



ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Sign board.
Melbye AS



EPD HUB, HUB-7190

Published on 14.08.2026, last updated on 14.08.2026, valid until 13.08.2031

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1.



Created with One Click LCA

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GENERAL INFORMATION

MANUFACTURER

Manufacturer	Melbye AS
Address	Prost Stabels Vei 22, 2019 Skedsmokorset, Norway
Contact details	kontakt@melbye.no
Website	https://melbye.no

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804:2012+A2:2019/AC:2021 and ISO 14025
PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025
Sector	Manufactured product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with options, A5, and modules C1-C4, D
EPD author	Aditya Dharmendra Nishad
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☒ External verification
EPD verifier	Yazan Badour as an authorized verifier for EPD Hub

This EPD is intended for business-to-business and/or business-to-consumer communication. The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

PRODUCT

Product name	Sign board
Additional labels	-
Product reference	-
Place(s) of raw material origin	Norway
Place of production	Solgaard Skog, Moss, Norway
Place(s) of installation and use	global
Period for data	01/01/2023-31/12/2023
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3 (%)	-14% - (-13%)
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	6.45

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg
Declared unit mass	1 kg
Mass of packaging	0.23 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	10.2
GWP-total, A1-A3 (kgCO ₂ e)	10.3
Secondary material, inputs (%)	41
Total energy use, A1-A3 (kWh)	38
Net freshwater use, A1-A3 (m ³)	0.06

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Melbye As is one of Norway's oldest family-owned companies, with a history dating all the way back to 1907. We have a proud tradition of technical innovation and trade, and today, we are a leading provider of forward-thinking products and system solutions for critical infrastructure. We have expertise in transmission and utilities, fiber, ducts and chambers and safety. We serve customers throughout the Nordic region and the United Kingdom, engage with stakeholders across Europe, and collaborate with around 200 partners and suppliers.

While our headquarters are located just outside Oslo, Norway, we also have offices at multiple locations in Norway, Sweden, and the United Kingdom, as well as representatives in Finland, India and China. Together, we are more than 120 co-workers who share the company's core values: Innovation, teamwork, and professionalism.

With advanced expertise spread across our core areas and a dedication to long-term operation and future-oriented development, we stand at the forefront of addressing future challenges. We take pride in contributing to the development of critical infrastructure that will shape tomorrow's society.

Note: Melbye As is a distributor and not the original manufacturer of the product

PRODUCT DESCRIPTION

This average Environmental Product Declaration (EPD) covers a family of Sign boards intended for safety, warning, identification, and informational applications in electrical transmission and distribution networks. The product range includes multiple sign variants with dimensions ranging from 45 × 45 mm to 600 × 240 mm and aluminium sheet thicknesses from 0.5 mm to 2.0 mm.

The covered products are manufactured using the same principal materials, comprising an aluminium substrate, a PVC-based surface layer, and an

adhesive bonding layer. While individual products vary in size, thickness, and weight, they are produced using the same material types, similar material composition, and a common manufacturing process.

The manufacturing process includes aluminium sheet preparation, cutting, printing or application of the PVC layer, lamination or bonding, and finishing. The declared unit is 1 kg of aluminium sign board, representing the average environmental performance of the covered product family.

Further information can be found at:
<https://melbye.no>

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	85%	Norway
Minerals	-	-
Fossil materials	15%	Norway
Bio-based materials	-	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0.024545
Biogenic carbon content in packaging, kg C	-

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg
Mass per declared unit	1 kg
Functional unit	-
Reference service life	-

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries	
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	
x	x	x	ND	x	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x	x
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal	Reuse	Recycling

Not declared = ND.

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

A market-based approach is used in modelling the electricity mix utilized in the factory.

The manufacturing stage includes processing and cutting of rolled Aluminum 3003 sheet, application of PVC-based reflective or graphic film, adhesive lamination, drilling, assembly, and quality inspection of aluminum sign boards. The product consists primarily of aluminum sheet, polymer film, and acrylic-based adhesive materials. Electricity consumption represents conventional grid electricity used during cutting, lamination, printing, and assembly operations.

