

Contact person  
Michael Sturges  
Associate consultant  
+44 (0)7787 531141  
michael.sturges@ri.se

Date  
2024-10-10

Reference  
Metsä

Page  
1 (2)

## Carbon handprint study – Metsä Tissue fresh fibre TOTI (toilet tissue) products compared to recycled fibre TOTI and virgin eucalyptus-softwood (80%/20%) TOTI products

### Review background

This document forms the critical review statement for a comparative life cycle assessment study of the Metsä Tissue fresh fibre TOTI (toilet tissue) products compared to recycled fibre TOTI products. The method and results are detailed in a report “Handprint of Selected Metsä Group Products” providing case studies of a range of Metsä biobased solutions and competing alternatives already in the market.

The critical review and this statement only refers to the case studies covering Metsä TOTI Lambi Mänttä and Metsä TOTI Nordic FF Keuzau produced in Central Europe compared to recycled fibre TOTI product produced in central Europe and virgin Eucalyptus and softwood pulp product with 80 % eucalyptus from Latin America and 20 % softwood produced in Central Europe.

The report, dated 18<sup>th</sup> May 2024, was prepared by Afry Management Consulting Oy, and was commissioned and funded by Metsä Group, a leading manufacturer of bio-based materials.

The critical review has been performed by a panel of two independent experts:

- Michael Sturges (chair of the review panel) – RISE Research Institutes of Sweden – a life cycle (LCA) assessment practitioner with specific experience of environmental studies relating to forest industry value chains and packaging solutions
- Giovanni Francesco Cardamone, Ph.D. – Ramboll – an environmental expert with significant experience of LCA and carbon footprinting as applied to fibre-based and forest industry solutions

The reviewers were contracted directly by Metsä Tissue and were independent of the LCA study.

### Critical review process

The review was performed based on the requirements of ISO14044:2006 Section 6.2, i.e., critical review by an external expert. In this case, a panel of two independent reviewers was selected. The critical review has been performed at the end of the LCA study. The critical review panel began with consideration of the final report. The report was provided to the reviewers for detailed consideration in advance, and then the report was presented to the critical review panel during a video conference.

---

#### RISE, Research Institute of Sweden

Postal address  
RISE  
Box 5609  
SE-114 86  
STOCKHOLM  
Sweden

Office location  
United Kingdom

Phone / Fax / E-mail  
+44 (0)7787 531141

The review panel provided written feedback using a MS Excel feedback template.. The feedback was also discussed during a follow up video conference with the LCA practitioners and the project sponsors.

The LCA practitioners responded to the comments, providing further explanations as appropriate. This was an iterative process until the reviewer was satisfied that all points raised had been sufficiently addressed. The responses were detailed in the MS Excel feedback template. This approach provided a clear audit trail of the critical review panel's comments and the LCA practitioners' subsequent actions and responses.

The review panel has considered the responses and changes and is satisfied that appropriate clarifications have been provided.

### **Result of the critical review**

The critical review concludes that the study was performed in conformance with ISO 14040 and ISO 14044.

### **Opinion of the reviewers**

The methodology applied in the analysis is the Carbon Handprint method, as detailed in "*Carbon Handprint Guidebook, Version 2.0*", VTT and LUT 2021. This document details a method for presenting the results of product carbon footprints in such a way that the carbon savings from switching from one solution to another (the carbon handprint) are visually apparent. The methodology is aligned with the requirements of ISO14040 and ISO14044.

As with all LCA studies, there are methodological choices and modelling limitations that need to be understood when interpreting the results. Methodological choices, data sources and assumptions are transparently documented in the report. Any omissions in the descriptions were dealt with via the information in the critical review feedback template. It is of course important that users of LCA results are aware of the limitations and uncertainties when considering results and conclusions.

It is stressed in the report that the results achieved and conclusions drawn are specific to the value chains considered for each of the solutions.

Overall, the review panel concludes that the study's level of quality, detail and transparency is appropriate considering the goal and scope. Subsequently, the results presented and conclusions drawn are considered to be a sound and fair reflection of the potential environmental impacts of the studied systems representing the Metsä Tissue TOTI solutions and the recycled fibre TOTI and virgin Euca-SW mix (80/20 %) TOTI solutions.

In conclusion, it is the opinion of the reviewer that the report provides useful and realistic information for stakeholders interested in this topic.

### **Critical review sign-off**

The review panel certifies that the statement provided is a fair reflection of the assessment and their views of the study.

Signed.....  


**Dated:** 10<sup>th</sup> October 2024

**Michael Sturges, RISE Research Institutes of Sweden**

Signed  


**Dated:** 10<sup>th</sup> October 2024

**Giovanni Francesco Cardamone , Ramboll**