A picture containing text

Description automatically generatedEnvironmental  
Product  
Declaration

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for:

**Aggregates**

from

- Test2

*[Company logo*]

|  |  |
| --- | --- |
| Programme: | The International EPD® System, [www.environdec.com](http://www.environdec.com) |
| Programme operator: | EPD International AB |
| EPD registration number: | S-P-0XXXX |
| Publication date: | 202X-XX-YY |
| Valid until: | 202X-XX-YY |
|  | *An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com* |

*]En bild som visar klippa, sten, utomhus, vägg

Automatiskt genererad beskrivning*

General information

Programme information

|  |  |
| --- | --- |
| **Programme:** | The International EPD® System |
| **Address:** | EPD International AB  Box 210 60  SE-100 31 Stockholm  Sweden |
| **Website:** | [www.environdec.com](http://www.environdec.com) |
| **E-mail:** | info@environdec.com |

|  |  |  |
| --- | --- | --- |
| |  | | --- | | **Accountabilities for PCR, LCA and independent, third-party verification** | | **Product Category Rules (PCR)** |   CEN standard EN 15804 serves as the Core Product Category Rules (PCR) |
| Product category rules (PCR): Product Category Rules PCR 2019:14 Construction products.  Version 1.0, date 2019-12-20 |
| PCR review was conducted by: The Technical Committee of the International EPD® System.  Chair: Claudia A. Peña Contact via info@environdec.com. |
| **Life Cycle Assessment (LCA)** |
| LCA accountability:  This LCA study has been conducted using the industry specific LCA software *Plantsmith.* |
| **Third-party verification** |
| Independent third-party verification of the declaration and data, according to ISO 14025:2006:  EPD process certification (internal)  EPD verification (external)  EPD verification (external) by accredited certification body |
| Third party verifier:    *In case of accredited certification bodies:*  Accredited by: SWEDAC  *In case of recognised individual verifiers:*  Approved by: The International EPD® System |
| Procedure for follow-up of data during EPD validity involves third party verifier:  Yes  No |

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025Company information

Company information

*Owner of the EPD:*

*Contact:*

*Description of the organisation:*

*Product-related or management system-related certifications:*

[Placeholder for Company Image]

Product information

*Product name:*

Aggregates

*Product categories:*

As several aggregate products are produced at this facility, the products in this LCA report have been grouped based on their similar environmental impacts considering the number of crushing phases they have passed through at the production facility. The decided grouping of the products can be seen below:

|  |  |
| --- | --- |
| Product Group: | Included Products: |
| g1 | 020, |

*Production site:*

Test2

*Production:*

*Geographical scope:*

SE

*Product identification:*

*Product description:*

*Product Standards:*

|  |  |
| --- | --- |
| CEN Standard | Product group, g1 |
| EN 12620:2002+A1  Aggregates for concrete |  |
| EN 13043:2002  Aggregate for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas |  |
| EN 13242+A1:2007  Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction |  |
| EN 13055:2016  Lightweight aggregates |  |
| EN 13139:2002  Aggregates for mortar |  |
| EN 13450:2002  Aggregates for railway ballast |  |

*Product Properties:*

UN CPC code:

1532A dirt road in the woods

Description automatically generated with medium confidence

LCA information

*Functional unit / declared unit:*

1000 kg product, at the production site.

*Reference service life:*

Not relevant for product based on PCR.

*Time representativeness:*

The data used to model product manufacturing corresponds to . The data from EPDs and generic databases are all from 2018 or later. No data used is older than 10 years.

*Database(s) and LCA software used:*

The background LCA for this EPD was conducted using the online aggregate industry specific software *Plantsmith*. The connected database to the software is built from the GaBi 2021 database.

*Description of system boundaries:*

Cradle to gate for aggregate products used in further products that are not recognizable at end-of-life, for example, concrete, asphalt or mortar. For unbound aggregate products a cradle to gate with modules C1–C4 and module D is applied.

