

# ÖKOBAUDAT in openLCA

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## 1 About ÖKOBAUDAT

The ÖKOBAUDAT (current version 2023-I from 15.06.2023) database is the mandatory database for the Assessment System for Sustainable Building (Bewertungssystem Nachhaltiges Bauen, BNB). Datasets are provided for various building products, and are meant to fulfil requirements of the EN15804 and beyond (see Principles for acceptance of LCA data in ÖKOBAUDAT). The database contains Environmental Product Declarations, EPDs, and Life Cycle Assessment datasets typically based on the LCA database fka GaBi. Further datasets based on the ecoinvent LCA database are provided in 'additional datasets'. These are only by exception to be used within the Bewertungssystem Nachhaltiges Bauen für Bundesgebäude (BNB). These generic LCA data sets are mostly following EN 15804:2012+A2:2019; older ones that are following EN 15804:2012+A1 are also present but are no longer updated. Explanation is that they are made available for ongoing projects in ÖKOBAUDAT until further notice.

Idea for ÖKOBAUDAT is to support the preparation of life cycle assessments for entire constructions. Claim is further that the datasets can be imported into all common building life cycle assessment (LCA) tools. There are further expectations with the database, especially to be a prerequisite for ensuring that LCA data is prepared in a standardised manner throughout Europe. The documentation for the database with these somewhat bold claims and expectations, and more details, can be found at the official website<sup>1</sup>.

Note that this document has been prepared independent from the BBSR and independent from the entities involved in creating the ÖKOBAUDAT database.

## 2 ÖKOBAUDAT in openLCA

Data for this version was obtained from the soda4LCA “node” of the ÖKOBAUDAT, here: <https://oekobaudat.de/OEKOBAU.DAT/>, using the latest available version ‘OBD\_2023\_I’ from June 15 2023. Download was done in June 2024. The following sections detail how to work with ÖKOBAUDAT on openLCA. The newly added EPD features of openLCA will be useful in this explanation<sup>2</sup>. We will also show that the imported data needed some work, unlike promised by the statement made by the database providers, Figure 1, and may benefit from additional work,

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<sup>1</sup> [Zukunft Bauen, Forschung für die Praxis | Volume 11, ÖKOBAUDAT, Basis for the building life cycle assessment \(oekobaudat.de\).](https://www.zukunft-bauen.de/ueber-uns/foerderung-und-forschung/volume-11-oekobaudat-basis-fuer-die-bau-lebenszyklus-bewertung/)

<sup>2</sup> <https://greendelta.github.io/openLCA2-manual/epds/index.html>.

before being really useful. We hope that this explanation itself is useful, too, and in turn contributes to advancing the quality of the ÖKOBAUDAT database.

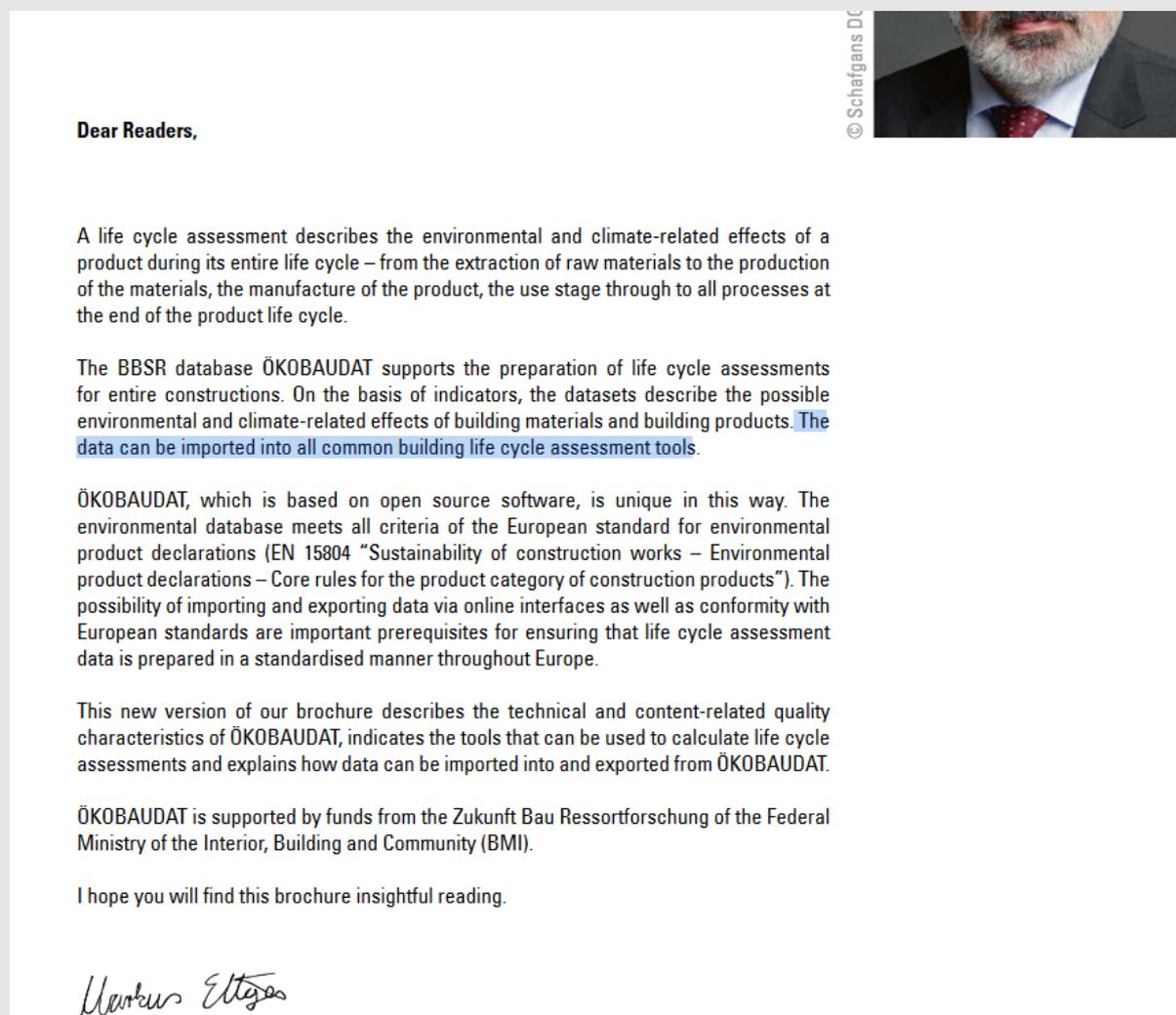


Figure 1: screenshot from the ÖKOBAUDAT brochure, excerpt (from <sup>1</sup>)

### 3 Importing ÖKOBAUDAT into openLCA, for openLCA users

The prepared ÖKOBAUDAT database can be downloaded as a zolca file from Nexus, <https://nexus.openlca.org/>. “Restore” this zolca file in openLCA to have access to the full database. That is, right-click in the openLCA navigation panel → Restore database<sup>3</sup>; Main menu: Database → Restore database; this creates a database. Then search for the ÖKOBAUDAT file (in

<sup>3</sup> [Restoring a database - openLCA 2 manual \(greendelta.github.io\)](https://github.com/greendelta/openlca2-manual)

.zolca-format) which you downloaded, and select it. The database will be then available in openLCA and can be activated/opened by double-clicking it.

