

## What's new in SimaPro 8.0.4



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# 1 Introduction

This document describes the changes in the SimaPro 8.0.4 software and database. For convenience, the update database also contains the updated USLCI and ELCD libraries and the three new Agri-footprint libraries that were included in earlier SimaPro 8 database updates. The content of these libraries is not described here.

## 2 ecoinvent v3.1 update

### 2.1 New and improved data

The updated ecoinvent version 3.1 contains many new, corrected and/or updated datasets. These include:

- An update of the wood sector, with new or updated data on
  - forestry and forestry machinery
  - sawmilling
  - wood products
  - wood preservatives and wood preservation services
  - heat and electricity from wood incineration
- New data on aluminium production, including supply chain and electricity use
- An update of waste incineration processes
- New road freight transport data and emission updates of the existing data
- New data on tap water production, and improved consistency in water consumption data throughout the database
- New data on dairy products and agricultural processes
- New data on machinery use and building materials
- Improved transport distance modelling for many products
- Many other new datasets and updates in other sectors

Please note that some corrections made in ecoinvent v3.1 will have significant influence on your results. Overall, we see higher impact assessment results for many processes. See the Change report v3.1 document via Help, Ecoinvent reports in SimaPro for more details on the changes made.

### 2.2 New system model: recycled content

The ecoinvent centre introduced a new system model, *allocation, cut-off by classification*, which follows the same approach to allocation of waste and recyclable by-products as ecoinvent version 2.2 and earlier. The system model is often referred to as the *cut-off* or *recycled content* approach. In the SimaPro database, we have named the new libraries “Ecoinvent 3 - allocation, recycled content – unit” or “Ecoinvent 3 - allocation, recycled content – system”.

The underlying philosophy of this approach is that primary production of materials is always allocated to the first user of a material. If a material is recycled, the primary producer does not receive any credit for providing the recyclable materials. As a consequence, recyclable materials are available burden-free to recycling processes, and secondary – recycled – materials bear only the impacts of the recycling processes. Recycled paper, for example, only bears the impacts of waste paper collection and the process of turning

waste paper into recycled paper. It is free of any burdens of the forestry activities and processing required for the primary production of the paper, as these are allocated only to the primary production process.

Furthermore, producers of waste do not receive any credit if waste treatment results in recycling or re-using of products. For example, heat from the incineration of municipal solid waste has value: it can be used to heat houses or offices. Nevertheless, the by-product of incineration is allocated completely to the waste treatment, and therefore the burdens of the end of life treatment lay with the waste producer. The heat is burden-free. This approach to by-product allocation was the only available system model in ecoinvent versions 1 and 2. An improvement in ecoinvent v3 is that the use of burden-free processes is made visible through the use of “empty” processes. In ecoinvent v1 and v2 versions the usage was very implicit.

Users that want or need to use the allocation approach of version 2.2 will find their needs met by this new system model. For more detailed information on the modelling approach, please see the [description](#) of the system model “Allocation, cut-off by classification” on the ecoinvent website.

## 2.3 No more minus signs: changing the SimaPro approach to ecoinvent waste treatment processes

Two factors in the way ecoinvent v3 handles waste treatment gave rise to some confusion among SimaPro users. From SimaPro 8.0.4 onwards, we decided to deviate from the ecoinvent standards to solve these issues.

First, assigning flow amounts was confusing. ecoinvent v3 by default attributes a negative reference value to processes describing waste treatment. To ensure that the final result was positive and to show that these processes were waste-related, users had to enter a negative flow amount in links to these processes. Many of our users found working with these double negatives confusing, as it is different from the standard approach SimaPro uses to handle waste.

Second, for technical reasons, SimaPro had to include two copies of some processes. ecoinvent v3 waste treatment processes were stored in “Processing”, one of SimaPro’s main categories (“process type”). To ensure that waste treatment processes could be used in our Waste Scenarios and in the process section called “Known outputs to technosphere. Waste and emissions to treatment”, we had to create a set of new waste treatment processes in another main category, “Waste treatment”, and link each of them to the related waste treatment process under “Processing”. To have two sets of almost identical processes proved confusing for SimaPro user.

To solve these issues, we decided to deviate from the ecoinvent standard of using double negatives and convert the ecoinvent waste processes to the traditional SimaPro waste-treatment process type that can be used with positive values.

During the update from ecoinvent 3.0.1 to ecoinvent 3.1, links in projects to the original waste processes in the category “Processing” will be updated to the equivalent processes under “Waste treatment”. At this time, the link amount will be multiplied with -1 to ensure a consistent result.

