WasteFootprint_hazardous-cubicmeter  | | 100.0% | Progress:   3(
 - 61/70 : WasteFootprint_hazardous-kilogram    | | 100.0% | Progress:  187
 - 62/70 : WasteFootprint_incineration-cubicmeter | | 100.0% | Progress:    2
 - 63/70 : WasteFootprint_incineration-kilogram | | 100.0% | Progress:  2637
 - 64/70 : WasteFootprint_landfill-cubicmeter   | | 100.0% | Progress:    2 of
 - 65/70 : WasteFootprint_landfill-kilogram     | | 100.0% | Progress:  1712 o
 - 66/70 : WasteFootprint_openburning-kilogram  | | 100.0% | Progress:   53
 - 67/70 : WasteFootprint_radioactive-cubicmeter | | 100.0% | Progress:   30
 - 68/70 : WasteFootprint_recycling-kilogram    | | 100.0% | Progress:   84 c
 - 69/70 : WasteFootprint_total-cubicmeter      | | 100.0% | Progress:  4695 c
 - 70/70 : WasteFootprint_total-kilogram        | | 100.0% | Progress: 30759 o
**************************************************************************************************
```

*** ExchangeEditor() completed for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2100 in 0:25:00 (h:m:s) ***

****

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2100 in project TreX-premise-SSP2-cutoff **

Score: 8.09e-05
Method: Gallium
Activity: Heavy duty truck, compressed gas, 40t gross weight, 2045, EURO-VI, regional delivery
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2100

** Database verified successfully! **

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*** Finished T-reX for ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2100 ***
Duration: 0:25:21 (h:m:s)
*** Woah woah wee waa, great success!! ***

==========

*** Verifying all databases in the project **

** Verifying database ecoinvent-3.9.1-cutoff in project TreX-premise-SSP2-cutoff **

Score: 1.50e-09
Method: Gallium
Activity: photovoltaic slanted-roof installation, 3kWp, multi-Si, panel, mounted, on roof
Database: ecoinvent-3.9.1-cutoff

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2020 in project TreX-premise-SSP2-cutoff **

Score: 7.75e-09
Method: Hazardous (m3)
Activity: market for sodium chloride, brine solution
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2020

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2025 in project TreX-premise-SSP2-cutoff **

Score: 3.19e-10
Method: Gallium
Activity: electricity voltage transformation from medium to low voltage
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2025

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2030 in project TreX-premise-SSP2-cutoff **

Score: 3.34e+03
Method: Electricity
Activity: Passenger car, gasoline, Lower medium, 2020, EURO-6d
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2030

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2035 in project TreX-premise-SSP2-cutoff **

Score: 4.17e+07
Method: Coke
Activity: mine construction, gold
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2035

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2040 in project TreX-premise-SSP2-cutoff **

Score: 2.36e-06
Method: Platinum
Activity: electricity, high voltage, production mix
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2040

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2045 in project TreX-premise-SSP2-cutoff **

Score: 3.81e-03
Method: Recycling (kg)
Activity: transport, passenger car, fuel cell electric, Van, 2040
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2045

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2050 in project TreX-premise-SSP2-cutoff **

Score: 6.99e-06
Method: Titanium
Activity: market for electricity, low voltage
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2050

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2055 in project TreX-premise-SSP2-cutoff **

Score: 2.34e-08
Method: Chromium
Activity: nitric acid production, product in 50% solution state
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2055

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2060 in project TreX-premise-SSP2-cutoff **

Score: 4.37e-07
Method: Vegetable oil
Activity: transport, passenger car, compressed gas, Medium SUV, 2045, EURO-6d
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2060

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2065 in project TreX-premise-SSP2-cutoff **

Score: 0.00e+00
Method: Digestion (m3)
Activity: market for wood chips, dry, measured as dry mass
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2065

Score: -4.98e-17
Method: Europium
Activity: blower and heat exchange unit production, KWL 250
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2065

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2070 in project TreX-premise-SSP2-cutoff **

Score: 0.00e+00
Method: Beryllium
Activity: heat production, hardwood chips from forest, at furnace 300kW, state-of-the-art 2014
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2070

Score: 2.25e-11
Method: Selenium
Activity: transport, passenger car, gasoline, Large, 2040, EURO-6d
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2070

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2075 in project TreX-premise-SSP2-cutoff **

Score: 2.32e-21
Method: Holmium
Activity: electricity production, oil
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2075

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2080 in project TreX-premise-SSP2-cutoff **

Score: 4.91e-05
Method: Total (m3)
Activity: market for cement, ZN/D, new alternative constituents 36-50%, in conformity with SIA 2049
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2080

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2085 in project TreX-premise-SSP2-cutoff **

Score: 2.93e-02
Method: Carbondioxide (kg)
Activity: transport, passenger car, EURO 5
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2085

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2090 in project TreX-premise-SSP2-cutoff **

Score: 2.61e-05
Method: Lead
Activity: petroleum and gas production, offshore
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2090

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2095 in project TreX-premise-SSP2-cutoff **

Score: 2.94e-12
Method: Cobalt
Activity: water production, decarbonised
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2095

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-Base_2100 in project TreX-premise-SSP2-cutoff **

Score: 1.43e-15
Method: Landfill (m3)
Activity: gypsum quarry operation
