Long Trail Sustainability Training
Uncertainty Analysis (Monte Carlo) in SimaPro

Data uncertainty can be added for processes you build by opening the process, choosing an input, then choosing the distribution (e.g. lognormal), right clicking on the SD^2 field, choosing Edit Pedigree and then choosing the appropriate answers for that value, as well as a basic uncertainty. Once completed, click OK and the SD^2 will be calculated for you, and the answers to the pedigree matrix will be displayed as numbers in the comment field (e.g. (1,2,1,2,4,na)). The lower the number, the lower the uncertainty. The higher the number (highest is 5), the higher the uncertainty. Please note that because the uncertainty is for the value, when you use parameters, you have to define the uncertainty at the parameter level.

You can copy the numbers in the comment field to expedite this process, if the uncertainty is the same for another input. Then choose the distribution and right click on the SD^2 and the answers will auto populate. You still need to choose a basic uncertainty.

You can run a Monte Carlo on one product, or comparing two products, and SimaPro will use uncertainty information in your data and the underlying data to recalculate your LCA. There is a shortcut icon for the Monte Carlo on the top tool bar, and you will see it as an option in the Calculation Set-up.

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Table 10.4. Pedigree matrix used to assess the quality of data sources, modified from Weidema 1998)

Indicator score	1	2	3	4	5 (default)
Reliability	Verified[5] data based on measurements[6]	Verified data partly based on assumptions *or* non-verified data based on measurements	Non-verified data partly based on qualified estimates	Qualified estimate (e.g. by industrial expert)	Non-qualified estimate
Completeness	Representative data from all sites relevant for the market considered, over an 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 dataset	Less than 6 years of difference to the time period of the dataset	Less than 10 years of difference to the time period of the dataset	Less than 15 years of difference to the time period of the dataset	Age of data unknown or more than 15 years of difference to the time period of the dataset
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 enterprises	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

Ecoinvent report No. 1 (v3), Overview and methodology (2013)