Environmental Product Declaration

In accordance with 14025 and EN15804 +A2

Mill-Finish & Coil Coated Rolled Aluminium Products: primary alloys

Speira AS, Holmestrand

Photo: Speira AS

Owner of the declaration:
Speira AS Holmestrand Rolling Mill,
Weidemanns gate 8, 3080-Holmestrand,
Norway

Product name:
Speira Holmenstrand Rolled Aluminium Products: primary alloys

Declared unit:
1 kg Speira Holmenstrand Rolled Aluminium Products: primary alloys, produced at Speira AS Holmestrand Rolling Mill

Product category /PCR:
NPCR PART A: Construction products and services, v2.0 + NPCR 013:2021 Part B for steel and aluminium construction products v4.0

Program holder and publisher:
The Norwegian EPD foundation

Declaration number:
NEPD-12950-12578

Registration Number:
NEPD-12950-12578

Issue date: 03.11.2025
Valid to: 03.11.2030

General information

Product:
Speira AS, Holmestrand Rolled Aluminium
Products: primary alloys

Program Operator:
The Norwegian EPD Foundation
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Declaration Number:
NEPD-12950-12578

This declaration is based on Product Category Rules:
CEN Standard EN 15804 serves as core PCR
NPCR PART A: Construction products and services, v2.0 + NPCR 013:2021 Part B for steel and aluminium construction products v4.0

Statements:
The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturer, life cycle assessment data and evidence.

Declared unit:
1 kg Speira Holmestrand Rolled Aluminium
Products: primary alloys

Declared unit with option:
Includes modules: A1-A4, C1-C4, and D

Verification:
Independent verification of the declaration and data, according to ISO14025:2010
internal ☐ external ☒

Gaylord K. Booto

Independent verifier approved by EPD Norway

Owner of the declaration:
Speira AS Holmestrand Rolling Mill
Contact person 1: Eva Maria Bunkholt
Phone: -
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Manufacturer:
Speira AS Holmestrand Rolling Mill, Weidemanns gate 8, 3080-Holmestrand, Norway

Place of production:
Holmestrand, Norway

Management system:
ISO 14001, ISO 9001, ISO 45001

Organisation no:
975 934 578

Issue date:
03.11.2025

Valid to:
03.11.2030

Year of study:
2025

Comparability:
EPDs from other programmes than EPD Norway may not be comparable.

This average EPD has been worked out by:
John Baxter, Lina Plataniti, NORSUS AS

Approved

Manager of EPD Norway

Product/Process

This EPD covers aluminium rolled products produced at Speira AS, Holmestrand Rolling Mill.

Speira is a European rolling and recycling company with customers around the globe. Speira's operations are built on more than a century of aluminum rolling and recycling experience and technical expertise for aluminum products and solutions.

With over 100 years in aluminum production and more than 30 years specializing in recycling of aluminum, the rolling mill in Holmestrand is the most sustainable rolling mill in Europe, the biggest recycler in Norway and innovation hub for recycling in Speira.

Our long and unique competences in recycling of aluminum allows us to use a large variety of scrap and turn it into new, high quality aluminum products. Three decades of close collaboration with scrap suppliers have created a strong network of partners for sourcing different types of scrap.

Examples of market segments where our products can be used: Building and Construction, Electrical Equipment, Automotive and Transportation, Components for Electrical Vehicle Battery Systems, Consumer Goods, Domestic Appliances, Industrial Equipment. The average lifetime of the aluminium depends on the final product usage. Application in buildings like Facades, Roofing, Ceiling etc have an average lifetime of ~40 - 60 years, whereas canning product have a lifetime of a couple of months.

Primary alloys

We offer a wide range of wrought alloys for flat rolled products. These include 1000, 3000, 5000 and 8000-series alloys. We aim to use primary metal with a low carbon footprint to produce these alloys. At the same time, we are always looking for the best scrap that can be also used in these alloys. Every small addition counts.

Ultimately, our primary goal is the reduction of carbon emissions. The methods we adopt, grounded in established standards, to quantify and convey the advantages of aluminium recycling are essential tools in our collective mission to lower carbon footprints. For a deeper understanding you can read our whitepaper by following the link: https://www2.speira.com/whitepaper-recycling

Product specification:

Typical content of the Aluminium Products can be found in the table below. The input for LCA calculations is a conservative average estimation based on experience and production data over the last years.

