EcoSpold import in SimaPro

The import of data in EcoSpold format in SimaPro is rather difficult for a number of reasons:

1) The structure of LCA models in SimaPro is different from those in EcoSpold. SimaPro requires fields or structure that is not EcoSpold. Not all EcoSpold fields are supported in SimaPro.
2) Often the data supplied are incomplete and have “loose ends”: links to processes that are not available. SimaPro has strict checks on import and can only import complete models.
3) Naming conventions of Units and substances may be different between SimaPro and Imported data.
4) EcoSpold is a loose format in the sense that users can define their own fields, but also to create their own content in all defined fields. The EcoSpold import in SimaPro is designed to work with the Ecoinvent definitions.

To help a SimaPro user overcome issues 1-3, we offer the possibility to add or map data to the imported data using the “Mapping file”. On import, SimaPro reports those issues that are problematic and can add them to the mapping file. Once a mapping file is created and filled with data, it can be reused again. Nevertheless, it can occur that manual work is needed to adapt the XML so that it can be imported.

Procedure to import EcoSpold

- Create a new project
- Select the libraries (if any), you need to link the imported processes to.
- Go to File, Import and select "EcoSpold v1" as import file type.
- In the import window, you need to select all EcoSpold files that are connected to each other.
- Select an existing mapping file or create a new empty one.
- It is important to choose the right import options in the EcoSpold import window.
    - **Object link method**
    - **Link imported objects only to other imported objects**
    - Assumes the imported data is a complete and consistent set of process data that can link to each other.
    - **Try to link imported objects to other imported objects first**
    - Assumes the imported data is a complete and consistent set of process data that can link to each other, but any items that are missing will be looked for in the libraries available.
    - **Try to link imported objects to existing objects first**
    - SimaPro will scan the imported data. Items that already exist in the SimaPro database, will not be imported. Instead, the item that is already existing in the database will be used to link the imported data to. This option can be used to import a single processes that links to existing data in the database, or multiple processes where some of these are already existing.
    - **Other options**
    - **Apply U and S suffixes**
    - In SimaPro, the ecoinvent data come as Unit and System processes. To distinguish between the two processes (which have the same name), a suffix U or S is added.
    - You need to switch this option on if you need to link to the ecoinvent unit or system data that are already in SimaPro. If not, the process name will not be recognized and no link can be created to an existing processes. If you do not link to ecoinvent processes, do not switch this on.
    - **Use SimaPro requirements (less strict checking)**
    - We found that the rules for checking the Ecospold consistency are quite strict. It is not always needed to adhere to these rules to be able to import data in SimaPro. We recommend to switch this option on.

- Click OK to start the import.

- Warnings generated can be ignored, they signal a problem that is not crucial to complete the import.
- Errors will need to be solved first before the import can continue. If you click ok, the mapping will be filled with items missing or that need to be mapped.

The Mapping file

The mapping tab

Under the mapping tab you create a correspondence table between item names in the import data and those used in SimaPro. On import, the imported items will be replaced with those defined in SimaPro.

The mapping file can take care of the mapping for:

Substances

Example: "Carbon dioxide" is mapped to "CO2"

This avoids appending substances after import.

Processes

Example: "Electricity" is mapped to "Electricity, low voltage, UCTE"

You can use this to make sure that certain processes in the imported data are "replaced" with a dataset in the SimaPro database. This is especially useful if no data are yet defined for the process that is imported (in this case "electricity").

Units

Example: "kilogram" is mapped to "kg"

Avoids adding additional units to the unit list. Since units cannot be appended like substances, it is important to keep the unit list as clean as possible.

Quantities

Example: "Mass/Volume" is mapped to "Density"

Avoids adding additional quantities to the quantities list. Since quantities cannot be appended like substances, it is important to keep the quantities list as clean as possible. You do not want 2 synonymous quantities (that mean the same) in the list, as this will give a lot of confusion.

Locations

Can be ignored as locations are not used in SimaPro

Substance categories

Example: "Resources" is mapped to "Raw"

SimaPro uses predefined substance categories. If other categories are used, these must be mapped to the ones used in SimaPro.

Literature references

Example: "ETH-ESU 96" is mapped to "ETH-ESU LCI database, Zurich, CH, 1996"

This avoids appending literature references after import.

The additions tab

The additions tab allows to add fields or processes that are needed to make the import in SimaPro work.

Process categories

SimaPro uses distinct categories for processes and subcompartments. Here you can create and map new categories, as well as the corresponding subcompartments.

Processes

When importing a new set of data, this is where you define per process to which main category and subcategory the process belongs. SimaPro uses main categories like materials, processes, energy, transport and waste treatments. Subcategories can be selected from the existing structure in the selected SimaPro libraries and projects. For all processes a link to a System Description can be created. For materials, waste types can be added.

If needed it is even possible to replace the name of the imported process with a new name.

Note that when importing large datasets filling this section can take considerable time.

Dummy processes

On import of data, SimaPro checks that any processes that are linked to are available in the import file and/or the SimaPro database (dependent on the chosen import options). If the process are not found, the import process cannot continue, since this would affect the database integrity.

However sometime it unavoidable that loose ends occur in imported data. For that situation, SimaPro will create so called dummy processes. These are processes which have a name but do not have any content and this do not contribute to any calculation.

