

DMP title

Project Name DMP_Raymond Thür - DMP title

Project Identifier ZKE1067 - PDO/21

Grant Title 1241822N

Principal Investigator / Researcher Raymond Thür

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Description -This project involves research new membrane materials that improve overall membrane performance. -Important research questions are: 1) which materials give best membrane performance 2) which structure-performance-property relationships can be found 3) which membrane properties and parameters are important in upscaling lab scale membranes - Data will be collected to assess membrane performance, to characterize membrane features and to optimize measuring performances

Institution KU Leuven

1. General Information

Name applicant

Raymond Thür

FWO Project Number & Title

1241822N

Affiliation

- KU Leuven

2. Data description

Will you generate/collect new data and/or make use of existing data?

- Generate new data
- Reuse existing data

Describe in detail the origin, type and format of the data (per dataset) and its (estimated) volume. This may be easiest in a table (see example) or as a data flow and per WP or objective of the project. If you reuse existing data, specify the source of these data. Distinguish data types (the kind of content) from data formats (the technical format).

Type of data	Format	Volume	How created	Generated by
Membrane preparation and upscaling parameters	.xlsx	5 GB	Parameters entered in an .xlsx document by the researchers	KU Leuven
Membrane performance (flux, selectivity)	.xlsx	15 GB	Generated by in-house developed high-throughput gas separation equipment	KU Leuven
Data generated from general characterization	.xlsx	15 GB	Data generated from Thermogravimetric Analysis (TGA), Differential Scanning Calorimetry (DSC), Nuclear Magnetic Resonance Spectroscopy (NMR), X-Ray Diffraction Spectroscopy (XRD), adsorption, Atomic Force Microscopy (AFM) experiments	KU Leuven
Microscopy images	.tif	100 - 300 GB	Electron Microscopy (EM) and AFM images of absorbant layers	KU Leuven
Structured adsorbant performance	.xlsx	15 GB	Obtained from volumetric and gravimetric analysis methods	VUB
CFD model simulations	.m	5 GB	Simulation data of flow, diffusion and adsorption in structured adsorbants generated by a CFD model	VUB
Microcrystal X-ray diffraction patterns	.tiff	500 MB	XRD spectroscopy of used materials	UGent
				Inagro
				UGent/Inagro

3. Legal and ethical issues

Will you use personal data? If so, shortly describe the kind of personal data you will use. Add the reference to your file in KU Leuven's Register of Data Processing for Research and Public Service Purposes (PRET application). Be aware that registering the fact that you process personal data is a legal obligation.

- No

Privacy Registry Reference:

Short description of the kind of personal data that will be used:

Are there any ethical issues concerning the creation and/or use of the data (e.g.

experiments on humans or animals, dual use)? If so, add the reference to the formal approval by the relevant ethical review committee(s)

- No

Does your work possibly result in research data with potential for tech transfer and valorisation? Will IP restrictions be claimed for the data you created? If so, for what data and which restrictions will be asserted?

- Yes

If promising and inventive technologies are developed, IP will first be claimed. After the IP has been taken, the data will be made available via patents.

Do existing 3rd party agreements restrict dissemination or exploitation of the data you (re)use? If so, to what data do they relate and what restrictions are in place?

- No

4. Documentation and metadata

What documentation will be provided to enable reuse of the data collected/generated in this project?

1. Lab notebooks will be numbered and an index will be provided, critical data to replicate experiments will be transferred to either .docx or .xlsx format.
2. .xlsx, .m, .docx and .apw files will be organized in folders and subfolders to generate a clear and easy-to-use data library
3. For microscopy images the following information will be noted: dimensions, image type, bit-depth, pixel sizes and microscope settings

Will a metadata standard be used? If so, describe in detail which standard will be used. If no, state in detail which metadata will be created to make the data easy/easier to find and reuse.

- No

5. Data storage and backup during the FWO project

Where will the data be stored?

1. Physical lab notes and experimental data will be stored on the researchers personal devices. Data essential for the replication of experiments will be saved in .xlsx together with the experimental data.
2. The data described in 2. Data description will be stored in the host institutes secure environment that automatically makes back ups on a regular basis (Box, Dropbox, OneDrive, the internal servers of KU Leuven, etc)
3. Since we will collaborate with researchers from other research units and groups, we will use OneDrive for active use of the data during the project.

How is backup of the data provided?

The cloud service KU Leuven Enterprise Box offers automatic back up. Previous versions and deleted data are stored on the Box servers for 30 days. Moreover, the servers at the host institutes are automatically back up'ed on a regular basis.

Is there currently sufficient storage & backup capacity during the project? If yes, specify concisely. If no or insufficient storage or backup capacities are available then explain how this will be taken care of.

- Yes

Currently there is sufficient storage & backup capacity. Currently all reports are stored at Box and OneDrive. Unpublished data of the researchers is stored on the servers and cloud services provided by the respective host institution.

What are the expected costs for data storage and back up during the project? How will these costs be covered?

The cost of storing the unpublished data on the servers or cloud services is dependent on the host institute and is estimated to be around 100 EUR per year per researcher. These costs are covered by the host institute.

Data security: how will you ensure that the data are securely stored and not accessed or modified by unauthorized persons?

The data of each researcher will be stored on the servers or cloud services available at the host institutes. The data can only be accessed by the researcher and its supervisor since access is restricted with a username and password. In the case of Box, the data are encrypted: the data transfer to the Box online software goes via a secured HTTPS connection and is encrypted with a 256-bit SSL.

6. Data preservation after the FWO project

Which data will be retained for the expected 5 year period after the end of the project? In case only a selection of the data can/will be preserved, clearly state the reasons for this (legal or contractual restrictions, physical preservation issues, ...).

After the end of the project, all data will be stored on the servers of the host institute for at least 5 years.

Where will the data be archived (= stored for the longer term)?

The data will be stored on the university's central servers (with automatic back-up procedures) for at least 10 years, conform the KU Leuven RDM policy.

What are the expected costs for data preservation during the retention period of 5 years? How will the costs be covered?

The cost for data preservation of 5 years is estimated to be 500 EUR. These costs are covered by the coordination budget.

7. Data sharing and reuse

Are there any factors restricting or preventing the sharing of (some of) the data (e.g. as defined in an agreement with a 3rd party, legal restrictions)?

- No

Which data will be made available after the end of the project?

The data will be made available through the publication of research findings throughout the project and in patents following up on the project.

Where/how will the data be made available for reuse?

- In a restricted access repository
- Upon request by mail

When will the data be made available?

- Upon publication of the research results

Who will be able to access the data and under what conditions?

The datasets will be attached as supplementary information together with the publication of the research results. Therefore, it will be available to anyone for any purpose, provided that they give appropriate credit to the creators.

What are the expected costs for data sharing? How will the costs be covered?

Currently, there are no expected costs for data sharing.

8. Responsibilities

Who will be responsible for data documentation & metadata?

Question not answered.

Who will be responsible for data storage & back up during the project?

Question not answered.

Who will be responsible for ensuring data preservation and reuse ?

Raymond Thür

Who bears the end responsibility for updating & implementing this DMP?

The PI bears the end responsibility of updating & implementing this DMP.