A1 represents the acquisition of raw material. This is conducted through the removal of overburden, drilling, and blasting virgin rock for aggregates. Some material can be sourced from contracted rock which is an uncontaminated waste product from other activities e.g., road blasting. The amount of each input material for the aggregate products can be seen on page 9.

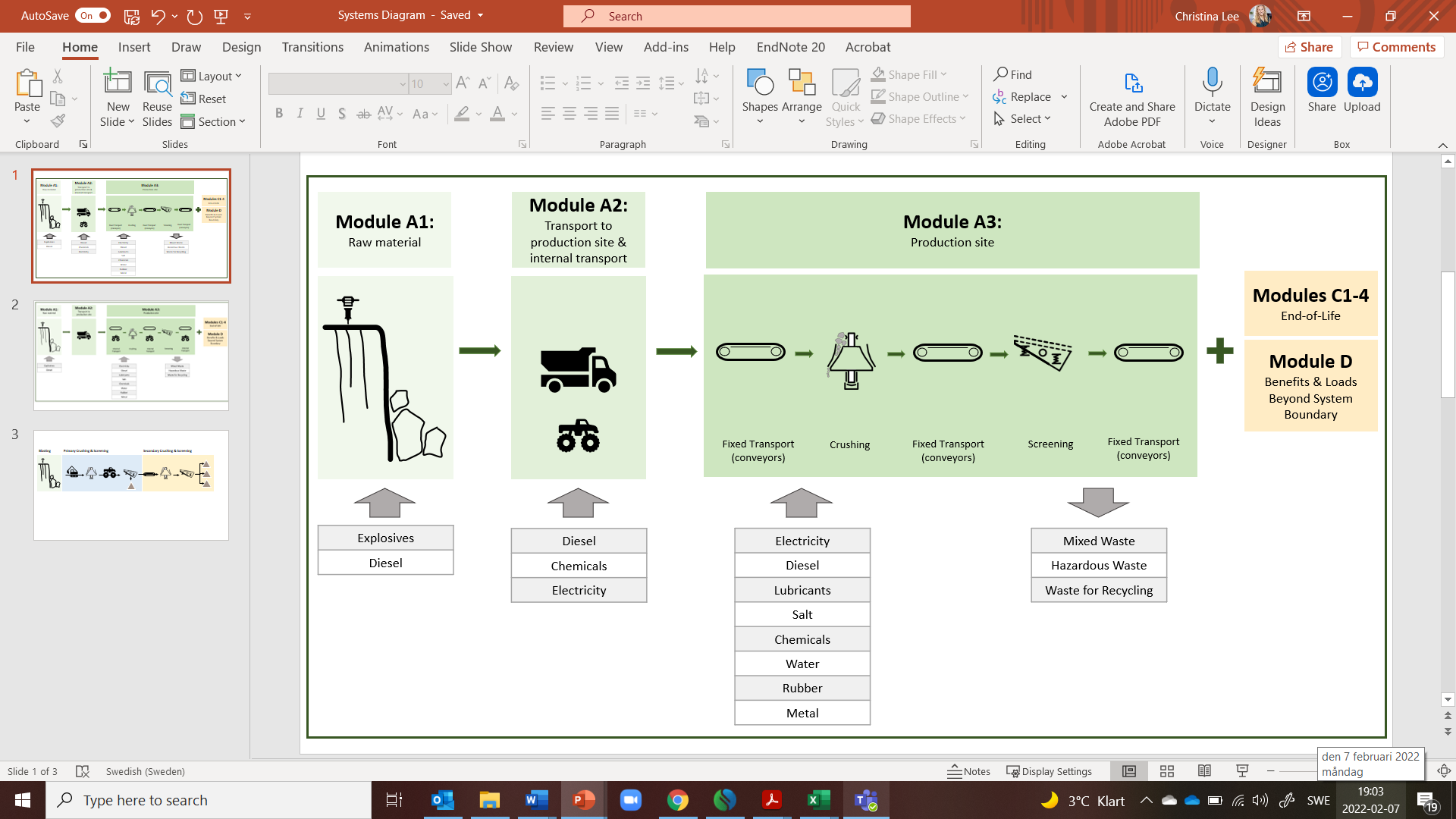
A2 represents the transportation to site of external material (contracted rock) or internal transportation conducted with yellow machinery.