Database: ecoinvent_cutoff_3.9_remind_SSP2-Base_2100

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2020 in project TreX-premise-SSP2-cutoff **

Score: 1.99e-05
Method: Fluorspar
Activity: transport, freight, lorry, diesel, 7.5t gross weight, 2010, EURO-V, regional delivery
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2020

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2025 in project TreX-premise-SSP2-cutoff **

Score: 0.00e+00
Method: Digestion (m3)
Activity: heat and power co-generation, natural gas, conventional power plant, 100MW electrical
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2025

Score: -2.76e-21
Method: Erbium
Activity: transport, passenger car, plugin diesel hybrid, Medium, 2025, EURO-6d
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2025

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2030 in project TreX-premise-SSP2-cutoff **

Score: 0.00e+00
Method: Indium
Activity: cement production, CEM II/A-V
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2030

Score: 5.56e-03
Method: Bauxite
Activity: transport, passenger car, plugin gasoline hybrid, Van, 2015, EURO-6ab
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2030

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2035 in project TreX-premise-SSP2-cutoff **

Score: 1.30e-01
Method: Total (kg)
Activity: market for electricity, high voltage
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2035

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2040 in project TreX-premise-SSP2-cutoff **

Score: -1.97e-06
Method: Nickel
Activity: treatment of blast furnace gas, in power plant
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2040

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2045 in project TreX-premise-SSP2-cutoff **

Score: 1.72e-11
Method: Landfill (m3)
Activity: hydrogen production, steam methane reforming, from biomethane, high and low temperature, 26 bar
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2045

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2050 in project TreX-premise-SSP2-cutoff **

Score: 0.00e+00
Method: Tungsten
Activity: ethanol, from forest residue, system expansion, at fuelling station
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2050

Score: 9.27e-05
Method: Lithium
Activity: market for cocamide diethanolamine
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2050

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2055 in project TreX-premise-SSP2-cutoff **

Score: 2.54e-06

Method: Platinum
Activity: heat production, hardwood chips from forest, at furnace 50kW, state-of-the-art 2014
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2055

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2060 in project TreX-premise-SSP2-cutoff **

Score: 2.70e-02
Method: Tantalum
Activity: Light duty truck, diesel hybrid, 3.5t gross weight, 2045, EURO-VI, regional delivery
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2060

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2065 in project TreX-premise-SSP2-cutoff **

Score: 0.00e+00
Method: Digestion (m3)
Activity: unreinforced concrete production, 15MPa, with cement, CEM II/B
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2065

Score: -7.56e-03
Method: Nickel
Activity: market for petrol, unleaded
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2065

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2070 in project TreX-premise-SSP2-cutoff **

Score: 1.06e+00
Method: Electricity
Activity: silicon production, multi-Si, casted
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2070

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2075 in project TreX-premise-SSP2-cutoff **

Score: 7.02e-08
Method: Strontium
Activity: cement production, Pozzolana Portland
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2075

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2080 in project TreX-premise-SSP2-cutoff **

Score: 3.68e-09
Method: Incineration (m3)
Activity: land use change, perennial crop
Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2080

** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2085 in project TreX-premise-SSP2-cutoff **

Score: 3.59e-02

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        Method: Cement
        Activity: syngas, RWGS, Production, for Fischer Tropsch process, hydrogen from electrolysis
        Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2085


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    ** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2090 in project TreX-premise-SSP2-cutoff **

        Score: 0.00e+00
        Method: Scandium
        Activity: nuclear power plant construction, pressure water reactor, 1000MW
        Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2090

        Score: 8.76e-08
        Method: Magnesium
        Activity: treatment of blast furnace gas, in power plant
        Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2090


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    ** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2095 in project TreX-premise-SSP2-cutoff **

        Score: 1.52e-06
        Method: Titanium
        Activity: heat and power co-generation, natural gas, conventional power plant, 100MW electrical
        Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2095


    --------------------------------------------------------------------------------


    ** Verifying database ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2100 in project TreX-premise-SSP2-cutoff **

        Score: 1.02e-06
        Method: Latex
        Activity: syngas production, from natural gas, with carbon capture and storage
        Database: ecoinvent_cutoff_3.9_remind_SSP2-PkBudg500_2100


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      ================================================================================
                              T-reX Completed
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      Project:                TreX-premise-SSP2-cutoff
      Total Databases:        35
      Successfully Processed: 35
      Duration:               15:09:00 (h:m:s)

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                | some LCA!      |
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 (trex) stew@SC-McD:~/code/gh/T-reX$
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