

*Third-Party Review Report  
of  
“SPICE Tool – November 2022 version”  
March 2023*

In application of  
ISO 14040, ISO 14044 and ISO/TS 14071

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SOL 21-105.2

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for

**SPICE and Quantis**

## 1 Introduction

SPICE members – Sustainable Packaging Initiative for Cosmetics (<https://open-spice.com>) and Quantis have developed a methodology and tool for assessing the environmental impact of cosmetic packaging and drive eco-design. The methodology, applying ISO 14040:2006 and ISO 14044:2006 is publicly available in two documents – “Spice Guidelines” and “Spice Tool Methodological Appendix” – as presented in <https://open-spice.com/publications>.

SPICE wanted to get a Review by a third-party panel of their deliverables. The final versions of these deliverables, which are addressed by this review were presented end of November 2022. Then the present Third-Party Review Report gathers:

- a Critical Review of the methodology as published end of November 2022,
- a review of the use of the SPICE Tool as available end of November 2022, in line with the described methodology,
- a review of the background LCI database as built end of November 2022, and its appropriateness to the SPICE Tool.

This Third-Party Review Report, including appendices, is dedicated to being communicated as such (no deletion, no substitution, no addition) and as a whole.

## 2 Presentation of the panel experts

The review panel of this study consist in 4 external reviewers:

- Philippe Osset, President of Solinnen. Philippe also acted as chair of the panel.
- Tom Gloria, Managing Director at Industrial Ecology Consultants.
- Atsushi Inaba, President at Japan Life Cycle Assessment Facilitation Centre (LCAF).
- Nydia Suppen, Founder of the Centre for LCA and Sustainable Design (CADIS) and co-director of Latin American Hub of International EPD System.

The choice of the experts has been made to make available competencies which cover the studied topics, i.e. sector specific expertise, LCA expertise and handling of LCA tools expertise, including regional concerns.

## 3 Nature of the Review work, Review process and limitations

The experts have worked according to the requirements of ISO 14040:2006 and 14044:2006 concerning Critical Reviews, including ISO/TS 14071, applied to the Review of a LCA Tool.

The Review process has been applied to check if:

- the methods presented in the deliverables are consistent with ISO 14044 requirements,
- the methods used in the SPICE Tool are scientifically and technically valid,
- the data used (including background LCI database) are appropriate and reasonable in relation to the goal of the studies that will be done with the SPICE Tool.

Additionally, the Review process has been applied to review:

- the use of the SPICE Tool as available end of November 2022, in line with the described methodology,
- the use of the User Guide as available end of November 2022.

The panel has checked the plausibility of the SPICE Tool functioning, through sample tests.

The following requirements of ISO 14044:2006 have not been applied, since the Review focused on a tool and not on a LCA report:

- the interpretations reflect the limitations identified and the goal of the study, and
- the study report is transparent and consistent.

The first goal of the Review was to provide SPICE and Quantis with detailed comments to allow Quantis to improve its work. These comments have covered the deliverables. Additionally, the present final Third-Party Review Report provides the future reader of the report with information to better understand the report.

The Review work has started after the generation of a first version of the deliverables provided by Quantis. The Review work has started in November 2021 and ended up in November 2022. During this period, different oral and written exchanges have been held between the panel and Quantis, including clarification exchanges regarding the Review comments, and the production of the final version of the deliverables by Quantis.

Quantis has considered most of the comments and modified and improved their deliverables.

The present final Third-Party Review Report includes the synthesis of the final comments by the panel. Some detailed comments are provided within this final Third-Party Review Report, together with the full detailed exchanges as appendix (this appendix is made according to Annex A of ISO/TS 14071).

The present Third-Party Review Report is delivered to SPICE and Quantis. The panel (and each member of the panel taken individually) cannot be held responsible of the use of its work by any third party. The conclusions of the panel cover the **Deliverables** provided by Quantis as communicated in November 2022 and no other deliverables that may eventually be done afterwards (ex. following updates). The panel conclusions have been set given the current state of the art and the information which has been received. These expert conclusions could have been different in a different context.

## 4 Conclusions of the Review

The Review comments (231) covered the following points:

- Guidelines document (117 comments),
- Methodology document (47 comments),
- LCI data document (32 comments).
- Data flow (4 comments),
- User guide (4 comments),
- Tool use (27 comments).

An exhaustive work has been done by Quantis to provide final deliverables, dated November 2022, integrating answers to the Review points, and the final result has improved as compared to the first one.

**As a whole, the panel of experts consider that the final Deliverables answers to the goals which have been set up, within the scope of the limitations that are mentioned in the deliverables and the present Third-Party Review Report.**

**The SPICE Tool is facilitating evaluations by nonprofessional assessors.**

## 5 Detailed comments

The following lines bring some highlights that users of the final deliverables may consider in their use of the deliverables. They might also be used for further versions of the SPICE Tool. The reading of the detailed comments and answers (see appendices) is recommended.

### *5.1 Relevance of the methods used in the SPICE Tool, and consistency with ISO 14044 requirements, scientific and technical validity of the SPICE Tool*

The objectives and benefits of the SPICE Tool are well described, and so is the methodology of the project.

The user of the SPICE Tool will have to care about interpretation if any innovative product based on material that are not included in the current background database.

As far as PEF is concerned, the update to EF 3.1 (updated characterization factors) will have to be considered soon.

The application of Chain of Custody approaches (including guarantee of origins or mass balance credit system), as in ISO 22095, is not implemented, which is a conservative approach. If the Mass Balance credit system is implemented in the future, the methodology shall be transparently reported, and an additional CR review work shall be done beforehand.

The scientific and technical validity of the work is high due to the exhaustive approach which has been followed.

### *5.2 Relevance of data used and of the presentation of results, in relation to the goal of the SPICE Tool*

The content of the background LCA database is appropriate to the SPICE Tool goals. Their relevance to the goal and scope of the SPICE tool should be checked every five years (maximum) and modifications should be done when necessary (ex. publication of a high quality LCI which might replace a current LCI).

The geographical representativity is either global or local. Further improvements might cover more specific local data.

When considering improvements in percentages of single scores, it is important to have in mind uncertainty and value choices to reach single scores, since it has a significant effect on indicators values.

The comparative indicators provide good insight on order of magnitudes (and then on significance of results) and provide quantitative information.

### *5.3 Transparency and consistency of the accompanying documents*

The overall level transparency and consistency of the deliverables which have been provided for the review is good. The precision provided provides a transparent access to the SPICE Tool assumptions.

As far as the users are concerned, the information which is provided by the SPICE Tool only is probably at the relevant level of transparency to handle the SPICE Tool. Of course, preparing a full LCA report based on the results of the SPICE Tool is necessary, together with the appropriate CR, to communicate on the comparisons of the results, according to the requirements of ISO 14044.

The availability and use of an appropriate training material are essential for users, including examples of set of parameters together with results and related explanations and interpretations.

### *5.4 Behavior of the SPICE Tool*

The Web based approach for the SPICE tool is appropriate. Quantis mentioned that several functionalities will be implemented, amongst the most relevant are:

- Additional “warnings” when the SPICE Tool is not correctly filled in would be welcomed. They could be displayed when the user clicks the calculation button and then no calculation results should be displayed if the SPICE Tool is not correctly filled,
- Additional guidance to explain results.

Similarly, some functionalities which would assist verification would be welcomed to support the preparation of the CR of the comparative LCA results.

## **6 Appendices**

The detailed Review tables exchanged during the work are the appendices of the present Third-Party Review Report. They recap the detailed exchanges between the panel and Quantis.