A3 represents the manufacturing process. For aggregate products this includes crushing and screening with fixed transportation between processes using conveyor belts. Some products can also be washed which are indicated on page 4 under *product categories*.

C1-C4 represents the end-of-life for aggregate products. For all bound uses of aggregates, for example concrete, C-module is not declared under the exemption stated in section 5.2 of EN 15804:2012+A2:2019. For information on end-of-life for these products, please refer to a relevant EPD for concrete, asphalt or mortar. Considering the multiple purposes for unbound aggregates, a likely scenario has been proposed where the unbound aggregate remains in its original use yet is transported to a new location. The new location is estimated to be 20 km from its original position. Considering this scenario, no impacts occur for module C1, C3 or C4 and are, therefore, not reported.

D module represents benefits or loads beyond the system boundary. Given the end-of-life scenario used for module C, the unbound aggregate is assumed to displace the use of virgin aggregate products. 10 % losses are assumed over the lifespan and recovery of the secondary aggregates and, the secondary product is therefore credited with avoiding 900 kg of virgin material after waste processing has been applied.

*System diagram:*



*Excluded lifecycle stages:*

The life cycle modules included are those marked with an “X”. Information not declared in the LCA study is marked “ND”.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Product stage | | | Construction process stage | | Use stage | | | | | | | End of life stage | | | |  | Resource recovery stage |
|  | Raw material supply | Transport | Manufacturing | Transport | Construction installation | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | De-construction demolition | Transport | Waste processing | Disposal |  | Reuse-Recovery-Recycling-potential |
|  |
|  |
|  |
| **Module** | **A1** | **A2** | **A3** | **A4** | **A5** | **B1** | **B2** | **B3** | **B4** | **B5** | **B6** | **B7** | **C1** | **C2** | **C3** | **C4** |  | **D** |
| Modules declared | x | x | X | ND | ND | ND | ND | ND | ND | ND | ND | ND | x | x | x | x |  | x |
| Geography | Swe | Swe | Swe |  |  |  |  |  |  |  |  |  | Swe | Swe | Swe | Swe |  | Swe |
| Specific data used | >90% | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Variation – products | <10% | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Variation – sites | NR | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |

*Allocation:*

The production process has been split into sub-processes in *Plantsmith* depending on the individual products and environmental burdens have been allocated based on the mass of product produced in each sub-process.

*Scenarios:*

The analysis is carried out using factory-specific data for use of energy and utilities and waste generation, as well as product-specific data for use of raw materials. Therefore, the results represent the product system and no other scenarios were applied.

*Data used:*

Site-specific production data has been retrieved for Test2 from the production site in SE. The upstream and downstream processes have been modelled based on data from EPDs and generic databases from Sphera Solutions GmbH and EcoInvent.

*Cut-off:*

The study applies a cut-off criterion of maximum 1% of the material and energy inputs of the system. This means that the sum of excluded material inputs does not exceed 1% of the total material inputs.

*Transportation:*

The external transport of the raw materials to the production site is carried out by diesel-powered trucks, for the most part EURO6 if the material is not blasted on site. Internal transport is conducted with various yellow machines where site specific data is used for fuel consumption and maintenance. Fixed transport solutions within the manufacturing process have been included in module A3 due to their integration with the manufacturing process.

*Energy utilities:*

Electricity demand in the facilities is modelled using the residual grid mix from Sweden based on generic data from Sphera Solutions GmbH (2021). The distribution for the electricity residual grid mix is based on data from 2017. The climate impact of the residual mix used is 0.051 kg CO2 eq. per kWh.

*Direct emissions from production site:*

Within the scope of the study, the only direct emissions from the production site comes from fuel consumption in various diesel-powered machines. The emissions from diesel combustion in these machines is modelled on generic emission factors for combustion of diesel in construction machines.

