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Life Cycle Analysis

Operation of LSSU unit

Alternative to operation of Direct Product Solution

A solution by LOWENCO

ClimatePoint

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INTRODUCTION TO THE LCA DOCUMENTATION (ISO 14040 FRAMEWORK) MADE BY CLIMAPOINT

This document provides a life-cycle assessment (LCA) of the LOWENCO LSSU unit. The purpose is to document environmental performance across the full lifetime of the system and its operational impact at ultra-low temperatures. All results are calculated and presented in accordance with the ISO 14040 standards for life-cycle assessment.

The study is structured to show the performance of an LSSU unit against average market benchmark values represented by ultra-low temperature upright freezer storage systems.

The information is intended to serve as transparent, traceable documentation supporting sustainability claims, emissions communication and long-term system planning.

This report does not interpret or conclude results; it presents measured values only.

This report does also not mention specific competitors in the test – but you can reach out personally to get a walk-through of the full report scoop.

HOW TO READ THIS REPORT

The results are visualised in a matrix format showing emissions and environmental load over 25 years.

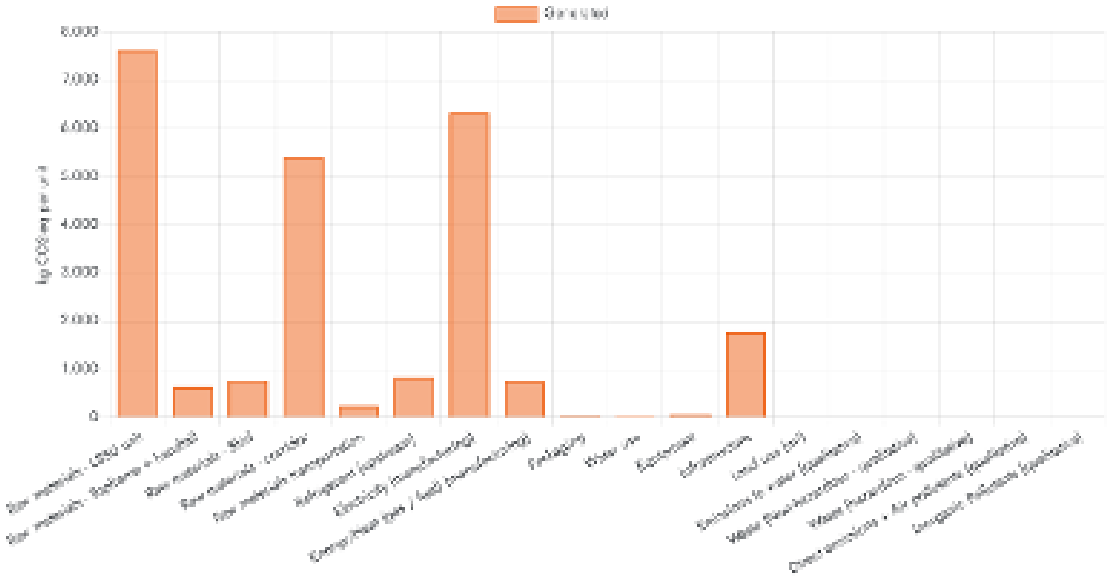
Each graph presents two datasets in one view:

1. **Market benchmark results.**
2. **LSSU results.**

DOUBLE MATERIALITY ASSESMENT

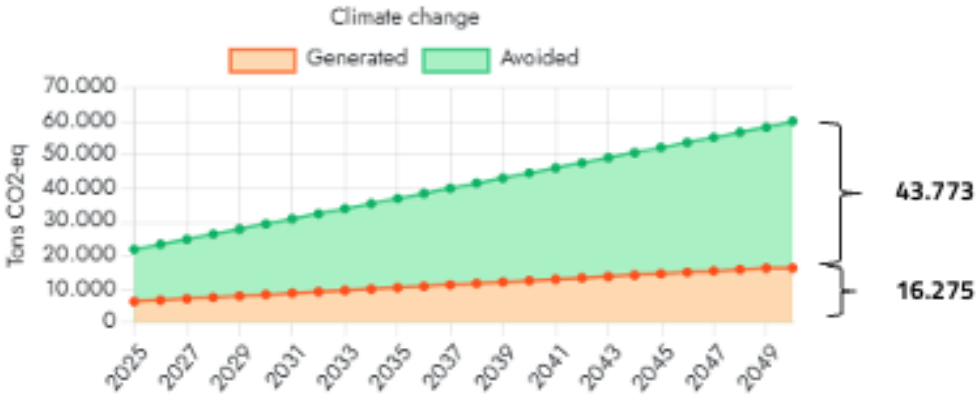
LIFE CYCLE ASSESSMENT

Production of one LSSU System (Climate change)



LOWENCO had a 3. party validated Life Circle Assessment, LCA
The outcome supported that to reduce our scope 3, materials from suppliers/ sub suppliers and transportation are keys to achieve improvements.
The primary source of emissions in the manufacturing process of the
LSSU unit is attributed to raw materials, particularly significant due to the utilization of various materials, with steel being notable contributor.

