UPDATES AND EXTENSIONS OF CEPE's LCI DATABASE

Procedures and Guidelines.

CEPE, 17 March 2014

Introduction

CEPE launched its first version of the LCI database in June 2013. It comprised a first selection of raw materials (260) and the 3 manufacturing processes with their environmental impact data available at that time.

Well aware that in order to maintain CEPE's LCI database as 'the industry's reference point' it needed to be updated and extended, the responsible CEPE committee (Working Party on Data & Methodologies) developed the below procedures and guidelines for data-review and subsequent new releases of the LCI database.

Foreseen drivers for future updates could be the becoming available of:

- More recent impact data for the already included Raw Materials (RM)
- More recent impact data for the included manufacturing processes
- Raw Material Impact data from a specific supplier in contrast to the current averages of multiple suppliers
- Impact data for new additional Raw Materials
- Impact data of what happens with paint 'after gate'; validated by the CEPE Sector groups

A systematic and transparent review combined with adhering to the here agreed guidelines will ensure a constant quality of the future versions of the CEPE LCI database.

Frequency of reviews.

The CEPE LCI database will be reviewed yearly whereby the 3rd year review serves as a revision. The CEPE Working Party - Methodology and Data will be in charge of the reviews.

The yearly review functions as "maintenance". It will consist of:

- Looking at the feedback received regarding missing raw materials or inaccurate datasets
- Checking and including datasets that would have been brought to our attention (European average or supplier specific data, see below for details)
- Checking that the Energy mix datasets are still up to date

The three-yearly review functions as "revision". It will consist of going through the complete database and looking for a more recent dataset than the one included in the database at the time of the previous revision.

Supplier-specific LCI data.

The CEPE LCI database currently contains datasets representing European averages (multiple suppliers). With Sustainability as one of the major driving forces for new product developments it is most likely that RM suppliers want their new developments or most up to date impact data sets included in 'the industry's reference point'.

CEPE sees the following benefits for its members when supplier-specific Raw Material LCI datasets will be included:

- Calculations will be closer to real-life formulations
- It will set up a dialogue with the raw materials suppliers to drive product improvement (use of bio-based materials versus petrochemical materials for example)
- Inclusion of new materials possible (materials for which no average exists)

CEPE will accept the inclusion of supplier specific data under the following principles.
A supplier:

- Confirms in writing that his 'request for inclusion' concerns a material which is commercially available and supplied to at least 3 paint manufacturers in Europe.
- Proofs that the datasets meet the format and quality requirements as described below
- Commits to the financial compensation for the data review and inclusion

CEPE will explicitly express to its members that the inclusion of such supplier specific data can in no way be considered as a CEPE recommendation or preference for said RM.

DATA and FORMAT REQUIREMENTS.

1. Data quality

The representativeness, transparency, completeness and methodological consistency of data will be assessed for each available data set. The focus is to assure transparent, complete data and the use of an attributional LCA methodology (in contrast to consequential LCA).

Qualitative assessments of the following aspects are thus included (based on ISO 14044, section 4.2.3.6 Data quality requirements)

A. <u>Representativeness:</u>

Qualitative assessment of the degree to which the data set reflects the true population of interest. The identified data sets will be compared to a "typical raw material as used by the European coatings and printing ink industry in the current year".

- Geographical coverage: geographical area from which data on unit processes is collected.
- Technological coverage: technology mix used to describe the data set.
- Time-related coverage: age of the data set.

B. Transparency:

Qualitative assessment of the extent to which information about the methodology and data values allows an independent practitioner to understand and reproduce the results reported in the study.

C. Completeness:

Percentage of the flows that are measured or estimated.

D. Consistency:

Qualitative assessment of how uniformly the study methodology is applied to the various components of the analysis.
Data sources for all the elements of the data set should be properly referenced. Also, a description of the methodology and data values should be provided in order to allow an independent practitioner to reproduce the results reported in the study.