## 4 How ÖKOBAUDAT looks like in openLCA

This section describes selected elements of the database in openLCA, and how to work with them.

### 4.1 Environmental Product Declarations (EPDs)

In openLCA 2 EPDs have been added as new elements. When opening the ÖKOBAUDAT database in openLCA, you will see that it does not contain any process datasets. Instead, datasets are represented as EPDs, see Figure 2. We believe this reflects the nature of the original datasets much better; in previous openLCA versions, and in other LCA tools, EPDs are typically shown as process datasets, in lack of a different element. How to work with EPDs in openLCA is detailed in our manual<sup>4</sup>.

. As shown in Figure 3, the EPDs contain life cycle stage results, called “modules” (A1-A3, C2, C3 for example), and some meta-information such as the author etc.

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<sup>4</sup> <https://greendelta.github.io/openLCA2-manual/epds/index.html>.

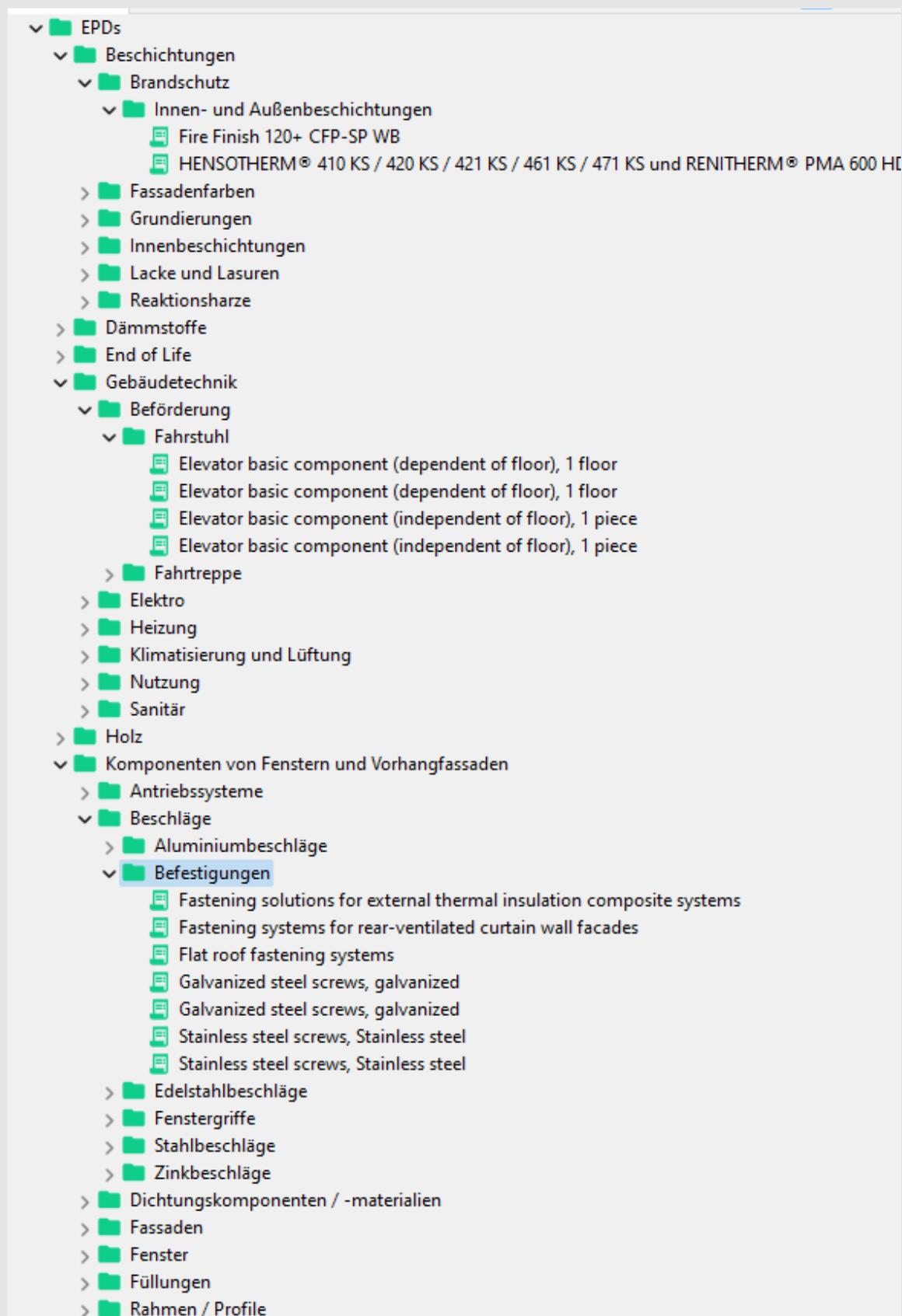


Figure 2: EPDs in the navigation Pane

General information: Elevator basic component (dependent of floor), 1 floor

**General information**

Name: Elevator basic component (dependent of floor), 1 floor

Category: Gebäudetechnik/Beförderung/Fahrtstuhl

Description: This data set has been modeled according to the European Standard EN 15804 for Sustainable Building. Results are depicted in modules that allow the structured expression of results over the entire life cycle.

Version: 20.19.120 Last change: 2019-12-04 10:05:36 UUID: a074d0aa-68fd-4105-9b27-e9cf0042cb4d

Tags: Add a tag, DIN EN 15804

Upload as draft to EC3

**Declared product**

Flow: Elevator component dependent on floor (unit)

Amount: 1.0 pcs. - Number of pieces = 333.0 kg

**References**

Manufacturer: thinkstep AG

Program operator: - none -

PCR: - none -

Verifier: thinkstep AG

URN: ilcd:epd:a074d0aa-68fd-4105-9b27-e9cf0042cb4d

**Modules**

Module	Result	LCIA Method	Result multiplier	Reference flow
A1-A3	Elevator basic component (dependent ...		1.0	1.00 pcs. - Elevator component depend...
C2	Elevator basic component (dependent ...		1.0	1.00 pcs. - Elevator component depend...
C3	Elevator basic component (dependent ...		1.0	1.00 pcs. - Elevator component depend...
D	Elevator basic component (dependent ...		1.0	1.00 pcs. - Elevator component depend...

