

Life cycle analysis of Fronius Welding Equipment (TPS 320i, TPS 400i)

Critical review report and statement

Reviewer: Dipl.-Ing. Karsten Schischke

Berlin, 15 May 2023

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1 Basic data

Title of the study:

Lebenszyklusanalyse von Fronius Schweißgeräten (TPS 320i, TPS 400i)
(Life cycle analysis of Fronius Welding Equipment – TPS 320, TPS 400i)

Commissioner of the LCA study:

Fronius International GmbH

Practitioner of the LCA study:

Harald Pilz, to4to – together for tomorrow

Final version of the LCA study:

Version 1.0 dated 13 May 2023

Reviewer:

Karsten Schischke, Group manager Policy, Ecodesign and Circular Materials at Fraunhofer IZM, Berlin

2 Critical review process

The review was carried out by an external expert, based on ISO 14044:2006, 6.2.

The review was carried out in parallel to the LCA study, including four virtual meetings to discuss the progress of the study.

The review included the evaluation of the life cycle inventory model.

The review included an analysis of individual data sets in consultation with the commissioner and the practitioner of the LCA study. The LCA practitioner corrected implausible data in the Ecoinvent database to the extent possible. Adjustments to this secondary data were made with the consent of the reviewer.

Comments were documented in particular on the basis of two commented draft versions of the LCA study report and were taken into account and incorporated by the LCA practitioner. The first draft report covered goal, scope, and inventory analysis; the second report covered in addition results, interpretation, and recommended follow-up actions. Due to the iterative approach and thanks to methodological issues already discussed in previous LCA studies, only selective intervention by the reviewer was required.

Comments of the reviewer concerned in particular

- representativeness of the analysed product configuration,
- modelling of selected components (especially semiconductors and PCB manufacturing),
- modelling of metal working processes and allocation of production waste recycling,
- modelling of the use phase and assumptions on product lifetime.

All questions and requirements on the part of the reviewer were answered by the author of the study in such a way that conformity with the requirements of ISO 14040 and ISO 14044 was established.

The critical review verified that

- the methods used to carry out the LCA are in accordance with the ISO 14040 and 14044 standards;
- the methods used to conduct the LCA are scientifically and technically valid;
- the data used are appropriate in relation to the objective of the study;
- the interpretations reflect the identified limitations and the objective of the study;
- the documentation of the study is transparent and consistent.

To exchange information on the progress of the study and to discuss interim results and open questions, online meetings with the reviewer took place on the following dates:

- Kick-off meeting with discussion of goal and scope (13 October 2022)

- Status meeting with discussion of life cycle inventory data and interim results, with a focus on the production phase (12 December 2022)
- Status meeting with discussion of life cycle inventory data and interim results, with a focus on the use phase (24 February 2023)
- Final review meeting (16 March 2023)

The reviewer had access to

- draft versions of the report
- detailed data model
- detailed measurement data and reports on energy consumption in the use phase
- explanatory and summary presentations of the interim status (per meeting)

3 Review statement

It is confirmed that the life cycle assessment study meets all relevant criteria and complies with the principles of good scientific practice.

Conformity with ISO 14040 and ISO 14044 is established for the study "Lebenszyklusanalyse von Fronius Schweißgeräten (TPS 320i, TPS 400i)" and its results.

Berlin, 15 May 2023



- Karsten Schischke -
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