Materials	kg	%
Primary metal from external sources	0.919	91.9%
Scrap from external sources	0.010	1.0%
Scrap from internal sources	0.060	6.0%
Alloying elements	0.011	1.1%

These alloy groups offer, depending on their application, good formability, strength for facades, roofing, guttering or other applications.

Technical data:

All products are produced according to European standards specific to aluminium strips and sheets or according to customer requirements. Applicable standards areEN 573-3, EN 485-4, EN 1396, EN 683-2, EN 546-2; EN 54l.

Typical material properties:

Material properties vary according to the specific chemical composition and thermo-mechanical processing. Alloy and temper should be specified according to the relevant applicable standards, as mentioned above. Specific customer requirements are to be agreed upon separately.

Market:

Global

Reference service life, product:

Depends on product application, but the material itself has an infinite lifetime.

LCA: Calculation rules

Declared unit:

1 kg of mill finish and coil coated rolled aluminium products (primary alloys) from Speira AS, Holmestrand

The EPD also covers modules C1-C4 and D. The product is produced at Speira AS, Holmestrand Rolling Mill. The results are based on production in the period 2024.

Data quality:

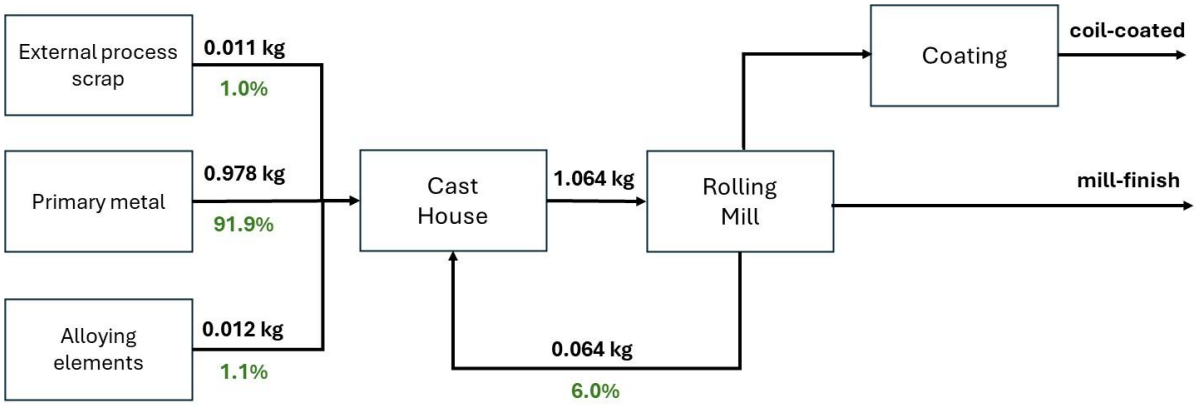
The data quality for the foreground system data is very good with data taken for specific relevant castings in 2024 for all inputs and outputs from the plant. For the main material inputs (primary metal, internal and external scrap) the composition above reflects a conservative average for products in the primary alloys range – the primary metal content is an average bound and the external scrap content a lower bound for products in that range. Data for the background system are mainly from ecoinvent 3.11 (Wernet et al. 2016 and ecoinvent 2024) as implemented in the software SimaPro, version 10.1.0.3 (Pré 2025). ecoinvent 3.11 includes broader spectrum of data and sectoral updates in – among others – metals, energy, waste management and recycling. Some data for background systems have also been collected and implemented in the model as part of the project.

To estimate the composition for the EPDs the material input for 2024 was considered. If the average external scrap content was higher than in the given EPD, the internal scrap content was increased accordingly. From our internal overview and process data collection, we see that the input data have been quite stable over the last 5 years, with small variations.

Allocation:

The allocation is made in accordance with the provisions of EN 15804+A2. Infrastructure of the plant, incoming energy, water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials are allocated to the main product in which the material was used. The recycling process and transportation of the material are allocated to this analysis.

Speira AS applies cut-off allocation for scrap with a history outside Speira. These amounts of aluminium are calculated without any historic emissions from previous use cycles. For a full life cycle picture of the upcoming life cycles a similar approach shall be applied. Credits for scrap generated during construction phase must not be allocated to our aluminium products.



System boundary:

Cradle to gate with options. The following stages have been declared: A1-A4, C1-C4, and D. Further specified in the flow sheets shown above. Sub module A5 and all modules under B are not declared in this EPD owing to a wide range of applications making an average scenario nonsensical.