Figure 3: Example of an EPD from the ÖKOBAUDAT database– Elevator basic component (dependent of floor), 1 floor

## 4.2 Results for life cycle stages

Another new element of openLCA present in this database is “results”. Life cycle stages of EPDs are results, and each EPD comprises several results. For the EPD, they are called modules. An example can be seen again in Figure 2 above, the EPD has A1-A3, C2, C3, and D as results. The result can be opened from the EPD (Fig. 4; or also independently, from the category tree).

**Modules**

Module	Result
A1-A3	Elevator basic compon
C2	sic compon
C3	sic compon
D	sic compon

Context menu options: Create new, Edit, Open result, Remove selected

Figure 4: Opening a result from the EPD

The result looks like this (Fig. 5). It mainly contains the calculation results, a reference to the applies assessment method, and the product with amount and unit. Results can also be linked

to life cycle models (“product system”), but in the ÖKOBAUDAT, this feature is not used since the database does not contain any product systems / life cycle models, but only fully aggregated datasets.

The screenshot displays the results for an elevator component in the ÖKOBAUDAT software. The main window title is "Result: Elevator basic component (dependent of floor), 1 floor - A1-A3".

**General information:**

- Name: Elevator basic component (dependent of floor), 1 floor - A1-A3
- Category: Gebäudetechnik/Beförderung/Fahrstuhl
- Description: (Empty text area)
- Version: 00.00.000
- Last change: (Empty)
- UUID: 11e4ac19-5bd9-3859-bb57-98386313dcbe
- Tags: A1-A3
- Product system: - none -
- LCIA method: EN15804+A1 (CML 4.8)

**Impact assessment results:**

Impact category	Amount	Unit
CML   Abiotic depletion potential for fossil resources (ADPF)	9232.34514	MJ
CML   Abiotic depletion potential for non fossil resources (ADPE)	0.01134	kg Sb eq.
CML   Acidification potential of soil and water (AP)	3.14362	kg SO2 eq.
CML   Depletion potential of the stratospheric ozone layer (ODP)	3.86346E-12	kg R11 eq.
CML   Eutrophication potential (EP)	0.22446	kg Phosphate eq.
CML   Formation potential of tropospheric ozone (POCP)	0.30637	kg Ethene eq.
CML   Global warming potential (GWP)	969.28877	kg CO2 eq.

**Inventory result - Inputs:**

Flow	Category	Amount	Unit	Location

**Inventory result - Outputs:**

Flow	Category	Amount	Unit	Location
Elevator component dependent on floor ...	Valuable substances/Systems/Assemblies/EL...	1.00000	pcs.	

Figure 5: Example for a life cycle stage result

### 4.3 Impact assessment methods and categories

The database contains already impact assessment methods and impact categories; there are three “main” methods, the ones starting with “EN15805+”, for A1, EF3.0, and EF3.1. Inventory indicators are always contained in all of the three main methods, but are also available as a separate method. TRACI 2.1 is not used in any of the EPDs and results in the database but is anyhow provided. As common in openLCA 2, impact categories are independent from the methods, as the methods are a mere “umbrella” for the respective impact categories (Fig. 6). These methods use the UUIDs from the Indata group and from the European Commission, where applicable, and are taken from the EN15804 method pack for openLCA.

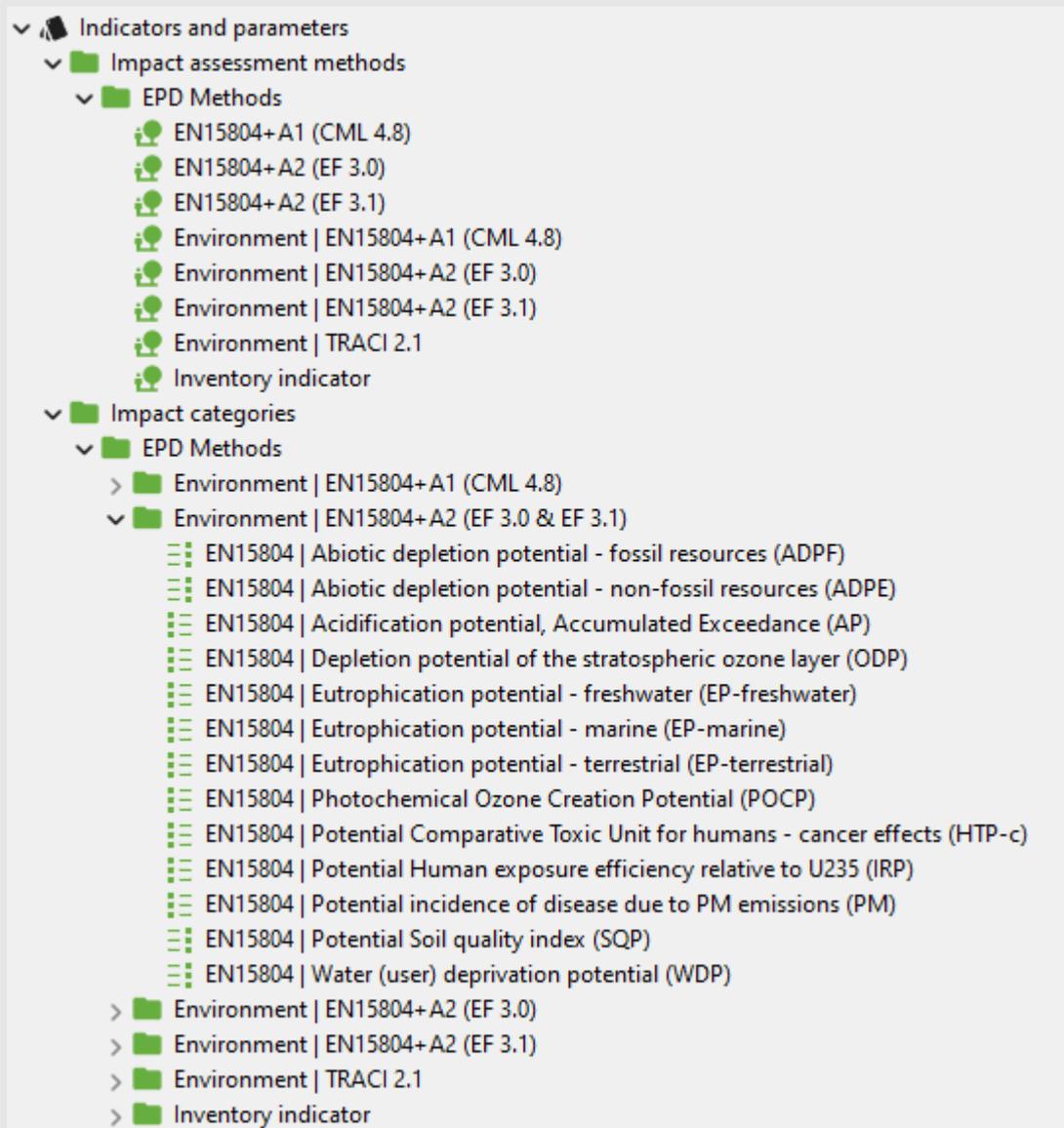
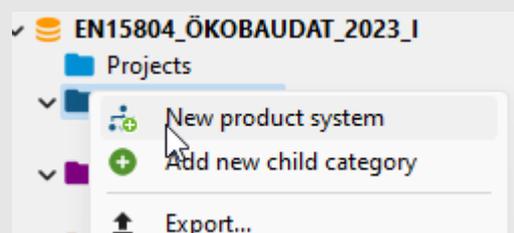


