

Summary

KMC Life-Cycle Assessment

This Life-Cycle Assessment (LCA) evaluates the environmental footprint of producing 1 ton of native starch (80% dry matter), modified starch (80% dry matter), and potato protein for food (90% dry matter) at the AKD, AKK, and KMC Derivat facilities. The study follows ISO 14040 and ISO 14044 standards, and has been prepared by Better Green and has been critically reviewed by LCA Specialists. Furthermore, this study uses high-quality production data from 2021–2024 to ensure accurate and reliable results.

The system boundary is cradle-to-gate and includes:

- 1. Raw material procurement** – potatoes, chemicals, groundwater, and packaging
- 2. Transportation** – delivery of raw materials to production sites
- 3. Production processes** – energy consumption and waste management

For multifunctional processes, the study applies allocation based on the dry mass of the co-products to distribute input and output flows among co-products.

Key findings include the calculated total climate footprint in accordance with the EF3.1 LCIA method (incl. fossil and biogenic greenhouse gas emissions as well as emissions from land use and land use change). The results are calculated per ton of product (as-is-basis). The climate footprint is presented below as a weighted average for each product across production sites:

Table 1 – The calculated climate footprint of the different products (weighted average)

Product	Kg CO ₂ e per ton, average
Native starch	538
Modified starch	873
Food grade potato protein	1906

Potato cultivation and natural gas for heating are the largest contributors to the climate footprint. Transitioning to renewable energy sources significantly reduces emissions.

This summary focuses on the climate footprint of the products, but the LCA study also assesses other environmental impacts included in the EF3.1 LCIA method. Hence, the LCA study provides a comprehensive baseline for understanding and reducing the environmental impacts of KMC's products.