

Using pedigree features in openLCA

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1 Introduction and motivation

In the course of the PROSUITE project, the openLCA software was extended to allow entering pedigree information for process data. To this end, the database structure of openLCA was also modified. This small text explains how to install a new version of openLCA, and how to update an already installed version.

2 Fresh installation of openLCA

Download openLCA from the download location, and run the installation file (the exe file in windows systems). More information on the installation is provided in the openLCA wiki, here: http://openlca.org/documentation/index.php/Getting_started.

Be aware that an internet connection is needed during the installation to allow download of the MySQL database. Note further that for PROSUITE project members, a different download location might be provided.

When openLCA is first started, a data directory will be created in, for windows, [your username]/openLCA-data.

3 Updating an existing installation of openLCA

For updating an existing installation, locate the database folder and save it to a safe place (just in case anything happens during the database update procedure). Keep the original openLCA-data folder at its place. Then, uninstall openLCA, and install openLCA again from the install file. For further information on the install procedure, which you should have successfully passed already, please see the fresh installation chapter above.

Then, start openLCA as usual, and connect to the MySQL server. Now, the database structure of all the databases is updated, therefore, the connection to the server might take longer, depending on the size and number of databases that you have created.

4 Entering pedigree information in openLCA

If you have done the installation, you can open a process data set and enter pedigree information for inputs and outputs of the process as follows. There is now a new column, Pedigree uncertainty, for each flow:

The screenshot shows the openLCA framework 1.2 interface. The process is 'Wool, at field (olca4students_ETH)'. The 'Inputs (Formula view)' table is as follows:

Flow	Category	Flow type	Flow property	Unit	Resulting amount	Uncertainty distribution type	Avoided product?	Pedigree uncertainty
Corn, at field	Product...	Product...	Mass	kg	7.895	No distribution	<input type="checkbox"/>	
Dummy_Agrochemic...	Product...	Product...	Mass	kg	0.0023934	No distribution	<input type="checkbox"/>	
Dummy_Phosphorou...	Product...	Product...	Mass	kg	0.66243	No distribution	<input type="checkbox"/>	
Dummy_Potash Fertil...	Product...	Product...	Mass	kg	0.99364	No distribution	<input type="checkbox"/>	
Dummy_Soy meal, at ...	Product...	Product...	Mass	kg	12.01	No distribution	<input type="checkbox"/>	
Limestone, at mine	Product...	Product...	Mass	kg	1.921	No distribution	<input type="checkbox"/>	
Nitrogen fertilizer, pr...	Product...	Product...	Mass	kg	1.987	No distribution	<input type="checkbox"/>	
Occupation, pasture ...	resourc...	Elemen...	Area*time	m...	119.4	No distribution	<input type="checkbox"/>	
Quicklime, at plant	Product...	Product...	Mass	kg	26.5	No distribution	<input type="checkbox"/>	
Sodium chloride, at p...	Product...	Product...	Mass	kg	1.126	No distribution	<input type="checkbox"/>	

The 'Outputs (Formula view)' table is as follows:

Flow	Category	Flow type	Flow property	Unit	Resulting amount	Uncertainty distribution type	Avoided product?	Pedigree uncertainty
2,4-D	air/low...	Elemen...	Mass	kg	6.6675E-4	No distribution	<input type="checkbox"/>	
2,4-D	water/...	Elemen...	Mass	kg	2.8575E-5	No distribution	<input type="checkbox"/>	
Ammonia	air/low...	Elemen...	Mass	kg	0.4122	No distribution	<input type="checkbox"/>	
Dinitrogen monoxide	air/low...	Elemen...	Mass	kg	0.11436	No distribution	<input type="checkbox"/>	
Methane, fossil	air/low...	Elemen...	Mass	kg	2403.0	No distribution	<input type="checkbox"/>	
Nitrogen	water/...	Elemen...	Mass	kg	0.64679	No distribution	<input type="checkbox"/>	
Nitrogen oxides	air/low...	Elemen...	Mass	kg	1.115	No distribution	<input type="checkbox"/>	
Phosphorus	water/...	Elemen...	Mass	kg	0.014255	No distribution	<input type="checkbox"/>	
Suspended solids, un...	water/...	Elemen...	Mass	kg	236.8	No distribution	<input type="checkbox"/>	
Wool, at field	Product...	Product...	Mass	kg	1.0	No distribution	<input type="checkbox"/>	

For entering the pedigree uncertainty, click in one of the fields of this column (for the flow where you want to enter the pedigree uncertainty); “click to change” appears in the cell:

The screenshot shows the openLCA framework 1.2 interface. The process is 'Wool, at field (olca4students_ETH)'. The 'Inputs (Formula view)' table is as follows:

Flow	Category	Flow type	Flow property	Unit	Resulting amount	Uncertainty distribution type	Avoided product?	Pedigree uncertainty
Corn, at field	Product...	Product...	Mass	kg	7.895	No distribution	<input type="checkbox"/>	Click to change
Dummy_Agrochemic...	Product...	Product...	Mass	kg	0.0023934	No distribution	<input type="checkbox"/>	
Dummy_Phosphorou...	Product...	Product...	Mass	kg	0.66243	No distribution	<input type="checkbox"/>	

If you want to specify an uncertainty distribution, first select an uncertainty distribution type if no distribution is currently provided. Note that then the resulting amount field is changed to 1.