Figure 6: Example product system with dummy process and result, yet unconnected

#### 4.4 Modelling with the ÖKOBAUDAT in openLCA

The results in the ÖKOBAUDAT database can be used directly in life cycle models in openLCA. For example, when we create a simple demo product system...



...with a dummy demo process, we can connect results to this demo process, calculate the system, and will obtain a result.

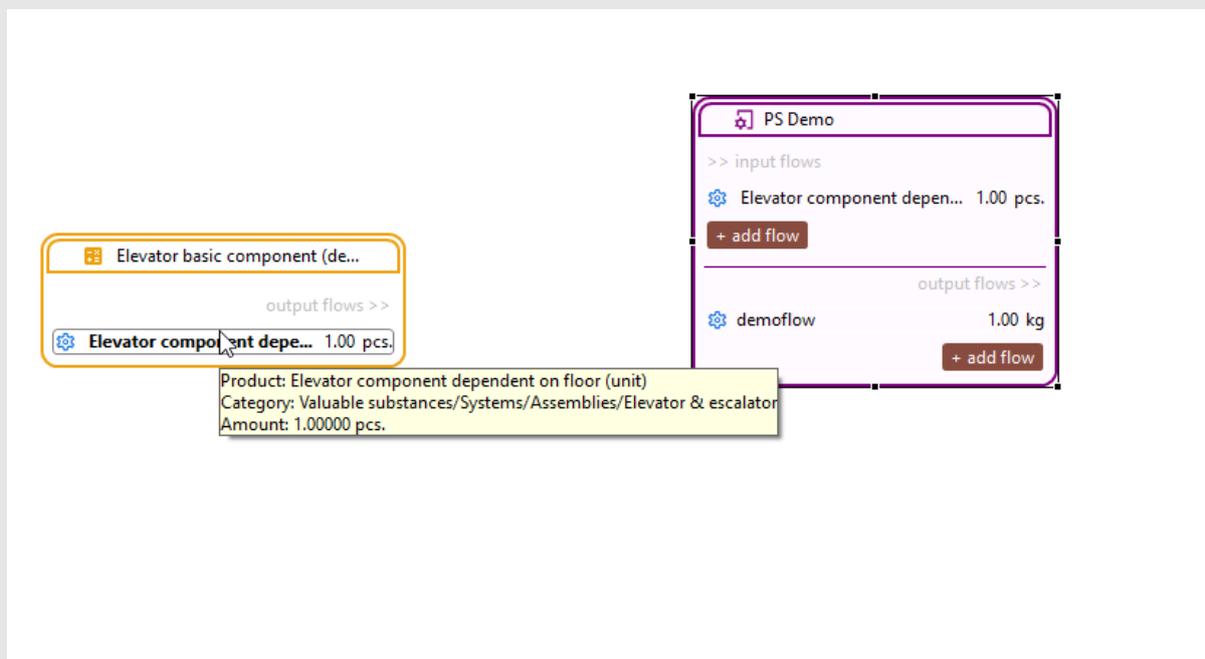


Figure 7: Example product system with dummy process and result, yet unconnected

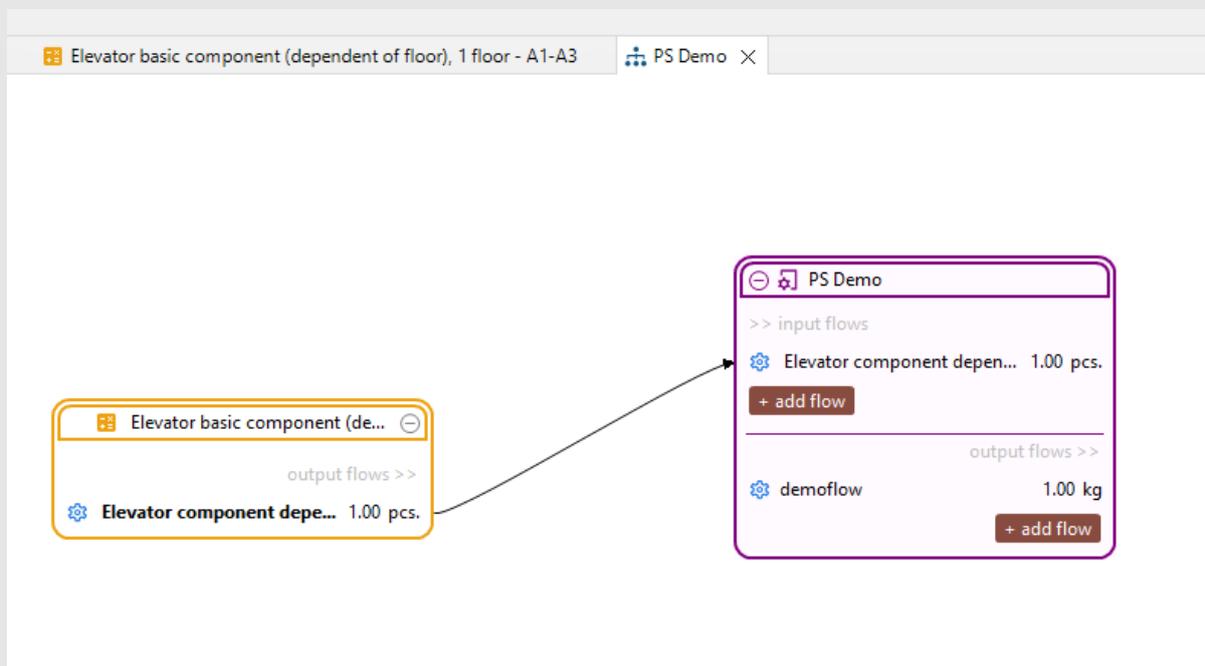
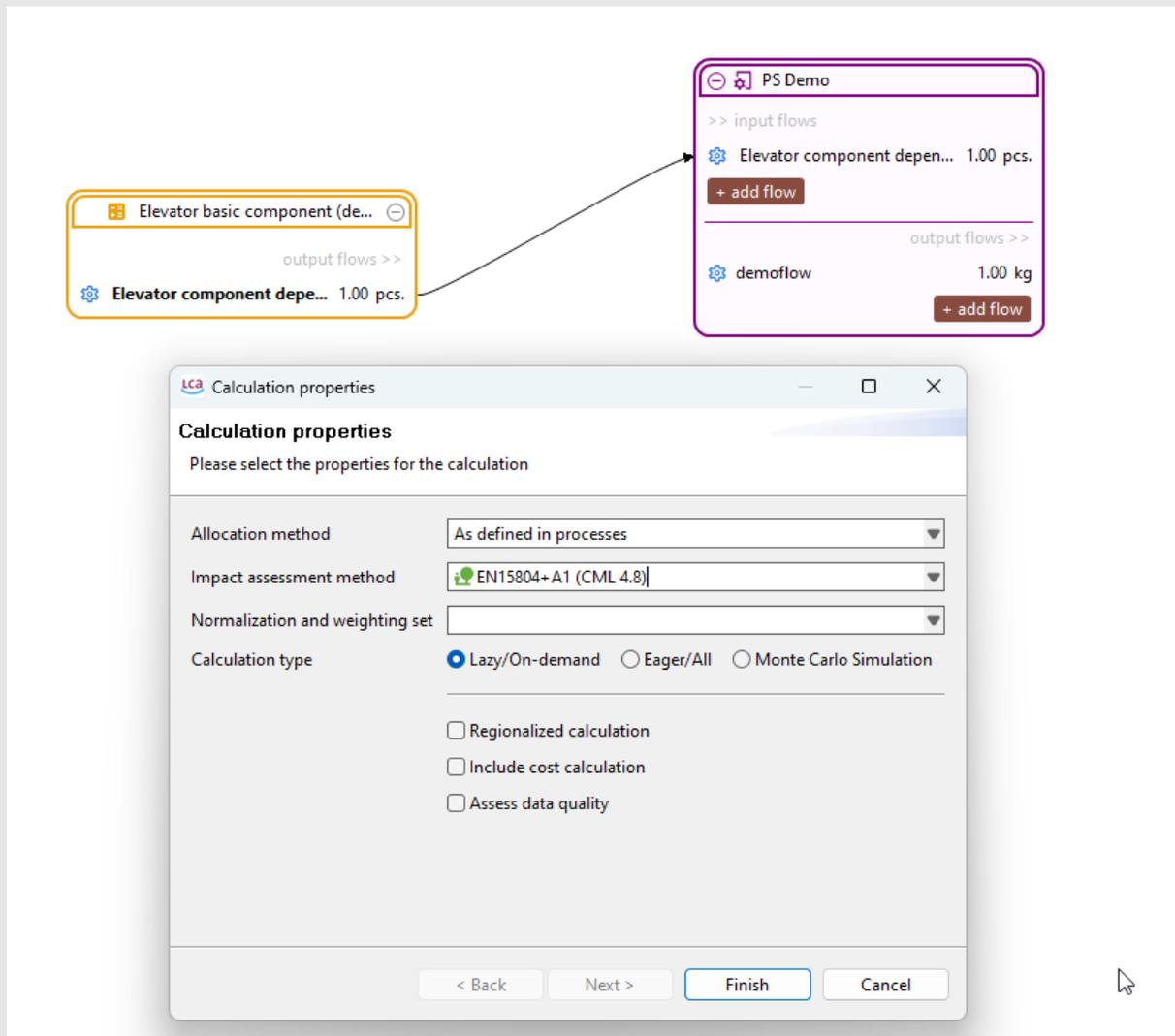


Figure 8: Example product system with dummy process and result, connected

This can then be calculated..



... and yields a result (Fig. 9).

Name	Category	Inventory re...	Charact...	Impact assessment result
> CML   Abiotic depletion potential for fossil resources (ADPF)	EPD Methods/Environment   EN15804+A1 (CML 4.8)			9252.34514 MJ
> CML   Abiotic depletion potential for non fossil resources (ADPE)	EPD Methods/Environment   EN15804+A1 (CML 4.8)			0.01134 kg Sb eq.
> CML   Acidification potential of soil and water (AP)	EPD Methods/Environment   EN15804+A1 (CML 4.8)			3.14362 kg SO2 eq.
> CML   Acidification potential of soil and water (AP)	EPD Methods/Environment   EN15804+A1 (CML 4.8)	3.14362 kg S...	1.00000 k...	3.14362 kg SO2 eq.
> CML   Acidification potential of soil and water (AP)	EPD Methods/Environment   EN15804+A1 (CML 4.8)	3.14362 kg S...		3.14362 kg SO2 eq.
> CML   Depletion potential of the stratospheric ozone layer (ODP)	EPD Methods/Environment   EN15804+A1 (CML 4.8)			3.86346E-12 kg R11 eq.
> CML   Depletion potential of the stratospheric ozone layer (ODP)	EPD Methods/Environment   EN15804+A1 (CML 4.8)	3.86346E-12 ...	1.00000 k...	3.86346E-12 kg R11 eq.