Representative transport distances are applied for raw materials, packaging, and ancillary inputs. Production losses are estimated at 1% for aluminum. Manufacturing is done at a single facility operating on grid electricity. Products are packaged using corrugated cardboard and polyethylene protective film, with optional wooden palletization for transport. Aluminum scrap generated during production is assumed to be recycled.

INSTALLATION (A5)

No significant material loss occurs during installation of the aluminum sign board, as installation primarily involves mechanical fastening using screws, brackets, rivets, or mounting hardware. Installation is carried out using standard manual or low-power mechanical tools, resulting in minimal waste generation. Reference installation energy consumption of approximately 0.01 kWh/kg is assumed, representing typical drilling and fastening operations under standard site conditions.

A5 – Packaging Waste Management:

Packaging waste mainly consists of corrugated cardboard, polyethylene protective film, and optional wooden pallet materials. Based on typical regional waste treatment practices, cardboard packaging is assumed to be primarily recycled, while plastic film is treated through recycling, incineration, and landfill processes. Wooden pallet materials are assumed to

be recycled, incinerated for energy recovery, or disposed to landfill depending on local waste management practices.

PRODUCT END OF LIFE (C1-C4, D)

C1 – Deconstruction and Removal

Aluminum sign boards are manually removed at the end of their service life during renovation, replacement, or dismantling activities. Removal typically involves mechanical unfastening using standard manual or low-power tools. A reference energy consumption of 0.01 kWh/kg is assumed for removal operations under typical site conditions.

C2 – Transport to Waste Processing

After removal, aluminum sign boards are transported to recycling facilities or landfill/incineration sites. Average transport distances of 250 km to recycling facilities and 50 km to landfill or energy recovery facilities are assumed. Transportation is carried out using EURO 6 standard lorries representative of regional waste transport practices.

C3 – Waste Processing

The product consists primarily of Aluminum 3003 aluminum sheet, PVC-based reflective or graphic film, and acrylic adhesive materials.

Aluminum components are directed to recycling processes involving sorting, shredding, and remelting.

Polymer film and adhesive materials are assumed to undergo recycling, incineration with energy recovery, or landfill depending on contamination and local waste treatment infrastructure.

Recycling processes are assumed to occur within established regional recycling systems.