*More information:*

Calculations were conducted with the aid of *Plantsmith*, a specific modelling tool developed for the aggregate industry. For more information on the models behind the calculations, please refer to their website: <https://www.roctim-plantsmith.com/>

For more information concerning aggregate production in general, please refer to the following organisations:

* European Aggregates Association [UEPG]: <https://uepg.eu/>
* Sveriges Bergmaterialindustri [SBMI]: <https://www.sverigesbergmaterialindustri.se/>

A picture containing sky, outdoor, grass, nature

Description automatically generated

Content information

|  |  |
| --- | --- |
| Product components | Weight, kg |
| Virgin Rock | 1000.0 |
| Contracted Rock | 0.0 |
| TOTAL | 1000.0 |

No substances that appear in the REACH candidate list of SVHC (Candidate List of Substances of Very High Concern) are present or used in the product concerning this EPD.

Environmental Information per Product Group

Potential environmental impact for mandatory indicators according to EN 15804

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Results per functional or declared unit | | | | | | | |
| **Indicator** | **Unit** | **A1** | **A2** | **A3** | **Tot.A1-A3** | **C1-C4** | **D** |
| GWP-fossil | kg CO2 eq. | 0 | 0 | 2.22 | 2.22 | 1.34 | -7.911e-1 |
| GWP-biogenic | kg CO2 eq. | 0 | 0 | 6.223e-3 | 6.223e-3 | -1.62e-3 | -7.058e-3 |
| GWP- luluc | kg CO2 eq. | 0 | 0 | 7.091e-4 | 7.091e-4 | 1.11e-2 | 9.352e-3 |
| GWP- total | kg CO2 eq. | 0 | 0 | 2.23 | 2.23 | 1.35 | -7.884e-1 |
| ODP | kg CFC 11 eq. | 0 | 0 | 6.289e-13 | 6.289e-13 | 2.68e-16 | -5.657e-13 |
| AP | mol H+ eq. | 0 | 0 | 7.082e-3 | 7.082e-3 | 8.05e-3 | 8.709e-4 |
| EP-freshwater | kg PO43- eq. | 0 | 0 | 6.829e-6 | 6.829e-6 | 1.209e-5 | 4.734e-6 |
| EP-freshwater | kg P eq. | 0 | 0 | 2.276e-6 | 2.276e-6 | 4.03e-6 | 1.578e-6 |
| EP- marine | kg N eq. | 0 | 0 | 2.506e-3 | 2.506e-3 | 3.93e-3 | 1.282e-3 |
| EP-terrestrial | mol N eq. | 0 | 0 | 2.98e-2 | 2.98e-2 | 4.35e-2 | 1.233e-2 |
| POCP | kg NMVOC eq. | 0 | 0 | 3.502e-3 | 3.502e-3 | 7.59e-3 | 3.679e-3 |
| ADP-minerals & metals\* | kg Sb eq. | 0 | 0 | 3.129e-7 | 3.129e-7 | 1.2e-7 | -1.737e-7 |
| ADP-fossil\* | MJ | 0 | 0 | 7.155e+1 | 7.155e+1 | 1.81e+1 | -4.81e+1 |
| WDP | m3 | 0 | 0 | 1.135e-1 | 1.135e-1 | 1.26e-2 | -9.085e-2 |
| Acronyms | GWP = Global Warming Potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential; EP = Eutrophication Potential; POCP = Formation potential of tropospheric ozone; ADP = Abiotic Depletion Potential; WDP = Water Deprivation Potential | | | | | | |

*\* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Potential environmental impact – additional mandatory and voluntary indicators

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Results per functional or declared unit | | | | | | | |
| **Indicator** | **Unit** | **A1** | **A2** | **A3** | **Tot.A1-A3** | **C1-C4** | **D** |
| GWP-GHG[[1]](#footnote-2) | kg CO2 eq. | 0 | 0 | 2.12 | 2.12 | 1.32 | -7.223e-1 |
| *Additional voluntary indicators e.g. the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017* |  |  |  |  |  |  |  |

