What's New in SimaPro 8.5

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1 Introduction

This document describes the changes in the SimaPro 8.5 software and database. In this new version, we focused on the databases ensuring quality, consistency and accuracy of the data and impact assessment methods. There are interesting developments and updates, covering data from ecoinvent, industry data and much more.

We trust that the 8.5 release offers you enhanced contents in various data libraries that you are looking for.

2 Software Updates

A number of bug fixes and improvements were implemented, including:

- The position of the legend in the network and tree views can be changed by dragging and dropping. For charts, you can change the position of the legend by going to chart settings> Legends tab.

- While calculating, the progress window will show the switches 'Exclude infrastructure processes' and 'Exclude long-term emissions' if have been selected in the calculation setup window.
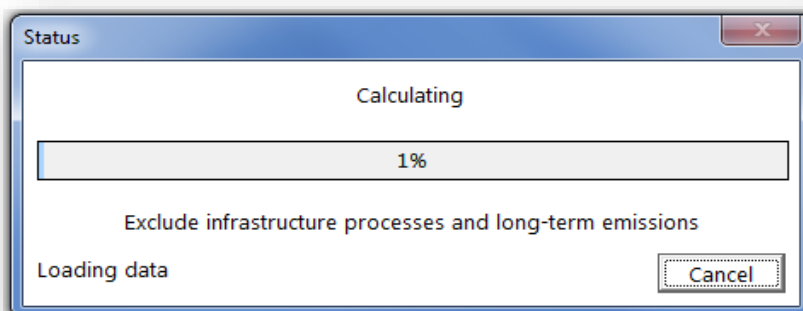
- After the technical conversion of a database, the name of the ecoinvent libraries will be updated as follows:
  - o 'Ecoinvent 3 – allocation, default' will be updated to 'Ecoinvent 3 – allocation at point of substitution'
  - o 'Ecoinvent 3 – allocation, recycled content' will be updated to ' Ecoinvent 3 – allocation, cut-off by classification'
  This name change is in line with ecoinvent's own naming convention.

- Links to ecoinvent documentation:
  In previous versions, documentation links were only available for unit libraries; these are now also available for system processes.

  To access the specific process documentation, go to the 'Documentation' tab where you will find the 'External link' URL field. Right-click the field and select 'Open document'. You will be directed to the ecoinvent website where you need to enter your login credentials to access the PDF document. Please note that all temporary SimaPro licenses (including free Faculty licenses) do not receive ecoinvent login credentials.

3 Updated Data Libraries

3.1 ecoinvent 3.4

The new update to ecoinvent includes new and updated datasets, including:

- **Updates and Extensions of Electricity Market Data**

In the attributional system models, market compositions are available for all 142 countries which are part of the IEA statistics: 100% of (statistically represented) global electricity generation is covered by country-specific market data.

The consequential system model contains new electricity market compositions for 40 countries, based on projections from the EU and the IEA. These new data eliminate important shortcomings of the consequential system model and provide a consistent basis for electricity supply in consequential LCA.

- **Indian Electricity by State and Grid**

India is the seventh biggest country in the world (by area), with a booming economy. As such, the role of India is becoming increasingly important when assessing the environmental impacts of the supply chains of many products. That is why more than 160 new electricity production datasets and markets for the 29 states and 5 electricity grids in India were introduced in ecoinvent v3.4.

- **Natural Gas**

More than 100 datasets composing the European supply chains (all imports of natural gas to European countries) were updated. With this version, the database consistently reflects the most current technology and supply mixes in all the European countries and their major suppliers.

- **Chemical Products**

With the update of more than 120 datasets and the introduction of 50 new products, ecoinvent significantly extended the coverage of the chemical sector. Version 3.4 includes more recent data for main exchanges, such as heat and electricity, as well as production volumes, CAS numbers, formulas, etc.

- **Recycling of PE and PET**

New datasets covering the sorting and recycling of post-consumer polyethylene (PE) and polyethylene terephthalate (PET) packaging materials are now included in version 3.4. These new datasets broaden the range of waste fractions and recycling activities covered by the database.

> **New extensions for ecoinvent processes: impact on Report Maker and COM interface**
>
> The renaming of the ecoinvent libraries is also reflected in the extensions used in the ecoinvent 3.4 process names
> - Processes in 'Ecoinvent 3 – allocation at point of substitution' have the extension APOS, U or APOS, S
> - Processes in 'Ecoinvent 3 – allocation, recycled content' have the extension Cut-off, S or Cut-off, U
>
> If you directly link ecoinvent processes from Report Maker or via the COM interface, you will need to replace the item descriptor(s) in your Report Maker documents and/or update your tooling created for the COM interface.

Obsolete ecoinvent 3.3 data

A number of processes from ecoinvent 3.3 are no longer supported and are considered obsolete. PRé created special replacement files to allow you to change most of these obsolete links in your projects from ecoinvent 3.3 to the correct processes in ecoinvent 3.4 in a fast and easy way. More information on this and on how to use the replacement files is described in the update manual.