C4 – Disposal

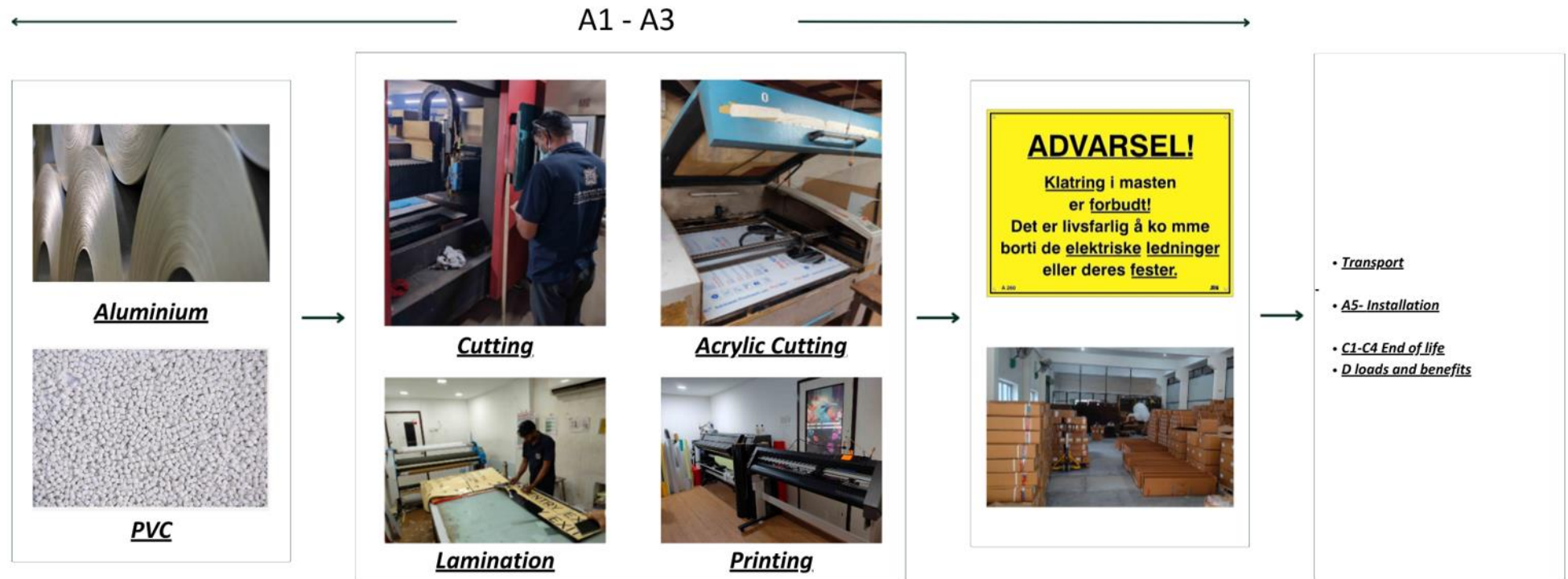
Non-recyclable fractions, including contaminated polymer film, adhesive residues, and mixed waste materials, are assumed to be disposed of through landfill or incineration according to regional waste management practices.

D – Benefits and Loads Beyond the System Boundary

Recycling of aluminum components generates avoided environmental

burdens through substitution of primary aluminum production. Packaging materials including corrugated cardboard and wooden pallets are assumed to be treated at end of life, with cardboard directed to recycling and untreated wood used for energy recovery where applicable.

LIFE CYCLE FLOW DIAGRAM



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	Physical Properties
Packaging material	Physical Properties
Ancillary materials	Physical Properties
Manufacturing energy and waste	Physical Properties

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Multiple products
Grouping method	Based on average results of product group - by total mass
Variation in GWP-fossil for A1-A3, %	-14% - (-13%)

AVERAGING METHOD

The average EPD covers a family of aluminum sign boards with the same principal materials, similar material composition, and common manufacturing process. The product family includes sign boards with different dimensions, aluminum sheet thickness, and weights. Since the declared unit is 1 kg of product, differences in individual product dimensions and weight were normalized. The comparison between the included product variants showed variation in GWP-fossil results for modules A1–A3 ranging from -14% to -13% compared to the representative product.

Product range covered: Aluminum sign boards with dimensions ranging from 45 × 45 mm to 600 × 240 mm and aluminum sheet thicknesses from 0.5 mm to 2.0 mm.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.5. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11/3.12 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11/3.12 environmental data sources follow the methodology 'allocation, Cut-off, EN 15804+A2'.

ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total ¹⁾	kg CO ₂ e	9.52E+00	9.31E-02	6.94E-01	1.03E+01	ND	1.02E-01	ND	ND	ND	ND	ND	ND	ND	3.61E-03	3.39E-02	2.50E-01	1.13E-02	-2.17E-02
GWP – fossil	kg CO ₂ e	9.31E+00	9.30E-02	7.76E-01	1.02E+01	ND	1.14E-02	ND	ND	ND	ND	ND	ND	ND	3.60E-03	3.39E-02	2.50E-01	1.13E-02	-2.16E-02
GWP – biogenic	kg CO ₂ e	1.28E-01	1.99E-05	-9.03E-02	3.80E-02	ND	9.06E-02	ND	ND	ND	ND	ND	ND	ND	3.68E-07	7.43E-06	-5.23E-05	-2.12E-05	-7.03E-05
GWP – LULUC	kg CO ₂ e	7.96E-02	4.14E-05	8.36E-03	8.80E-02	ND	5.79E-06	ND	ND	ND	ND	ND	ND	ND	3.69E-07	1.50E-05	2.29E-05	9.34E-06	-3.35E-05
Ozone depletion pot.	kg CFC-11e	1.48E-07	1.35E-09	3.90E-08	1.89E-07	ND	8.49E-11	ND	ND	ND	ND	ND	ND	ND	5.52E-11	4.76E-10	2.21E-10	1.30E-10	-6.14E-10
Acidification potential	mol H ⁺ e	9.13E-02	3.23E-04	3.85E-03	9.55E-02	ND	3.82E-05	ND	ND	ND	ND	ND	ND	ND	3.25E-05	1.13E-04	2.11E-04	4.07E-05	-1.07E-04
EP-freshwater ²⁾	kg Pe	1.40E-03	1.01E-05	2.01E-04	1.61E-03	ND	1.95E-06	ND	ND	ND	ND	ND	ND	ND	1.04E-07	2.64E-06	9.66E-06	1.06E-06	-9.66E-06
EP-marine	kg Ne	1.08E-02	1.07E-04	9.32E-04	1.18E-02	ND	4.03E-05	ND	ND	ND	ND	ND	ND	ND	1.51E-05	3.67E-05	5.85E-05	2.67E-05	-1.73E-05
EP-terrestrial	mol Ne	1.14E-01	1.16E-03	7.79E-03	1.23E-01	ND	1.26E-04	ND	ND	ND	ND	ND	ND	ND	1.65E-04	4.00E-04	6.12E-04	1.55E-04	-1.74E-04
POCP (“smog”) ³⁾	kg NMVOCe	4.01E-02	4.74E-04	2.13E-03	4.27E-02	ND	4.82E-05	ND	ND	ND	ND	ND	ND	ND	4.93E-05	1.58E-04	1.73E-04	5.01E-05	-8.73E-05
ADP-minerals & metals ⁴⁾	kg Sbe	4.62E+00	2.66E-07	8.96E-07	4.62E+00	ND	5.08E-08	ND	ND	ND	ND	ND	ND	ND	1.29E-09	1.10E-07	9.81E-07	1.83E-08	-5.78E-08
ADP-fossil resources	MJ	8.87E+01	1.33E+00	1.06E+01	1.01E+02	ND	8.13E-02	ND	ND	ND	ND	ND	ND	ND	4.72E-02	4.77E-01	2.31E-01	1.20E-01	-5.07E-01
Water use ⁵⁾	m ³ e depr.	7.46E+00	7.75E-03	5.64E+00	1.31E+01	ND	2.27E-03	ND	ND	ND	ND	ND	ND	ND	1.18E-04	2.22E-03	9.11E-03	2.70E-03	-6.60E-03

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO₄e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	6.94E-07	9.11E-09	1.68E-08	7.20E-07	ND	1.48E-09	ND	ND	ND	ND	ND	ND	ND	9.25E-10	2.74E-09	2.69E-09	7.61E-10	-7.41E-10
Ionizing radiation ⁶⁾	kBq 11235e	5.52E-01	1.11E-03	2.74E-01	8.27E-01	ND	2.31E-04	ND	ND	ND	ND	ND	ND	ND	2.09E-05	3.88E-04	8.66E-04	2.47E-04	-4.96E-03
Ecotoxicity (freshwater)	CTUe	2.47E+02	2.75E-01	3.97E+00	2.51E+02	ND	2.51E+00	ND	ND	ND	ND	ND	ND	ND	2.60E-03	7.49E-02	1.74E-01	4.49E+01	-9.99E-02
Human toxicity, cancer	CTUh	2.95E-09	1.46E-11	1.16E-10	3.08E-09	ND	1.04E-11	ND	ND	ND	ND	ND	ND	ND	3.71E-13	5.75E-12	2.24E-11	5.05E-12	-3.35E-12
Human tox. non-cancer	CTUh	4.13E-08	8.25E-10	3.76E-09	4.59E-08	ND	4.83E-10	ND	ND	ND	ND	ND	ND	ND	5.87E-12	2.99E-10	1.20E-09	1.08E-09	-1.44E-10
SQP ⁷⁾	-	1.12E+01	1.32E+00	9.09E+00	2.16E+01	ND	6.62E-02	ND	ND	ND	ND	ND	ND	ND	3.30E-03	2.99E-01	4.02E-01	1.92E-01	-1.42E-01