**Use of resources**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Results per functional or declared unit | | | | | | | |
| **Indicator** | **Unit** | **A1** | **A2** | **A3** | **Tot.A1-A3** | **C1-C4** | **D** |
| PERE | MJ | 0 | 0 | 4.32 | 4.32 | 1.04 | -2.95 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 0 | 0 | 4.32 | 4.32 | 1.04 | -2.95 |
| PENRE | MJ | 0 | 0 | 7.155e+1 | 7.155e+1 | 1.81e+1 | -4.81e+1 |
| PENRM | MJ. | 0 | 0 | 2.344e-11 | 2.344e-11 | 0 | -2.109e-11 |
| PENRT | MJ | 0 | 0 | 7.155e+1 | 7.155e+1 | 1.81e+1 | -4.81e+1 |
| SM | kg | 0 | 0 | 0 | 0 | 0 | 0 |
| RSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 |
| NRSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 |
| FW | m3 | 0 | 0 | 7.41e-3 | 7.41e-3 | 1.19e-3 | -5.598e-3 |
| Acronyms | PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water | | | | | | |

**Waste production and output flows**

**Waste production**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Results per functional or declared unit | | | | | | | |
| **Indicator** | **Unit** | **A1** | **A2** | **A3** | **Tot.A1-A3** | **C1-C4** | **D** |
| Hazardous waste disposed | kg | 0 | 0 | 2.652e-8 | 2.652e-8 | 9.55e-10 | -2.301e-8 |
| Non-hazardous waste disposed | kg | 0 | 0 | 1.301e-2 | 1.301e-2 | 2.84e-3 | -9.156e-3 |
| Radioactive waste disposed | kg | 0 | 0 | 3.463e-3 | 3.463e-3 | 3.29e-5 | -3.087e-3 |

**Output flows**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Results per functional or declared unit | | | | | | | |
| **Indicator** | **Unit** | **A1** | **A2** | **A3** | **Tot.A1-A3** | **C1-C4** | **D** |
| Components for re-use | kg | 0 | 0 | 0 | 0 | 0 | 0 |
| Material for recycling | kg | 0 | 0 | 0 | 0 | 0 | 0 |
| Materials for energy recovery | kg | 0 | 0 | 0 | 0 | 0 | 0 |
| Exported energy, electricity | MJ | 0 | 0 | 0 | 0 | 0 | 0 |
| Exported energy, thermal | MJ | 0 | 0 | 0 | 0 | 0 | 0 |

Additional information

*Please provide any additional information about ongoing environmental work on site here.*

The facility maintains a permit issued in accordance with the Environmental Code (Miljöbalken) and is monitored by the local authority. The routine monitoring to maintain our permit includes: vibration levels, and discharges of pollutants into any outflowing water. Corrective action is taken if any breaches do occur during our routine monitoring.

Differences versus previous versions

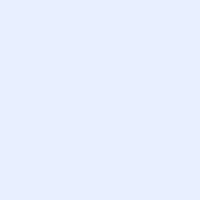
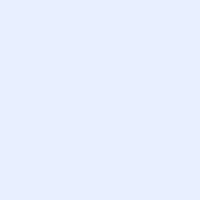
*No previous versions of this EPD are currently available.*

*A picture containing outdoor, tree, sky, ground

Description automatically generated*

References

* LCA BACKGROUND REPORT, Test2, VERSION XXXX
* General Programme Instructions of the International EPD® System. **2019**, Version 3.01, www.envrondec.com
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* Sairanen, M.; Rinne, M. Dust emission from crushing of hard rock aggregates. *Atmospheric Pollution Research* **2019**, *10*, 656-664, doi:<https://doi.org/10.1016/j.apr.2018.11.007>.
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* Svensk Standard [SIS]. Lightweight aggregates (EN 13055:2016). **2016**
* Svensk Standard [SIS]. Aggregates for mortor (EN 13139). **2002**
* Svensk Standard [SIS]. Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction (EN 13242+A1:2007). **2015**
* Svensk Standard [SIS]. Aggregates for railway ballast (EN 13450). **2003**



www.environdec.com

1. The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013. [↑](#footnote-ref-2)