> CML   Depletion potential of the stratospheric ozone layer (ODP)	EPD Methods/Environment   EN15804+A1 (CML 4.8)	3.86346E-12 ...		3.86346E-12 kg R11 eq.
> CML   Eutrophication potential (EP)	EPD Methods/Environment   EN15804+A1 (CML 4.8)			0.22446 kg Phosphate eq.
> CML   Formation potential of tropospheric ozone (POCP)	EPD Methods/Environment   EN15804+A1 (CML 4.8)			0.30637 kg Ethene eq.
> CML   Global warming potential (GWP)	EPD Methods/Environment   EN15804+A1 (CML 4.8)			969.28877 kg CO2 eq.
> Output   Components for re-use (CRU)	EPD Methods/Inventory indicator			0.00000 kg
> Output   Exported electrical energy (EEE)	EPD Methods/Inventory indicator			0.00000 MJ
> Output   Exported thermal energy (EET)	EPD Methods/Inventory indicator			0.00000 MJ
> Output   Materials for energy recovery (MER)	EPD Methods/Inventory indicator			0.00000 kg
> Output   Materials for recycling (MFR)	EPD Methods/Inventory indicator			0.00000 kg
> Resource   Total use of non renewable primary energy resources (PE)	EPD Methods/Inventory indicator			9550.40293 MJ
> Resource   Total use of renewable primary energy resources (PERT)	EPD Methods/Inventory indicator			970.54564 MJ
> Resource   Use of net fresh water (FW)	EPD Methods/Inventory indicator			2.31797 m3
> Resource   Use of non renewable primary energy resources used as	EPD Methods/Inventory indicator			9550.40293 MJ

Figure 9: Calculation result with modules from the EPD

This is very powerful we believe, well reflecting a common workflow when creating EPD models. Attention should be paid to the impact method used; the method applied in the calculation must be consistent with the method used for the result. openLCA 2 has “detached” categories from methods, and thus many impact categories are used in several methods, also for EPDs, but regarding climate change, for example, there are differences between EN15804 A1 and EF3.o.