type	Flow property	Unit	Resulting amount	Uncertainty distribution type	Avoided product?	Pedigree uncertainty
ct...	Mass	kg	1	Logarithmic normal distrib	<input type="checkbox"/>	
ct...	Mass	kg	0.0023934	No distribution	<input type="checkbox"/>	
ct...	Mass	kg	0.66243	Logarithmic normal distribution	<input type="checkbox"/>	
ct...	Mass	kg	0.99364	Normal distribution	<input type="checkbox"/>	
ct...	Mass	kg	12.01	Triangle distribution	<input type="checkbox"/>	
ct...	Mass	kg	1.921	Uniform distribution	<input type="checkbox"/>	
ct...	Mass	kg	1.987	No distribution	<input type="checkbox"/>	
ct...	Mass	kg	1.987	No distribution	<input type="checkbox"/>	
n...	Area*time	m...	119.4	No distribution	<input type="checkbox"/>	
ct...	Mass	kg	26.5	No distribution	<input type="checkbox"/>	
ct...	Mass	kg	1.126	No distribution	<input type="checkbox"/>	
ct...	Goods tr...	t*...	5.768	No distribution	<input type="checkbox"/>	
ct...	Goods tr...	t*...	15.36	No distribution	<input type="checkbox"/>	

If you then click in the pedigree field, the pedigree matrix appears, and you can enter pedigree information by clicking in the respective cells of the matrix. Enter a value for the base uncertainty directly:

Pedigree matrix ✕

Click on the matrix cells to select entries

Indicator score	1	2	3	4	5
Reliability	Verified data based on measurements	Verified data partly based on assumptions or non-verified data based on	Non-verified data partly based on qualified estimates	Qualified estimate (e.g. by industrial expert)	Non-qualified estimates
Completeness	Representative data from all sites relevant for the market considered, over and adequate period to even out normal fluctuations	Representative data from > 50% of the sites relevant for the market considered, over an adequate period to even out normal fluctuations	Representative data from only some sites (< < 50%) relevant for the market considered or > 50% of sites but from shorter periods	Representative data from only one site relevant for the market considered or some sites but from shorter periods	Representativeness unknown or data from a small number of sites and from shorter periods
Temporal correlation	Less than 3 years of difference to the time period of the data set	Less than 6 years of difference to the time period of the data set	Less than 10 years of difference to the time period of the data set	Less than 15 years of difference to the time period of the data set	Age of data unknown or more than 15 years of difference to the time period of the data set
Geographical correlation	Data from area under study	Average data from larger area in which the area under study is included	Data from area with similar production conditions	Data from area with slightly similar production conditions	Data from unknown or distinctly different area (North America instead of Middle East, OECD-Europe instead of Russia)
Further technological correlation	Data from enterprises, processes and materials under study	Data from processes and materials under study (i.e. identical technology) but from different	Data from processes and materials under study but from different technology	Data on related processes or materials	Data on related processes on laboratory scale or from different technology

Base uncertainty: σ : 1.219159263122295

The entered values will be saved.

openLCA framework 1.2

File Edit Window Help

Navigation Search

MySQL at localhost:3306

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- Water Transportation
- Wood Product Manufactur
- Flows
- Flow properties
- Unit groups

Process: Wool, at field (olca4students_ETH)

Allocation

Allocation method: None

Inputs (Formula view)

Flow	Category	Flow type	Flow property	Unit	Resulting amount	Uncertainty distribution type	Avoided product?	Pedigree uncertainty
Corn, at field	Produc...	Product...	Mass	kg	1	Logarithmic normal distrib...	<input type="checkbox"/>	1.5 (3;2;4;3;2)
Dummy_Agrochemic...	Produc...	Product...	Mass	kg	0.0023934	No distribution	<input type="checkbox"/>	
Dummy_Phosphorou...	Produc...	Product...	Mass	kg	0.66243	No distribution	<input type="checkbox"/>	
Dummy_Potash Fertil...	Produc...	Product...	Mass	kg	0.99364	No distribution	<input type="checkbox"/>	
Dummy_Soy meal, at ...	Produc...	Product...	Mass	kg	12.01	No distribution	<input type="checkbox"/>	
Limestone, at mine	Produc...	Product...	Mass	kg	1.921	No distribution	<input type="checkbox"/>	
Nitrogen fertilizer, pr...	Produc...	Product...	Mass	kg	1.987	No distribution	<input type="checkbox"/>	
Occupation, pasture ...	resourc...	Elemen...	Area*time	m...	119.4	No distribution	<input type="checkbox"/>	
Quicklime, at plant	Produc...	Product...	Mass	kg	26.5	No distribution	<input type="checkbox"/>	
Sodium chloride, at p...	Produc...	Product...	Mass	kg	1.126	No distribution	<input type="checkbox"/>	

Outputs (Formula view)

Flow	Category	Flow type	Flow property	Unit	Resulting amount	Uncertainty distribution type	Avoided product?	Pedigree uncertainty
2,4-D	air/low...	Elemen...	Mass	kg	6.6675E-4	No distribution	<input type="checkbox"/>	
2,4-D	water/...	Elemen...	Mass	kg	2.8575E-5	No distribution	<input type="checkbox"/>	
Ammonia	air/low...	Elemen...	Mass	kg	0.4122	No distribution	<input type="checkbox"/>	
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Methane, fossil	air/low...	Elemen...	Mass	kg	2403.0	No distribution	<input type="checkbox"/>	
Nitrogen	water/...	Elemen...	Mass	kg	0.64679	No distribution	<input type="checkbox"/>	
Nitrogen oxides	air/low...	Elemen...	Mass	kg	1.115	No distribution	<input type="checkbox"/>	
Phosphorus	water/...	Elemen...	Mass	kg	0.014255	No distribution	<input type="checkbox"/>	
Suspended solids, un...	water/...	Elemen...	Mass	kg	236.8	No distribution	<input type="checkbox"/>	
Wool, at field	Produc...	Produc...	Mass	kg	1.0	No distribution	<input type="checkbox"/>	Category: water/unspecified

General information | Inputs/Outputs | Administrative information | Modeling and validation | Parameters

Console | Properties