CEPE will only accept supplier data with **a high data quality** in its database. Table 1 illustrates the data quality requirements regarding the identified relevant aspects. Studies or data sets will be reviewed against the requirements in Table 1, and based on that a recommendation to include the dataset or not will be made.

Table 1 - Quality requirements for datasets. (Weidema 1998 in Guinée *et al.* 2001, van der Berg *et al.* 1999)

Geographical representativeness	Data from area under study (EU).
Technological representativeness	Data from the company, processes and materials under study.
Time-related representativeness	Less than 3 years of difference from the year of study.
Transparency	The process tree and the allocation methods can be reproduced easily and exactly. All methodological choices can be reproduced easily. All data sources are presented.
Completeness	Representative data from a sufficient number of sites over an adequate period to even out normal fluctuations.
Consistency	Adequate data quality and consistently applied.

2. Impact coverage

To ensure that the data sets can be used in full LCA studies, the covered environmental impacts will also be assessed. LCI data sets should be complete and provide information about the full inventory to **cover all impact categories and reported results**. The list below identifies the primary impact categories on the basis of which reliable impacts can be calculated

Primary Impact categories

- Global warming potential: Emissions of greenhouse gases to air
- Ozone depletion potential: Emissions of ozone depletion gases to air
- Photochemical ozone creation potential: Emissions of substances (VOC, CO) to air
- Acidification potential: Emissions of acidifying substances to air
- Eutrophication potential: Emissions of nutrients to air, water and soil

- Abiotic Depletion Potential: Extraction of minerals and fossil fuels
- Dust and Particulate Matter: Emission of particulate matter to air

The LCI dataset should give full disclosure of all data collected. In some LCA studies, there is no specific LCI data collected for the secondary impact categories reported in the CEPE database. If this is the case no additional data collection is required, and based on the expert recommendation the lack of data could be accepted.

Secondary impact categories

- Human Toxicity Potential: Emission of toxic substances to air, water and soil
- Freshwater Toxicity Potential: Emission of toxic substances to air, water and soil
- Marine Aquatic Toxicity Potential: Emission of toxic substances to air, water and soil
- Terrestrial Eco Toxicity Potential: Emission of toxic substances to air, water and soil

This requirement means that studies or data sets that only represent part of the life cycle inventory will receive a low quality rating, and won't be included in the CEPE LCI database.

3. **Format of delivery**

The aggregated full LCI dataset will be provided in the Ecospold or ILCD format. By providing this dataset the supplier accepts that this dataset will be made available to CEPE members and takes full responsibility for licensing of the data if applicable. The supplier of the dataset should be available for discussion during the review process.

Financial compensation for "dataset check and inclusion" costs.

The CEPE LCI database is not a commercial product: no access rights to the database will be sold to suppliers willing to have their LCI data included in the database. Nevertheless, CEPE thinks it is only fair to ask the supplier to pay the cost created by the inclusion of this new dataset. This cost comes from reviewing the new dataset, including it in the database and in the Ecofootprint tool (based on the database).

This "dataset check and inclusion" cost will depend on the number of datasets reviewed at the same time, and will be shared among the various suppliers that have produced these datasets following a time allocation.

After a few years of experience, this calculation rule may be altered.

Inclusion Process.

The process of inclusion of supplier-specific datasets in the CEPE LCI database is as follows:

1. The supplier provides a report of the LCI dataset to be included, including a description of the background study (on all relevant criteria)

2. A CEPE appointed LCA expert reviews the report and makes a recommendation on inclusion

3. Based on this review and recommendation, the CEPE Working Party Methodology and Data will decide on inclusion during the yearly review

References

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Van der Berg, N.W., G. Huppes, E.W. Lindeijer, B.L. van der Ven, M. N. Wrisberg. 2001. *Quality assessment of LCA.* CML report page 152. Leiden, the Netherlands: CML

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