#### 4.5 Corrections done in the database published for openLCA

When preparing the database for openLCA, we needed to fix quite some technicalities. This is not too surprising as the EPDs contained in the ÖKOBAUDAT are created by many different entities, and also since the ILCD data format (ILCD+EPD, to be precise) originally used for the database in the node is typically heavy, complicated to process, and just cumbersome, compared the JSON-LD format used as default for openLCA for example. And yet, given the “big language” used in the official communication (Fig. 1) it is somewhat surprising. Figure 10 shows an excerpt of some of the issues present in the original datasets after the import into openLCA. Note that these are not issues of openLCA we believe, but instead issues in the ILCD datasets.

Among the things to address, there are flow properties without unit groups, sources without names, a lot of duplicates for units, unit groups without a reference unit, and UUIDs that are not unique as they should be but used for different objects. Shows a screenshot from the validation result in openLCA, after the initial import of ÖKOBAUDAT from the node; altogether, there were several hundred validation issues.

## Validation results

Data set	Message
area*length	invalid link to unit group @0
Zeiteinheit	duplicate unit name or synonym: min
Zeiteinheit	duplicate unit name or synonym: h
Zeiteinheit	duplicate unit name or synonym: s
Energieeinheit	duplicate unit name or synonym: PJ
Energieeinheit	duplicate unit name or synonym: TJ
Energieeinheit	duplicate unit name or synonym: MJ
Energieeinheit	duplicate unit name or synonym: J
Energieeinheit	duplicate unit name or synonym: GJ
Energieeinheit	duplicate unit name or synonym: MWh
Energieeinheit	duplicate unit name or synonym: kJ
Energieeinheit	duplicate unit name or synonym: TOE
Energieeinheit	duplicate unit name or synonym: kWh
Längeneinheit	duplicate unit name or synonym: yd
Längeneinheit	duplicate unit name or synonym: km
Längeneinheit	duplicate unit name or synonym: ft
Längeneinheit	duplicate unit name or synonym: mi
Längeneinheit	duplicate unit name or synonym: in
durchschnittliche Dübelsysteme für VH...	invalid flow property reference @0
Längeneinheit	duplicate unit name or synonym: mm
Längeneinheit	duplicate unit name or synonym: m
durchschnittliche Dübelsysteme für W...	invalid flow property reference @0
Längeneinheit	duplicate unit name or synonym: cm
Normvolumen-Einheit	duplicate unit name or synonym: Nm3
Masseneinheit	duplicate unit name or synonym: oz
durchschnittliche Flachdachbefestigung...	invalid flow property reference @0
Masseneinheit	duplicate unit name or synonym: u
Masseneinheit	duplicate unit name or synonym: t
Masseneinheit	duplicate unit name or synonym: g
Masseneinheit	duplicate unit name or synonym: kg
Masseneinheit	duplicate unit name or synonym: mg
Masseneinheit	duplicate unit name or synonym: lb
Fläche-Einheit	duplicate unit name or synonym: m2
Fläche-Einheit	duplicate unit name or synonym: ha
Volumeneinheit	duplicate unit name or synonym: m3
Volumeneinheit	duplicate unit name or synonym: yd3
Volumeneinheit	duplicate unit name or synonym: in3
Volumeneinheit	duplicate unit name or synonym: l
Volumeneinheit	duplicate unit name or synonym: bbl
Unit of currency	duplicate unit name or synonym: EUR
m3 world eqv.	invalid reference unit @0
mol N eqv.	invalid reference unit @0
kg NMVOC eqv.	invalid reference unit @0
kg N eqv.	invalid reference unit @0
kBq U235 eqv.	invalid reference unit @0
disease incidence	invalid reference unit @0
CTUh	invalid reference unit @0
CTUe	invalid reference unit @0
Nicht-erneuerbare Primärenergie zur st...	duplicate reference ID: 1421caa0-679d-4bf4-b282-0eb850ccae27
	has no reference ID
	has an empty name
Holcim Ferro 4 N Bulk plant Beckum	duplicate reference ID: 87c3fc5b-0798-439d-afa4-08dadef1256a
Holcim Trass Banded plant Lägerdorf	duplicate reference ID: 810af879-476f-40a5-b02a-08dadef1256a

Figure 10: Validation messages in openLCA after import of the raw data, excerpt

These were fixed as long as they affect correctness of the calculation and modelling results, or seem plain simple mistakes, such as forgotten names. More structural improvements have not been applied so far, with the idea to maintain the original database as good as possible. This, however, means also that the literally hundreds of duplicate elements in the database, with a different UUID, have not been merged. This refers to product flows (Fig. 12), sources (Fig. 13), categories for authors (Fig. 14), and other aspects that are not affecting modelling and calculation.

We also left the duplicate UUIDs in the database, which occur for mainly one company, since we would have needed to assign new UUIDs which is against the idea of only moderately adjusting the database (Fig. 15).

It is interesting that quite some of the issues are also apparent in the old ELCD and ILCD database of the European Commission, created about 15 years ago or so in the software then known as GaBi (such as the somewhat messy category system, see Fig. 14).