Several errors are popping when I try to import a GaBi file. First, the uncertainty type is set to “1”, which is a lognormal distribution, but the standard deviation is set to zero, which can’t compute.
To fix this, run the following replacement:
Replace: uncertaintyType=”1” standardDeviation95="0" with uncertaintyType=”0” standardDeviation95=""
We cannot map substances and subcompartments so we have to manually change them in the file. To do so, run the following Replacements:

"Intermediate products" subCategory="Inorganic intermediate products" with "Resources" subCategory="unspecified"
category="Emissions to air" subCategory="Heavy metals to air" with category="Air" subCategory="unspecified"
category="Emissions to air" subCategory="Inorganic emissions to air" with category=" air" subCategory="unspecified"
category="Emissions to air" subCategory="Organic emissions to air (group VOC)" with category=" air" subCategory="unspecified"

category="Organic emissions to air (group VOC)" subCategory="Group NMVOC to air" with category=" air" subCategory="unspecified"
category="Emissions to air" subCategory="Other emissions to air" with category=" air" subCategory="unspecified"
category="Emissions to air" subCategory="Particles to air" with category=" air" subCategory="unspecified"
category="Group NMVOC to air" subCategory="Halogenated organic emissions to air" with category="air" subCategory="unspecified"
category="Group NMVOC to air" subCategory="Group PAH to air" with category="air" subCategory="unspecified"

category="Emissions to fresh water" subCategory="Analytical measures to fresh water" with category="water" subCategory="groundwater"
category="Emissions to fresh water" subCategory="Organic emissions to fresh water" with category="water" subCategory="groundwater"
category="Emissions to fresh water" subCategory="Heavy metals to fresh water" with category="water" subCategory="groundwater"
category="Emissions to fresh water" subCategory="Inorganic emissions to fresh water" with category="water" subCategory="groundwater"
category="Emissions to fresh water" subCategory="Particles to fresh water" with category="water" subCategory="groundwater"
category="Emissions to fresh water" subCategory="Other emissions to fresh water" with category="water" subCategory="groundwater"
category="Organic emissions to fresh water" subCategory="Halogenated organic emissions to fresh w" with category="water" subCategory="groundwater"
category="Emissions to fresh water" subCategory="Radioactive emissions to fresh water" with category="water" subCategory="groundwater"
category="Emissions to sea water" subCategory="Analytical measures to sea water" with category="water" subCategory="ocean"
category="Emissions to sea water" subCategory="Inorganic emissions to sea water" with category="water" subCategory="ocean"

category="Organic emissions to sea water" subCategory="Hydrocarbons to sea water" with category="water" subCategory="ocean"
category="Emissions to sea water" subCategory="Organic emissions to sea water" with category="water" subCategory="ocean"

category="Emissions to sea water" subCategory="Particles to sea water" with category="water" subCategory="ocean"
category="Emissions to sea water" subCategory="Heavy metals to sea water" with category="water" subCategory="ocean"
category="Energy carrier" subCategory="Thermal energy" with category="Resources" subCategory="unspecified"
category="Energy resources" subCategory="Renewable energy resources" with category="Resources" subCategory="unspecified"
category="Fuels" subCategory="Biomass fuels" with category="Resources" subCategory="unspecified"
category="Material resources" subCategory="Non renewable elements" with category=" Resources" subCategory="unspecified"
category="Material resources" subCategory="Non renewable resources" with category="Resources" subCategory="unspecified"
category="Material resources" subCategory="Renewable resources" with category="Resources" subCategory="unspecified"
category="Non renewable energy resources" subCategory="Crude oil (resource)" with category="Resources" subCategory="unspecified"
category="Non renewable energy resources" subCategory="Hard coal (resource)" with category="Resources" subCategory="unspecified"
category="Non renewable energy resources" subCategory="Lignite (resource)" with category="Resources" subCategory="unspecified"
category="Non renewable energy resources" subCategory="Natural gas (resource)" with category="Resources" subCategory="unspecified"
category="Non renewable energy resources" subCategory="Peat (ressource)" with category="Resources" subCategory="unspecified"
category="Non renewable energy resources" subCategory="Uranium (resource)" with category="Resources" subCategory="unspecified"

category="Organic emissions to air (group VOC)" subCategory="Group NMVOC to air" with category=" air" subCategory="unspecified"
category="Renewable resources" subCategory="Water" with category="Resources" subCategory="unspecified"
category="Emissions to air" subCategory="Radioactive emissions to air" with category=" air" subCategory="unspecified"
category="Emissions to agricultural soil" subCategory="Heavy metals to agricultural soil" with category=”soil” subCategory="agricultural"
category="Emissions to industrial soil" subCategory="Inorganic emissions to industrial soil" with category=”soil” subCategory="industrial"

category="Emissions to industrial soil" subCategory="Heavy metals to industrial soil" with category=”soil” subCategory="industrial"
category="Emissions to industrial soil" subCategory="Organic emissions to industrial soil" with category=”soil” subCategory="industrial"
category="Land use" subCategory="Hemeroby" with category="Resources" subCategory="unspecified"

In the PWC files, the main product has no category, which it must have in order to import it. The category must be added for each product.
Also in the PWC files, there is no uncertainty type, which is also required. To add it, do a search on:

First, replace all carriage returns:
\r
With
&&
Next, replace the formatting characters
\n\t\t\t\t
With +++
Now replace this phrase:
“>&&&+++<inputGroup>4</inputGroup>
Replace with
“ uncertaintyType="0" generalComment="from PWC">&&&+++<inputGroup>4</inputGroup>
Now replace this phrase:
“>&&&+++<outputGroup>4</outputGroup>
Replace with
“ uncertaintyType="0" generalComment="from PWC">&&&+++<outputGroup>4</outputGroup>

Now replace
+++
With
\n\t\t\t\t

And
&&&
With
\r