LCI Review report

Table 1: General review reporting items

REVIEW REPORTING			
General information			
Data set name	**Polyethylene Terephthalate (PET) granulate (amorphous) ; Production mix**		
Data set UUID and version number	**028b2915-00a5-4967-b356-34bce19960c3** **02.01.000**		
Data set locator (e.g. Permanent URI, URL, contact point, or database name and version, etc.)	**http://lca.jrc.ec.europa.eu/lcainfohub/datasets/elcd/processes/028b2915-00a5-4967-b356-34bce19960c3_02.01.000.xml**		
Data set owner	**PlasticsEurope aisbl, Brussels**		
Review commissioner(s)	**European Commission, Joint Research Centre (JRC), Institute for Environment and Sustainability (IES)**		
Reviewer name(s) and affiliation(s), contact	**Dr.-Ing. Ivo Mersiowsky, DEKRA Industrial GmbH, Sustainability Services**		
Review type applied	**Independent external review**		
Date of review completion (DD/MM/YYYY)	**21/11/2011**		
Reviewed against / Compliance system name	**ILCD Data Network - Entry-level requirements**		
Reviewer assessment:			
Aspect	**Yes**	**No**	**Comments**
Quality compliance (ISO 14040 & 14044) fulfilled (see table 2)	X		Entry-level requirements fulfilled. -- While TeR, GR, and TiR are held to be at least »Good« for this Eco-profile report and LCI dataset (due to the adopted methodology), these aspects had not been documented in the original Eco-profile reports. Also, C, P, and M had not been formally assessed and cannot be ascertained anymore. – Meta data on TeR, GR, and TiR were added in the course of the ELCD dataset development with a view to entry-level compliance.
Method compliance (ISO 14040 & 14044) fulfilled and documented in data set	X		Practitioner designed procedures, software and models based on long-term experience with SETAC guidance and ISO 14040–43. While the revised ISO 14040/44 had not been in existence at the time of the last update of this dataset (2005), ISO compliance is still given. Formal aspects underpinning method compliance were not documented in the original Eco-profile reports, but are provided in the corresponding ELCD

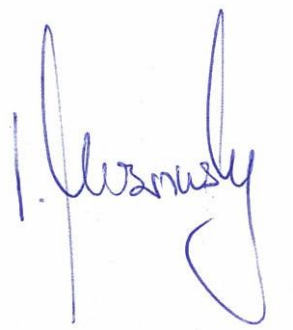
			datasets.
Nomenclature compliance (see table 3) fulfilled	X		Note that original Eco-profile reports did not use ILCD nomenclature (but are internally consistent). The ELCD datasets reviewed here were converted into ILCD nomenclature and are thus compliant.
Documentation compliance (see table 3) fulfilled	X		Entry-level requirements fulfilled. – While the original documentation did not enable review (meta data, goal & scope, and interpretation of LCI data missing), the methodology is reported elsewhere and allows for an appraisal. – Nomenclature was revised, and meta data with a minimum documentation were added in the course of the ELCD dataset development with a view to entry-level compliance.
Review compliance (Independent external review OR independent internal review + review report) fulfilled	X		The original Eco-profile reports and LCI datasets had been subject to independent internal reviews by industry experts ascertaining that technical plausibility of the data. In addition, this **independent external review** was conducted to confirm ILCD compliance as per the aspects reported here.
Compliant with ISO 14040 & 14044	X		See comment on method compliance (ISO 14040/44) above.
Overall compliant with Compliance system	X		The dataset is compliant with ILCD entry-level requirements. Due to the less stringent requirements on data quality indicators and documentation in contrast to full ILCD compliance (see comments above), this dataset can be included in the ELCD database. Future updates of this dataset will need to ensure a more comprehensive assessment of data quality indicators and documentation to comply with full ILCD requirements.
Date, location, reviewer signature	 i.V. Dr.-Ing. Ivo Mersiowsky, DEKRA Industrial GmbH Stuttgart/Germany, 21 November 2011		

Table 2: Specific/detailed review reporting items for LCI data set: Quality compliance (ISO 14040 & 14044)