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy ⁸⁾	MJ	3.68E+01	1.85E-02	-8.00E-01	3.60E+01	ND	-3.47E+00	ND	ND	ND	ND	ND	ND	ND	2.99E-04	6.54E-03	3.26E-02	3.58E-03	-1.47E-03
Renew. PER as material	MJ	0.00E+00	0.00E+00	2.76E+00	2.76E+00	ND	-2.76E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.37E-02
Total use of renew. PER	MJ	3.68E+01	1.85E-02	1.96E+00	3.88E+01	ND	-6.24E+00	ND	ND	ND	ND	ND	ND	ND	2.99E-04	6.54E-03	3.26E-02	3.58E-03	4.22E-02
Non-re. PER as energy	MJ	8.78E+01	1.33E+00	1.19E+01	1.01E+02	ND	-3.14E-01	ND	ND	ND	ND	ND	ND	ND	4.72E-02	4.77E-01	-4.18E+00	-1.47E+00	-5.07E-01
Non-re. PER as material	MJ	3.01E+00	0.00E+00	4.38E-01	3.45E+00	ND	-4.38E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	-3.01E+00	1.75E-01
Total use of non-re. PER	MJ	9.08E+01	1.33E+00	1.23E+01	1.04E+02	ND	-7.52E-01	ND	ND	ND	ND	ND	ND	ND	4.72E-02	4.77E-01	-4.18E+00	-4.48E+00	-3.32E-01
Secondary materials	kg	4.10E-01	5.56E-04	1.97E-01	6.08E-01	ND	1.20E-04	ND	ND	ND	ND	ND	ND	ND	1.96E-05	2.13E-04	3.75E-04	4.73E-05	4.32E-03
Renew. secondary fuels	MJ	-2.37E-01	7.25E-06	1.86E-02	-2.18E-01	ND	7.51E-07	ND	ND	ND	ND	ND	ND	ND	5.12E-08	2.72E-06	1.12E-05	6.73E-07	2.20E-05
Non-ren. secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	5.35E-02	1.90E-04	9.59E-03	6.32E-02	ND	-9.37E-05	ND	ND	ND	ND	ND	ND	ND	3.12E-06	6.37E-05	1.37E-04	-1.12E-03	-1.99E-04

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	6.85E-01	8.49E-03	3.12E-02	7.24E-01	ND	1.24E-03	ND	ND	ND	ND	ND	ND	ND	5.25E-05	8.30E-04	3.73E-03	8.45E-04	-1.11E-03
Non-hazardous waste	kg	1.31E+01	1.68E-01	5.28E-01	1.37E+01	ND	1.46E-01	ND	ND	ND	ND	ND	ND	ND	7.15E-04	1.55E-02	1.31E-01	1.60E+00	-1.24E-01
Radioactive waste	kg	3.97E-05	2.66E-07	3.12E-05	7.12E-05	ND	5.67E-08	ND	ND	ND	ND	ND	ND	ND	5.12E-09	9.51E-08	2.15E-07	6.04E-08	-1.27E-06