However, please note that replacement is not possible for some processes. Please review the spreadsheet 'List of Obsolete Processes without Replacement ei 3.3 to 3.4' to check the reason why the ecoinvent 3.3 activity does not exist in ecoinvent 3.4 anymore

3.2   Agri-Footprint® version 4

In this updated version, the USDA crop production data has been included thus expanding the geographical scope of Agri-footprint. The United States Department of Agriculture (USDA) hosts a Life Cycle Assessment (LCA) data repository, which is called LCA Commons. The objective of this repository is to support (LCA) researchers by providing LCA datasets related to agriculture. USDA aims to support transparency, reuse and collaboration among researchers.

In total about 250 unit process data for field crop production have been added to Agri-footprint, such as cotton seed and cotton lint, groundnuts, maize, oats, rice, soybean and winter, spring and durum wheat. Data is available for the main producing states within the United States. The data is organized on a state level and is developed using survey data and statistics.

3.3   Industry Data 2.0

Several new processes were added to the industry data library from various data sources.

3.3.1   worldsteel

The World Steel Association (worldsteel) has defined and run four data collection projects: the original study was carried out in 1995 and subsequently updated in 1999/2000 and then in 2010. The most recent update was released in 2017 and currently includes 46 datasets published at the system level.

The output of the worldsteel LCI Study is in the first instance a set of cradle-to-steel factory gate LCI data for steel products. Both worldwide and regional averages (currently Europe, Asia and Latin America) are available, provided that a minimum of three sites contributed data for that product. In addition, an LCI for steel scrap is available – this can be used to account for steel scrap used in the production process and to enable the calculation of cradle to gate data including the end of life of the steel from the product is also available.

3.3.2   ERASM

This database is developed by the Environment and Health - Risk Assessment & Management (ERASM) scientific research partnership from the European Detergents and Surfactants Industries under the project SLE. The SLE research provides a comprehensive update of the existing LCA datasets for major surfactants with the main objective of improving the sustainability profile of the products and processes of the detergents and surfactants industry.

This database includes 37 LCI datasets (system level) for the production of surfactants and their main precursors. See individual process documentation for further modelling details.

3.3.3 Plastics Europe

Three processes have been updated – including their names:

Old Name	New Names
Acetone E	• Acetone (dimethylcetone)\EU-27
PET bottles E	• PET, bottle grade, at plant\RER
Phenol E	• Phenol (hydroxy benzene)\EU-27

3.4 ELCD 3.2

Since its first release in 2006, the ELCD (European reference Life Cycle Database) comprises Life Cycle Inventory (LCI) data from front-running EU-level business associations and other sources for key materials, energy carriers, transport, and waste management. The respective data sets are officially provided and approved by the named industry association.

According to the JRC, the focus of the latest ELCD is laid on data quality, consistency and applicability. Many of the existing processes have been reviewed against the ILCD entry-level data quality requirements in order to provide quality-assured LCI data. In this version, 500 processes were updated to the latest dataset in the ELCD node (http://eplca.jrc.ec.europa.eu/ELCD3/). For each process, all metadata information is included in the general comment.

4 Impact Assessment Methods

The most important changes in impact assessment methods are listed below per method. In this update, main changes are related to the correction of characterisation factors of fuel flows, which were wrongly based on either higher heating value (in a method using lower heating values), or lower heating value (in a method using higher heating value). HHV and LHV have been added to the comment section of flows.

For more details, please see the comment section of the individual methods, or the methods manual in SimaPro (via Help> Data Manuals> Methods Manual).

4.1 CML-IA

Characterisation factors for 9 flows in "Abiotic depletion (fossil fuels)" were updated. Previously, they were calculated on basis of HHV, while the method is using LHV.

4.2 EPD (2013)

Characterisation factors for 9 flows in "Abiotic depletion, fossil fuels" were updated. Previously, they were calculated on basis of HHV, while the method is using LHV.

4.3   Cumulative Energy Demand

Characterisation factors for 22 flows in "Non renewable, fossil" were updated. Previously, they were calculated on basis of LHV, while the method is using HHV.

4.4   ReCiPe 2016 (all versions)

ReCiPe 2016 has been moved to a newly created category: Global. In addition, this version still does not include normalization and weighting. The majority of modifications in are related to the update of ReCiPe 2016 by method developers. The summary of those changes is below:

ERRATUM ReCiPe2016 v1.1
October 2017

The following changes were made relative to the original ReCiPe2016

5. Fine particulate matter formation	Hierarchist perspective now includes all secondary pollutants
8. Freshwater eutrophication	Country and world-aggregated factors were recalculated based on updated population data (year 2015)
9. Marine eutrophication	Marine eutrophication was added as an impact category now that an endpoint method became available
10. Toxicity	Effects on urban soil excluded
	Non-carcinogenic toxicity factors updated due to a mistake found in the USES-LCA model
15. Sum emissions	Sum emissions terrestrial and human non-carcinogenic toxicity adapted

The update to "Fine particulate matter formation" was already included in the previous implementation of ReCiPe 2016 in SimaPro.

Additionally, 13 characterisation factors in "Fossil resource scarcity" were updated. Initially they were calculated on basis of lower heating values (LHV) of fuels, while the impact category is based on higher heating value (HHV).

5 Contact Us

Please contact us or your local partner if you have questions about these changes in the SimaPro software or database, or if you have any other questions related to the update.

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