

External Critical Review
**of an LCA report entitled: “Life Cycle Assessment of
lightweight concrete board Polyesh”**

Author of Critical Review Report

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The author of the LCA study reviewed

Shai Ben Aharon and Eden Shukrun

KVS

<https://www.kvs.co.il/>

 **KVS** leading climate action

The KVS logo consists of the letters "KVS" in a bold, blue, sans-serif font, followed by a stylized green and blue graphic element resembling a leaf or a building facade.

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INTRODUCTION

This document is a critical review report of life cycle assessment conducted according to the standard ISO 14067:2018 “Greenhouse gases. Carbon footprint of products. Requirements and guidelines for quantification”. The critical review follows the standard ISO 14071:2014 “Environmental management. Life cycle assessment. Critical review processes and reviewer competencies: additional requirements and guidelines to ISO 14044:2006”. The critical review is written by Vladimír Kočí, www.lca.cz.

The table below provides the basic information of the life cycle assessment report in concern.

Title of the study	Life Cycle Assessment of lightweight concrete board Polyesh
The commissioner of the LCA study	Polybid
The practitioner of the LCA study	KVS
The version/publication date of the report to which the critical review statement belongs to	March 2024
The reviewer	Vladimír Kočí
A critical review was performed:	Based on ISO 14044:2006, 6.2 (critical review by the external expert)
The review was performed a) in parallel; b) at the end of the study	At the end of the study
The reviewer a) Included; b) excluded an assessment of the LCI model	Included
The reviewer a) Included; b) excluded verification of individual data used for calculation	Excluded
A statement of the result of the critical review	The LCA study is concerned with Standard ISO 14067 and ISO 14040.

According to the standard ISO 14071:2014, critical review is the conformity assessment approach according to ISO 14040 and ISO 14044. The critical review conducted by internal or external reviewer(s) is a key feature for stakeholders' acceptance of the life cycle assessment (LCA) study. According to ISO 14044, critical reviews are mandatory when studies are intended to be disclosed to the public and they make comparative assertions. However, critical reviews can also be performed for non-comparative LCA studies to improve their robustness and credibility. As explained in ISO 14040:2006 (7.1), a critical review can neither verify nor validate the goals chosen for an LCA by the commissioner of the LCA study nor how LCA results are used.

According to the critical review standard ISO 14071, the review process must be documented in the critical review report. At least one round of comments and associated study modifications should be performed on the study draft. After all review comment iterations are completed, the critical review statement shall document the outcome of the critical review process. The review statement shall be issued for the final version of the LCA report.

ABOUT THIS LIFE CYCLE ASSESSMENT REPORT

The subject of this review is a study entitled: “Life Cycle Assessment of lightweight concrete board Polyesh” conducted by Shai Ben Aharon and Eden Shukrun, KVS. The reviewed study was published in March 2024.

The LCA background report is well-structured and written. The methods used to develop the LCA are consistent with ISO 14040 and ISO 14044. The methods used to carry out the life cycle assessment are scientifically and technically valid. The data used are appropriate and reasonable concerning the goal of the study. The interpretations reflect the limitations identified and the goal of the study. The study report is transparent and consistent.

GOAL AND SCOPE DEFINITION

The goal of the study is clearly stated: Provide internal knowledge to Polybid of the environmental impacts of producing Polyesh, a concrete board.

The scope of the study is clearly described: declared/functional unit, system boundaries including life cycle stages, geographic scope, chosen impact categories, and environmental impacts are adequately described.

INVENTORY ANALYSIS

The product system analysed is well described. Input data in tabular form reported for all assessed products/scenarios. Every phase of the product life cycle is briefly described. Assumptions accepted for study development are clearly stated. LCA modelling using SimaPro, Analyst 9.4.0.3 software was realised. The assessed product is also described in appropriate detail. Printscreen images of the developed LCA models are not included. The model developed was directly demonstrated to the critical reviewer.

IMPACT ASSESSMENT

Environmental profiles of assessed products are clearly described and presented in the study. As an environmental impact methodology, the following were used:

- EN 15804+A2 Method

All methods used are well described, adequately used, and cited.

LC INTERPRETATION

Life Cycle Interpretation is adequately written. Significant issues are stated and correctly discussed. A sensitivity analysis is conducted on the raw material Polystyrene.

RESULTS FORMULATION

The outputs of the study are well-written. Results are based on life cycle inventory and impact assessment results consistent with the study procedure. Results are logically stated. Limitations of the study are declared.

SUMMARY AND RECOMMENDATION

The Life cycle assessment report of “Life Cycle Assessment of lightweight concrete board Polyesh” developed by Shai Ben Aharon and Eden Shukrun, KVS; conforms to ISO 14040 standard. Furthermore, the data collection and modelling methods are described clearly and correspond to the state of the art. Finally, the report is well-written, transparent and consistent.

According to ISO 14040, the critical review process ensures that:

- The methods used in the LCA study are consistent with the international standard;
- The methods used in the LCA study are scientifically and technically valid;
- The data used are appropriate and reasonable concerning the goal of the study;
- The interpretations reflect the limitations identified and the goal of the study;
- The study report is transparent and consistent.

Several questions were asked about the study's implementation in the verification framework. All these questions were satisfactorily answered, and LCA models were demonstrated.

Prague, March 19th, 2024

A handwritten signature in blue ink, appearing to read "Koc", is written over a faint, light blue circular stamp.

prof. Ing. Vladimír Kočí, PhD, Šárecká 5, 160 00 Prague 6, Czech Republic, www.lca.cz

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