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	8.59E-03	8.59E-03	ND	1.73E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	6.31E-01	0.00E+00	0.00E+00
Materials for energy rec	kg	0.00E+00	0.00E+00	1.37E-21	1.37E-21	ND	0.00E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	1.28E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	1.19E+00	0.00E+00	0.00E+00
Exported energy – Electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	5.34E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	4.99E-01	0.00E+00	0.00E+00
Exported energy – Heat	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	7.44E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	6.87E-01	0.00E+00	0.00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO ₂ e	9.40E+00	9.25E-02	7.83E-01	1.03E+01	ND	3.50E-02	ND	ND	ND	ND	ND	ND	ND	3.59E-03	3.37E-02	2.50E-01	1.11E-02	-2.12E-02
Ozone depletion Pot.	kg CFC ₁₁ e	2.14E-07	1.08E-09	4.20E-08	2.57E-07	ND	6.97E-11	ND	ND	ND	ND	ND	ND	ND	4.37E-11	3.80E-10	1.83E-10	1.04E-10	-5.02E-10
Acidification	kg SO ₂ e	7.88E-02	2.47E-04	3.15E-03	8.22E-02	ND	2.93E-05	ND	ND	ND	ND	ND	ND	ND	2.29E-05	8.67E-05	1.67E-04	3.01E-05	-9.01E-05
Eutrophication	kg PO ₄ ³ e	8.74E-03	6.68E-05	1.08E-03	9.89E-03	ND	2.94E-05	ND	ND	ND	ND	ND	ND	ND	5.34E-06	2.11E-05	2.83E-05	2.03E-05	-2.23E-05
POCP (“smog”)	kg C ₂ H ₄ e	6.78E-03	2.15E-05	1.73E-04	6.98E-03	ND	8.74E-06	ND	ND	ND	ND	ND	ND	ND	1.71E-06	7.76E-06	1.03E-05	3.00E-06	-7.25E-06
ADP-elements	kg Sbe	4.62E+00	2.59E-07	8.97E-07	4.62E+00	ND	4.98E-08	ND	ND	ND	ND	ND	ND	ND	1.26E-09	1.08E-07	9.76E-07	1.78E-08	-5.65E-08

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADP-fossil	MJ	8.62E+01	1.31E+00	1.02E+01	9.77E+01	ND	7.76E-02	ND	ND	ND	ND	ND	ND	ND	4.68E-02	4.71E-01	2.17E-01	1.16E-01	-4.20E-01

ADDITIONAL INDICATOR – GWP-GHG

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG ⁹⁾	kg CO ₂ e	9.39E+00	9.31E-02	7.84E-01	1.03E+01	ND	1.15E-02	ND	ND	ND	ND	ND	ND	ND	3.61E-03	3.39E-02	2.50E-01	1.13E-02	-2.16E-02

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows – CH₄ fossil, CH₄ biogenic and Dinitrogen monoxide – were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO₂ is set to zero

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy scenario documentation

1. Electricity, Norway, residual mix, 2024, Norway, One Click LCA, 0.70 kgCO₂e/kWh

Installation at the building site (A5) - Scenario documentation

Scenario parameter	Value
Energy: type and consumption (MJ or kWh)	
Water use (m ³)	
Ancillary materials: type and mass (kg)	
Waste materials: type and mass (kg)	Installation-related waste is limited to packaging materials only. No product material waste is generated during installation. The packaging waste per unit consists of approximately 0.01 of polyethylene films, 0.2 kg of cardboard (box) and 0.2 kg of wood (pallet). These values represent typical packaging quantities under standard delivery conditions.
Waste materials: output routes	
Direct emissions (kg)	

End of life (C1-C4) - Scenario documentation

Scenario information	Value
Collection process: collected separately (kg)	
Collection process: Mixed waste (kg)	
Recovery: re-use (kg)	0
Recovery: recycling (kg)	0.63
Recovery: energy recovery (kg)	0
Disposal (kg)	0
Scenario assumptions e.g. transportation (mode, km) & other	After removal, insulation piercing connectors are transported to either recycling facilities or landfill sites. The average assumed distances are 250 km to recycling facilities and 50 km to landfill.

THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15804+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

Verified tools

Tool verifier: Magaly Gonzalez Vazquez

Tool verification validity: 27 March 2025 - 26 March 2028

Yazan Badour as an authorized verifier for EPD Hub Limited 14.08.2026

