

LCI Review report

dataset name:acetaldehyde production/RER
reference product: acetaldehyde

This review is of the quality of a dataset. The dataset has been created with a project called "Data on Production of Chemicals created for the EU Product Environmental Footprint (PEF) pilot phase implementation 2016 – 2020"

General review reporting items

Dataset name	acetaldehyde production
Dataset location	RER
Dataset UUID	96d48c3a-e6e9-4168-a605-0e2d529c9c2c
Dataset locator	ecoinvent ILCD node (http://ecoinvent.lca-data.com/)
Dataset owner	ecoinvent Association
Dataset provider	ecoinvent Association, Technoparkstrasse 1, Zurich, 8005, Switzerland
Review commissioner	European Commission
Date of review completion (DD/MM/YYYY)	01/05/2017
Reviewed against	ILCD Data Network - Entry-level requirements
Reviewed against	Review requirements from the call for tenders: "ENV.B.1/SER/2016/0038v1"

Reviewers and review type

This dataset has been reviewed by two internal reviewers and one external independent expert, which is a type 1 review as described in the call for tenders ENV.B.1/SER/2016/0038v1.

reviewer ID	reviewer name	affiliation	internal/external	contact
1	Gregor Wernet	ecoinvent	internal	wernet@ecoinvent.org
2	Emilia Moreno Ruiz	ecoinvent	internal	moreno@ecoinvent.org
3	Eric Johnson	Atlantic Consulting	external	ejohnson@ecosite.co.uk

Data quality rating (DQR)

Aspect	Compliant	DQR - reviewers	Comment
Time-related representativeness	Yes	1	Generally based on a contribution analysis of important flows, but evaluated an confirmed or adjusted by the external reviewer.
Geographical representativeness	Yes	1.84	Generally based on a contribution analysis of important flows, but evaluated an confirmed or adjusted by the external reviewer.
Methodological appropriateness and consistency	Yes	3	Generally based on a contribution analysis of important flows, but evaluated an confirmed or adjusted by the external reviewer.
Precision/uncertainty	Yes	2	Generally based on a contribution analysis of important flows, but evaluated an confirmed or adjusted by the external reviewer.
Technological representativeness	Yes	2	Generally based on a contribution analysis of important flows, but evaluated an confirmed or adjusted by the external reviewer.
Overall quality	Yes	1.97	Calculated from the individual scores.

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Reviewers' assessment

Following aspects of the compliancy have been reviewed and agreed on by all three reviewers.

Item	Compliant	Comments
Quality compliance (aspects of ISO 14040 & 14044) fulfilled	Yes	The quality of the dataset is compliant with all quality aspects as listed in ISO 14040 & 14044.
Method compliance (as in ISO 14040 & 14044) fulfilled and documented in data set	Yes	The methods used have been provided by the European Commission and are compliant with all aspects of ISO 14040 & 14044 and are described in the dataset.
Nomenclature compliance fulfilled	Yes	See table for the comment on nomenclature.
Documentation compliance fulfilled	Yes	See table for the comment on documentation compliance.
Review compliance (Independent external review OR independent internal review + review report) fulfilled	Yes	The dataset was reviewed by two internal reviewers and one independent external reviewer. This review report gives separate overall comments for the internal reviewers and the independent external reviewers. In all other fields there are joint statements of all reviewers over which the external reviewer had final right of approval.
Overall compliance with ISO 14040 & 14044	Yes	Overall, the dataset complies with all aspects of ISO 14040 & 14044.
Overall compliance with "ILCD Data Network - Entry-level" and the additional review requirements from the call for tender "ENV.B.1/SER/2016/0038vI"	Yes	Overall, the dataset is compliant with the 'ILCD Data Network – Entry-level' and the additional requirements from the call for tender 'ENV.B.1/SER/2016/0038vI.'

Internal review comment

The dataset is compliant with both the ISO 14040 and 14044 norms as well as the ILCD Data Network, Compliance rules and entry-level requirements. The documentation describes in adequate detail the type of activity modelled, data quality, modelling choices, system boundaries as well as other relevant information.

The dataset represent activity modelled using the best available data from both primary and secondary sources.

External review comment

The dataset is compliant with the following standards: PEF/OEF implementation, mandatory data 2016-2020; ILCD Data Network, Compliance rules and entry-level requirements; ISO 14040 & ISO 14044

The dataset is also structured respecting requirements listed in the following documents/ correspondence: ILCD, Documentation of LCA data sets; Tender Specifications – Provision of “chemicals” process-based product environmental footprint-compliant life cycle inventory datasets (ENV.B.1/SER/2016/0038vI); The dataset also fulfills all the requirements specified by the European Commission (Directorate B, Unit B.1) during the data collection via e-mail or telephone conversations

The data used to model the activity in the given geography, technology and time were the best available and are considered adequate representations of the production in real life.

The overall completeness of the inventory is on a very high level. Both the foreground activity as well as the background activities are well established and report well all the relevant products used and emissions released. The reported exchanges cover well the relevant impact categories.

The dataset documentation reflects what has been modelled and is appropriate in terms of content and level of detail. It is always clear what type of production the dataset represents.

The precision of the data is good, given some uncertainties of measured and reported data for some emissions. The key parameters crucial for the final LCIA results have been cross-referenced by information from other sources demonstrating their plausibility.

The LCIA results are plausible. The inventory was reviewed both on the unit process (UPR) level as well as the LCI level. The balances – dry mass, wet mass, carbon - have been used to confirm the correctness of the modelling. The LCIA scores of all datasets for all the ILCD methods have been reviewed. The new LCIA scores of datasets which already existed in the ecoinvent version 3.3 database were compared with the old ones. The LCIA

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results of all the products for which activities were created were also compared with each other.

There are no intentional cut-offs in the inventory no matter how small their contribution to all the ILCD impact categories is. Every known elementary and intermediate exchange is listed.

The elementary and intermediate exchanges included in the inventory reflect very well all the process steps included within the system boundaries of the activity as described in the documentation.

All the other modelling choices, such as allocation and regionalized water exchanges are modelled according to PEF specifications.

The end-of-life is modelled following the 'cut-off by classification' ecoinvent system model.

Review comments from all reviewers

Aspect	Comment
Methodology	
Methodological appropriateness and consistency	The method used to create this dataset is appropriate and the resulting dataset is consistent with the other datasets created in this call. The third-party data on energy and transport systems required in the background supply chains has been consistently and correctly integrated into the supply chains of this dataset.
Sources of the data	
Sources of the data; Appropriateness of use primary/secondary data source	Both primary and secondary data sources have been used to create this dataset. The use of these sources is well documented and is appropriate.
Uncertainty	
Uncertainty of the information (e.g. data, models and assumptions).	The uncertainty of the information and data used to create this dataset is acceptable. The model used to generate data for some datasets in the deliverable generates reliable results based on real production data. The assumptions used while creating this dataset are justifiable.
Nomenclature	
Correctness and consistency of applied nomenclature (Preferred use of ILCD flows etc.; Correct nomenclature of other flows; Exclusion of not permissible waste flows, sum indicator elementary flows etc.)	Only the approved ILCD elementary flows have been used in the datasets.
Documentation	
Appropriateness of documentation (see Document "Documentation of LCA data sets")	The documentation of the datasets is clear and describes in adequate detail what type of production the dataset represents.
Appropriateness / correctness of documentation form (ILCD Format)	The documentation is appropriate and in the correct format (the ILCD format).