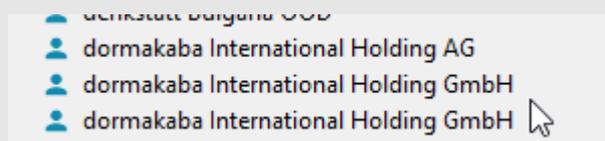


Figure 11: Duplicate actor / organisation names in the database, screenshot from openLCA; all these have different UUIDs





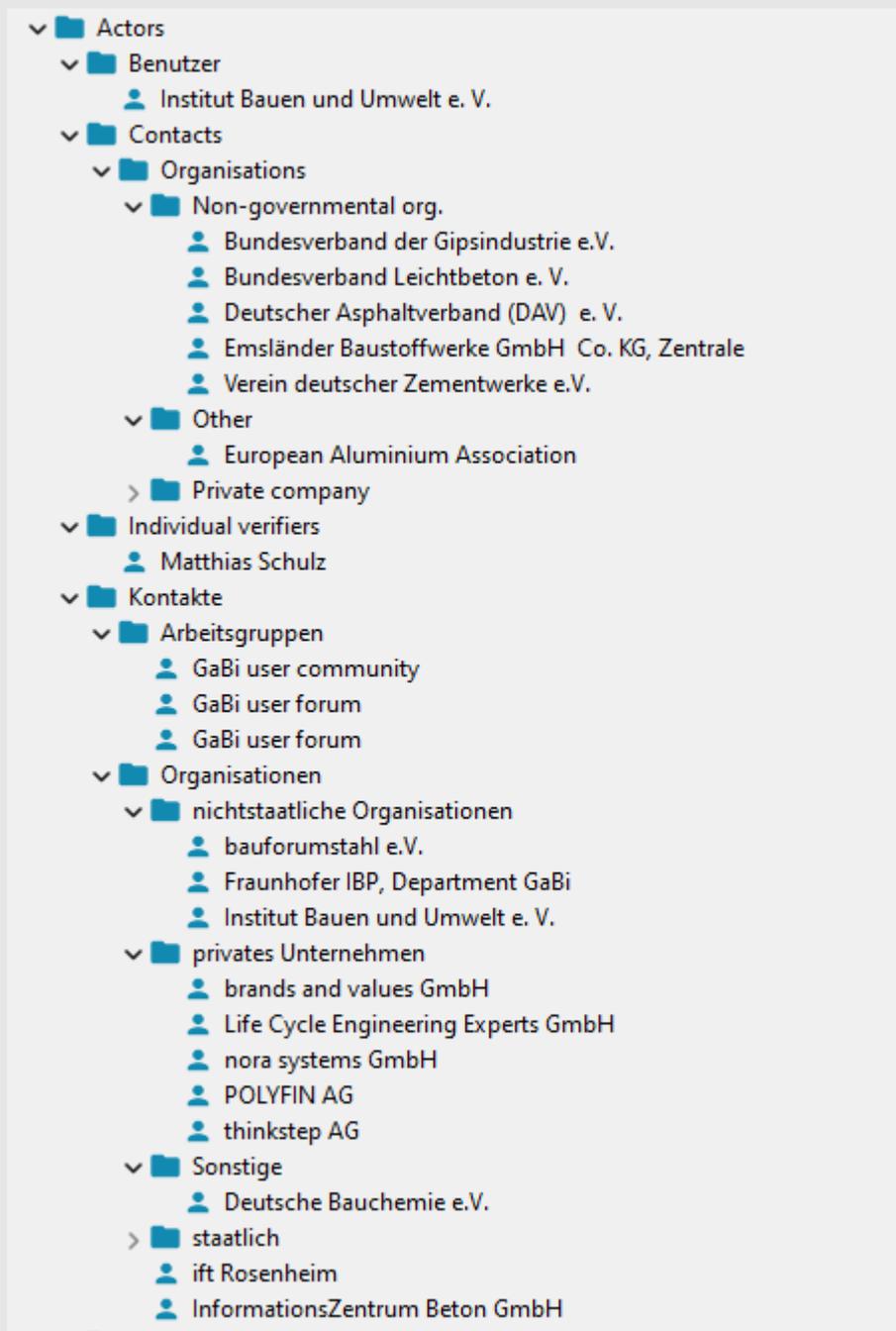


Figure 14: Somewhat messy category system for actors in the database, excerpt, screenshot from openLCA

The screenshot shows a web application interface with a navigation bar containing 'Welcome' and 'Validation result'. Below the navigation bar is a section titled 'Validation results' which contains a table with two columns: 'Data set' and 'Message'. The table lists 40 rows of data, each representing a duplicate UUID for a specific data set. The data sets are primarily from the 'Holcim' company, including various plant types like 'Trass Bagged plant', 'ECOPlanet A3 LH Bulk plant', 'Sulfo 5 R Bagged plant', 'Duo 3 N-NA Bulk plant', 'ECOPlanet A3 Bulk plant', 'Pur 4 R Bulk plant', 'Pur 5 N Bulk plant', 'Duo 4 N Bulk plant', 'ECOPlanet B4 LH/SR/NA Bulk plant', 'ECOPlanet A3 NA Bulk plant', 'Pur 5 R Bulk plant', 'Duo 3 N-LH/NA Bulk plant', 'Duo 4 N-NA Bulk plant', 'Duo 3 N-LH/NA Bulk plant', 'Ferro 3 R-NA Bulk plant', 'Duo 3 N Bulk plant', 'ECOPlanet B4 LH/SR/NA Bulk plant', 'Duo 3 N LH/SR/NA Bulk plant', 'Duo 4 N-NA Bulk plant', 'Duo 4 N Bulk plant', 'Binder Bagged plant', 'Duo 3 N Bulk plant', 'ECOPlanet B4 LH/SR/NA Bagged pla...', 'Sulfo 5 R Bulk plant', 'Pur 4 N-NA Bulk plant', 'Pur 4 R-NA Bulk plant', 'Duo 4 N Bulk plant', 'Duo 3 N Bulk plant', 'ECOPlanet B3 LH/SR Bulk plant', 'ECOPlanet A3 Bulk plant', 'Pur 4 N Bulk plant', 'Ferro 4 R Bulk plant', 'ECOPlanet A3 Bulk plant', 'Duo 4 N-NA Bulk plant', 'ECOPlanet A3 Bagged plant', 'Hydroport Bulk plant', 'Fluvio 4 N Bagged plant', 'Pur 5 R Bagged plant', 'Ferro 4 N-NA Bulk plant', 'Ferro 3 R Bagged plant', and 'ECOPlanet A3 LH/NA Bulk plant'. Each row in the table has a red circle with a white exclamation mark icon in the 'Message' column, followed by the text 'duplicate reference ID: [UUID]'. The fourth row is highlighted in blue.