ITEMs	Comments
Time-related coverage/representativeness: "age of data and the minimum length of time over which data should be collected" "qualitative assessment of the degree to which the data set reflects the true population of interest"	Good+ Primary (foreground) data collection and calculation in 1999. Last update and re-calculation in 2005. Data were collected for one year, i.e. based on annual reports. The calculation conducted in 2005 was an update of background processes (in particular, energy supply data as of 2005). It was held that the foreground data were still applicable, in that (a) production technology supposedly had not changed significantly and/or (b) plants had not been consolidated or decommissioned. This assumption was based on expert judgment among PlasticsEurope's member companies. Note: The above explanation is inferred from personal communication [1], but not provided in the original Eco-profile report itself.
Geographical coverage/representativeness: "geographical area from which data for unit processes should be collected to satisfy the goal of the study" "qualitative assessment of the degree to which the data set reflects the true population of interest"	Good+ Europe. The goal was to provide a European production average. 7 production plants across Europe were included in the data collection. The selected plants were selected to represent >80% of the total European production volume. According to the meta-data a coverage of 95% was achieved; however, the 2009 update of this dataset (having sampled more plants) places the coverage at only 72%.
Technology coverage/representativeness: "specific technology or technology mix" "qualitative assessment of the degree to which the data set reflects the true population of interest"	Good+ Technology mix. The goal was to provide a European production average. See Geographical Coverage above for details. The participating PlasticsEurope member companies and their production sites included in the survey represent the technology mix at the time of this study. TeR is explicitly described in the meta-data.
Precision: "measure of the variability of the data values for each data expressed (e.g. variance)"	Unknown The precision cannot be assessed because the original Eco-profile reports and LCI datasets neither specify ranges nor provide an assessment of variability.
Completeness: "percentage of flow that is measured or estimated"; assessed on level of process	Unknown: »All relevant flows quantified« (meta-data) The completeness of the LCI data had not been reported in the original study. An a posteriori verification appears not feasible, because (a) the Eco-profile report and LCI dataset is an aggregated

ITEMs	Comments
	process inventory (i.e. critical activity data, such as useful energy input to core process are unknown); (b) the Eco-profile report does not include impacts (other than global warming figures) and an assessment of completeness in relation to impacts was outside the scope of the study.
Consistency: "qualitative assessment of whether the study methodology is applied uniformly to the various components of the analysis"	Good. The entire LCI modelling and calculation for this study – as well as for related LCI models created under the PlasticsEurope Eco-profile programme – were governed by the same methodology (Boustead 2005) and conducted using the same software and database system (Boustead) [2].
Sources of the data; Appropriateness of use primary/secondary data source	All foreground processes were modelled using primary data collected from production sites as detailed above. Background processes were modelled using secondary data from appropriate sources, such as the International Energy Agency for hydrocarbon resources. For further details, see meta-data on TeR.
Uncertainty of the information (e.g. data, models and assumptions).	Unknown An assessment of the uncertainty has not been conducted in the course of the original Eco-profile study. As of now, no errors in the primary data are suspected. Models and assumptions have been subject to internal review by industry expert groups within PlasticsEurope and are hence deemed valid. Since original data, models, and assumptions are not available anymore (or stored in an undisclosed document repository), this item cannot be ascertained anymore.
Others	

Table 3: Specific/detailed review reporting items for LCI data set: Nomenclature and Documentation

ITEMs	Comments
Nomenclature	
Correctness and consistency of applied nomenclature	The nomenclature is consistent because all Eco-profile reports and LCI dataset had been prepared by Ian Boustead using the same software model (Boustead) and governed by the same methodology document (Boustead 2005) [2]. At the time of the creation of this Eco-profile, the ILCD handbook had not existed – hence the pre-defined ILCD reference elementary flows were not used. Upon conversion into ELCD datasets, matching lists were used to obtain fully compliant ILCD nomenclature. Technical terms are used correctly and consistently.

ITEMs	Comments
Documentation	
Appropriateness of documentation extent (see Document “Documentation of LCA data sets”)	The documentation of the ELCD dataset appears appropriate in that it comprehensively presents the available meta-data and further information – it enables a fair appraisal of the dataset.
Appropriateness of documentation form (ILCD Format)	The documentation form as per the ILCD format is appropriate in that it is comprehensive and transparent.

Additional Information

The original process data is from 1999. Only energy supply data were updated in 2005.

An update of the PETa dataset has been completed in 2009. A total of 12 production sites were included in the survey, achieving a representativeness of 72%. Based on the review of the entire update process, this new dataset is assessed to be a reliable and high-quality representation of PET production in Europe. At the time of completion of this study, the data owner CPME decided to not publish the PETa dataset, because amorphous PET was not a relevant stand-alone product on the European market. Anticipating interest for this dataset (PETa being used for fibre-spinning in other regions), PlasticsEurope looks into the publication of this the new dataset alongside the newly published PETb (see review report #13) – hence the existing ELCD datasets for PETa will likely become obsolete.

The meta-data is chiefly secondary information which is not contained in the original Eco-profile report and, hence, cannot be verified. The Eco-profile report provides barely a brief introductory description of the product and production system (stoichiometric formulae and production technologies), and the LCI tables. A specific report does not exist: the Eco-profile report does neither include meta data, nor goal & scope, nor a comment or interpretation on the LCI data themselves.

While the LCI tables provide additional details, such as the allocation of entries to broad categories according to the origin of flows (fuel production and delivery, fuel use, transport, or process), other details concerning data quality are not available.

Results, data, methods, assumptions and limitations are documented only in the separate methodology document [2] which provides an overarching methodological guidance.

References

[1] Personal communication: intermittent face-to-face and phone interviews with PlasticsEurope Eco-profiles programme representatives Aafko Schanssema and Ian Boustead conducted between October 2007–January 2011.

[2] Ian Boustead, Methodology documentation, 2005.