Cumulative Impact (Tons Co2-e, Yearly)



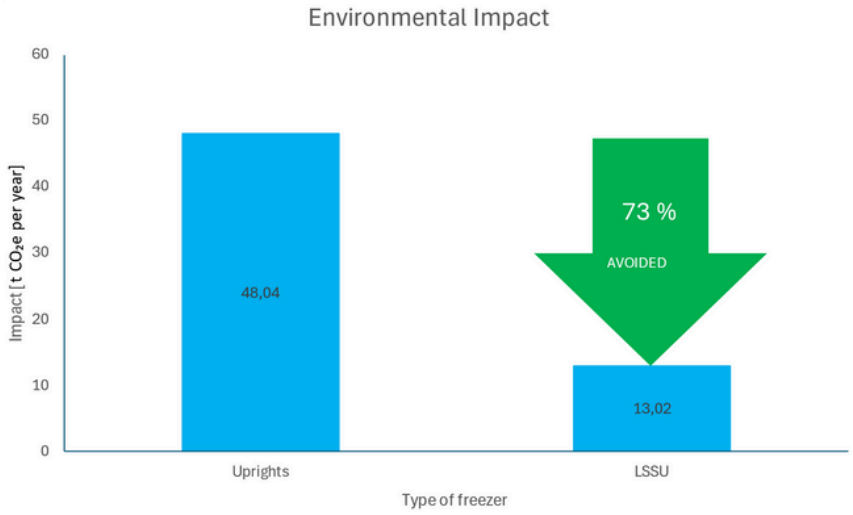
Benchmark

Choosing LOWENCO's LSSU instead of upright freezers means that emissions are avoided. The graph above shows the 25 years lifecycle of the 50 LSSU; all produced in 2025, and operating in the coming 25 years.

The yearly emission from the LSSUs is about 651 t CO2e/year, and the total generated emissions over the 25 years lifetime are 16.275 t CO_2e; while it avoids a total of 43.773 t CO_2e ,when compared with the uprights.

PRODUCTION & OPERATION

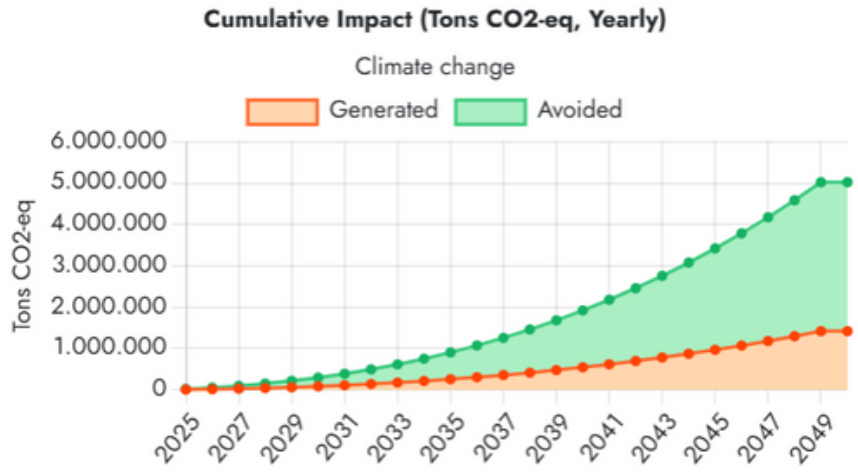
The **cradle-to-grave lifecycle emissions** of each LSSU system are approximately **13,02 t CO_2e per year,** accounting for all stages from production to disposal. When compared with the equivalent impact of uprights freezers over their full lifecycles, the LSSU system avoids about 35,02 t CO_2e per year.



Corresponding to 73% avoided emission.

During the LSSUs entire lifetime of 25 years, 325.5 t CO_2e per year are generated and 875.5 t CO_2e per year are avoided when compared to the benchmark case (40 units of uprights freezer, with average lifetime of 10 years).

LOWENCO expects an annual growof **+20 LSSUs**in the comming year, (starting with 50 units in 2025, 70 units in 2026 ... and in total 530 LSSUs in year 2049). The impact in 2049 is cumulated approxatemily **1.400.000 t CO_2e** from the LSSUs; compared to uprights freezer the environmental impact from LSSUs **avoids the climate from a total of 3.604.000 t CO_2e, please see graph:**



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