Data set	Message
Holcim Trass Bagged plant Lägerdorf	duplicate reference ID: 810af879-476f-40a5-b02a-08dadef1256a
Holcim ECOPlanet A3 LH Bulk plant Schwel...	duplicate reference ID: aab24d1d-8841-4711-b038-08dadef1256a
Holcim Sulfo 5 R Bagged plant Lägerdorf	duplicate reference ID: cca7554b-b06a-46be-b026-08dadef1256a
Holcim Duo 3 N-NA Bulk plant Dortmund	duplicate reference ID: 3f4d9259-cfdc-42c7-afba-08dadef1256a
Holcim ECOPlanet A3 Bulk plant Bremen	duplicate reference ID: bd832da8-e250-4f87-afb2-08dadef1256a
Holcim Pur 4 R Bulk plant Lägerdorf	duplicate reference ID: b15257c9-0b2a-4a08-b014-08dadef1256a
Holcim Pur 5 N Bulk plant Höver	duplicate reference ID: dccdc87f-c782-4b7f-afec-08dadef1256a
Holcim Duo 4 N Bulk plant Höver	duplicate reference ID: a4e71f19-49eb-4b02-afd2-08dadef1256a
Holcim ECOPlanet B4 LH/SR/NA Bulk plant ...	duplicate reference ID: dd645dcc-0f43-4296-afd8-08dadef1256a
Holcim ECOPlanet A3 NA Bulk plant Dortmu...	duplicate reference ID: 65c78922-4a7b-4d09-afc8-08dadef1256a
Holcim Pur 5 R Bulk plant Lägerdorf	duplicate reference ID: 5717c624-c704-4c09-b01c-08dadef1256a
Holcim Duo 3 N-LH/NA Bulk plant Lägerdorf	duplicate reference ID: a6ec38bc-0ea2-49a2-aff6-08dadef1256a
Holcim Duo 4 N-NA Bulk plant Bremen	duplicate reference ID: 28c4ac84-e248-4b1f-afb0-08dadef1256a
Holcim Duo 3 N-LH/NA Bulk plant Bremen	duplicate reference ID: 86c474b8-6538-4150-afac-08dadef1256a
Holcim Ferro 3 R-NA Bulk plant Lägerdorf	duplicate reference ID: 41858b79-baea-4812-b008-08dadef1256a
Holcim Duo 3 N Bulk plant Dortmund	duplicate reference ID: a3eb7131-74b4-4a1f-afb6-08dadef1256a
Holcim ECOPlanet B4 LH/SR/NA Bulk plant ...	duplicate reference ID: cc8ed653-3a7e-4d00-b03a-08dadef1256a
Holcim Duo 3 N LH/SR/NA Bulk plant Läger...	duplicate reference ID: 56ae13d0-4181-4691-aff4-08dadef1256a
Holcim Duo 4 N-NA Bulk plant Höver	duplicate reference ID: 0f7587f4-31d5-4e0f-afd6-08dadef1256a
Holcim Duo 4 N Bulk plant Lägerdorf	duplicate reference ID: 3137016e-0c83-4475-aff8-08dadef1256a
Holcim Binder Bagged plant Höver	duplicate reference ID: 26855c20-be97-45c8-afd0-08dadef1256a
Holcim Duo 3 N Bulk plant Bremen	duplicate reference ID: d9b31aab-49a9-4355-afaa-08dadef1256a
Holcim ECOPlanet B4 LH/SR/NA Bagged pla...	duplicate reference ID: df232880-f56e-4ec3-afda-08dadef1256a
Holcim Sulfo 5 R Bulk plant Lägerdorf	duplicate reference ID: f6ec90be-d755-42fe-b024-08dadef1256a
Holcim Pur 4 N-NA Bulk plant Lägerdorf	duplicate reference ID: 77ed0864-1a40-4870-b012-08dadef1256a
Holcim Pur 4 R-NA Bulk plant Lägerdorf	duplicate reference ID: 314b12bb-12db-48af-b018-08dadef1256a
Holcim Duo 4 N Bulk plant Dortmund	duplicate reference ID: 519c12bc-e568-4766-afbc-08dadef1256a
Holcim Duo 3 N Bulk plant Schwelgern	duplicate reference ID: fc53986c-4a48-4676-b030-08dadef1256a
Holcim ECOPlanet B3 LH/SR Bulk plant Dort...	duplicate reference ID: 60101d5c-81a9-48f8-afcc-08dadef1256a
Holcim ECOPlanet A3 Bulk plant Schwelgern	duplicate reference ID: 03f9bbf7-a70d-4d59-b036-08dadef1256a
Holcim Pur 4 N Bulk plant Lägerdorf	duplicate reference ID: 9c7db368-55e2-49f5-b00e-08dadef1256a
Holcim Ferro 4 R Bulk plant Höver	duplicate reference ID: a563de27-93d2-48f4-afdc-08dadef1256a
Holcim ECOPlanet A3 Bulk plant Lägerdorf	duplicate reference ID: e5a0a4a9-21e9-470d-affc-08dadef1256a
Holcim Duo 4 N-NA Bulk plant Dortmund	duplicate reference ID: 8cec7a79-ac7a-4a67-afbe-08dadef1256a
Holcim ECOPlanet A3 Bagged plant Lägerdorf	duplicate reference ID: d05efb90-9a77-4c3d-affe-08dadef1256a
Holcim Hydroport Bulk plant Lägerdorf	duplicate reference ID: aea58e1d-50ce-452b-b00c-08dadef1256a
Holcim Fluvio 4 N Bagged plant Höver	duplicate reference ID: 0ece4e4b-032d-40cc-afe0-08dadef1256a
Holcim Pur 5 R Bagged plant Lägerdorf	duplicate reference ID: 6a29ced5-a04c-47ed-b01e-08dadef1256a
Holcim Ferro 4 N-NA Bulk plant Rostock	duplicate reference ID: acc6cf54-2b87-4ece-b02e-08dadef1256a
Holcim Ferro 3 R Bagged plant Lägerdorf	duplicate reference ID: 4b2637d2-5502-4991-b006-08dadef1256a
Holcim ECOPlanet A3 LH/NA Bulk plant Bra	duplicate reference ID: e9a91105-1578-41b1-afb1-08dadef1256a

Figure 15: Duplicate UUIDs in the database, for EPDs (and results), excerpt, screenshot from openLCA

## 5 Conclusions

While the brochure may paint a somewhat optimistic picture for the database, given the quite many fixes that were needed, the overall usage in openLCA seems really promising. EPDs results can now directly be added to life cycle models, which allows a more smooth, transparent

modelling of new EPD life cycles, expands the available data sources for LCA and EPDs, and thus helps to upscale LCA and EPD creation.

Quite some of the existing issues seem influenced by the tool and tech stack used for the original database. Even more, it seems they may be appearing now simply because this has not been tested and displayed before. Digital EPDs have been on the agenda for quite some time, but so far it seems they have been rather “stored somewhere” instead of really used in tools. And the integration in openLCA shows now details that were not really visible easily before. It reminds a bit a discussion of how blind people dress<sup>5</sup>.

Overall, the database is very useful now already, especially with the dedicated EPD and result features in openLCA. We will be contacting BBSR as releasing organisation, with the idea to see how far things could even be further improved.

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<sup>5</sup> <https://www.visionaustralia.org/news/2019-08-23/fashion-and-style-tips-blind-and-low-vision-community>