### Important changes (please read!):

- It is no longer necessary to enter a negative amount with a minus sign when you link to an ecoinvent v3.1 waste treatment processes.

- If you have created new processes in SimaPro 8 with links to ecoinvent waste processes found in the main category “Processing”, please be aware that these inputs will move to the section “Known outputs to technosphere. Waste and emissions to treatment” when you update the database with the ecoinvent v3.1 libraries.
- If you have created new processes in SimaPro 8 with links to ecoinvent waste processes found in the main category “Processing”, please **check that you have used a negative amount. If you have accidentally used a positive amount, it will be converted into a negative amount when you import the UpdateDatabase804, which renders the result incorrect.** The simplest way to check this is to save the overview generated after importing the update database and to check all references to the “switch sign” messages.

## 2.4 Other changes

At the request of many users, the ecoinvent centre reintroduced renewable energy flows in the ecoinvent 3.1 update. “Cumulative Energy Demand”, “Cumulative Exergy Demand” and other methods with an energy-related impact category will now also show results for renewable energy flows when used in combination with ecoinvent 3.1 data.

Inconsistencies in the water balance of ecoinvent datasets, leading to inconsistent water footprint results, have been solved in ecoinvent version 3.1.

# 3 Changes in impact assessment methods

The most important changes in impact assessment methods are listed below. In many methods, substances have been added to specific impact categories. For example, metal synonyms have been added to resource-related impact categories. For details, please see the comment section of the individual methods in SimaPro.

## 3.1 Water footprint methods

- WAVE, the water footprint method by Berger et al., has been added to the method library, completing the set of water footprint methods in SimaPro.
- Water flows with a new region suffix (as introduced with ecoinvent 3.1) have been added to all water footprint methods and water-related impact categories in other methods. Please be aware that not all available regionalised water flows are included in each water footprint method.

## 3.2 ILCD method

The ILCD 2011 Midpoint+ method, released in September 2014, has been further improved. For details, please see the comment section of the method.

## 4 New software features and bug fixes

An overview of the most important new software features and bug fixes:

- The “Find” function has been expanded. You can now specify that you want to search for parameter names, CAS numbers, process identifiers and many other items defined in the SimaPro database.
- On exporting a CSV file, the chosen export options and the names of the projects and libraries included in the export are now included in the header of the CSV file. This helps to better understand what has been exported and supports users in choosing the right import options.
- If errors occur during the import of a CSV file, clicking on the error will now show the related line in the CSV file. The item causing the problem will be highlighted. This solves an issue with showing incorrect line numbers in the CSV file. In addition, only the process that contains the problem will be shown. This avoids loading large CSV files.
- An item was added to the Help section in the SimaPro toolbar: “Move installation to another PC”. Clicking the item will open a webpage with instructions.
- Warning and error messages are now handled better when reading the append file.
- A Help button with additional explanation was added to the “remove characterisation conflicts” window that is shown during an Append action if characterisation conflicts are found.
- In the Monte Carlo analysis results of a comparison between two products, the colours of the graph for "display the number of times  $A < B$  and  $A \geq B$ " and the graph for "display the uncertainty as a distribution" now match. Before, results where “ $A < B$ ” were green in one graph and red in the other (and vice versa for “ $A \geq B$ ”).
- A bug was solved in the detailed results display. In the Network and Tree window, the button “Show process or product stage and calculation results” shows detailed results for the selected item. One of our users found that incomplete results were presented if a process is used multiple times or if it has multiple links to another process.
- A problem was solved in the Monte Carlo analysis of parameterised models. Before, database and project parameters with defined uncertainty were not taken into account in the Monte Carlo calculations.
- The ecoinvent documentation under Help has been updated with documents related to ecoinvent v3.1.
- The Transfer function, which automatically copied projects using ecoinvent v2.2 data and replaced links to ecoinvent v2.2 to ecoinvent v3 processes, has been replaced with the *Projects to Libraries Links Manager*. The new feature is more flexible, as it allows users to select only those projects where replacement is needed and to choose to which ecoinvent system model the project has to be updated (allocation default or recycled content). We include a range of replacement files to update links from ecoinvent 2.2 to ecoinvent 3.1 or to update a project from the ecoinvent 3.1 “allocation default” model to “recycled content” model. It is also possible to add your own replacements. The *Projects to Libraries Links Manager* can be found under Tools in the SimaPro toolbar. The use of this feature is explained in the Update instructions and in a video on [www.pre-sustainability.com](http://www.pre-sustainability.com).
- Many smaller fixes and improvements have been implemented.

## 5 Contact us

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

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