Module D covers the potential benefits from recycling of 901 grams of rolled aluminium product after end of useful life. Module D covers all necessary processes from C3 until the aluminium is back on the market and can be compared to the environmental performance of an average market rolled aluminium product. The module is further specified in the section LCA: Scenarios and additional technical information.

System boundaries (X=included, MND= module not declared, MNR=module not relevant)

Product stage			Assembly stage		Use stage							End of life stage				Benefits & loads beyond system boundary
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

The type of EPD is cradle-to-gate with options, where the following modules are considered: A1-A4, C2-C4, and D.

Cut-off criteria:

All major raw materials and all the essential energy is included. Detailed production process for raw materials and both renewable and non-renewable energy flows that are included with very small amounts (<1%) are not included.

When applying the cut-off criteria for this EPD, mass and energy flows have been gathered for the entire production system and all processes in the foreground system including A1 to A4. Cut-off has only been applied to module C1 where it is assumed that renewable and non-renewable energy and material use is less than 1% of total use of materials, that none of these are hazardous and does not contribute to significant environmental impacts. The total exclusion of mass and energy flows is well below 5% per module and for the system in total.

LCA: Scenarios and additional technical information

The following information describes the scenarios in the different modules of the EPD.

Transport from production place to assembly/user (A4)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance KM	Fuel/Energy consumption (l/tkm)	value (l/t)
Truck	53	Lorry, >32 metric tons, Euro V	1119	2.43E-02	6,07E-01
Boat	80	Cargo ship, 5000 tons	169	1.29E-02	6.00E-03

The products from Speira AS, Holmestrand Rolling Mill are transported predominantly from Holmestrand in Norway to a European sea port and thereafter by truck to the final consumer.

End of Life (C1, C3, C4)

	Unit	Value
Recycling	Kg	0.901
Energy recovery	Kg	0.062
To landfill	Kg	0.037

The aluminium supplied goes predominantly to four different markets with different average end-of-life collection rates (96% for construction, 95% for automotive, 65% for packaging, and 75% for household products). Overall, this means that 926 grams of product is collected, with 37 grams taken to go to landfill and 37 grams to energy recovery. With a further loss of 2.7% of the stream going to recycling (25 grams, to energy recovery), it means that 901 grams of material is recycled per kilo of product at end-of-life.

Transport to waste processing (C2)

Transport back to waste processing after end-of-useful life is modelled based on real distances to facilities and data from ecoinvent (ecoinvent 2016/2024) as shown below.

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance KM	Fuel/Energy consumption value (l/tkm)	
Truck	53	Lorry, >32 metric tons, Euro V	269	2.43E-02	6,07E-01
Boat	80	Cargo ship, 5000 tons	471	1.29E-02	6.00E-03

Benefits and loads beyond the system boundaries (D)

Aluminium collected and recycled is assumed to replace an average aluminium product in Europe consisting of 40% recycled and 60% primary aluminium. The flow of material being sent to recycling and the actual amount of primary aluminium being substituted is shown below. The amount of substituted primary aluminium depends on the collection and recycling rates, also the primary aluminium content of the material reaching recycling. The initial content of secondary material is included in the calculations for module D.

	Unit	Value
Aluminium rolled product to material recycling	g	901
Aluminium rolled product recycled and substituting primary aluminium	g	503

LCA: Results

All results are calculated with the use of SimaPro v.10.1.0.3 (2025) and impact methods according to ISO 15804+A2:2019. Main results are calculated using the cut-off approach to end-of-life allocation.

Core environmental impact indicators

Indicator	Unit	A1-A3 (coated)	A1-A3 (uncoated)	A4	C1*	C2	C3	C4	D
GWP-total	kg CO2 eq.	9.90E+00	9.76E+00	1.28E-01	0.00E+00	5.85E-02	2.43E-01	6.53E-04	-8.65E+00
GWP-fossil	kg CO2 eq.	9.88E+00	9.74E+00	1.28E-01	0.00E+00	5.84E-02	2.41E-01	6.32E-04	-8.48E+00
GWP-biogenic	kg CO2 eq.	1.22E-02	1.16E-02	1.29E-04	0.00E+00	3.09E-05	2.62E-03	2.11E-05	-2.55E-02
GWP-LULUC	kg CO2 eq.	1.08E-02	1.08E-02	5.38E-05	0.00E+00	2.50E-05	1.08E-04	1.58E-07	-1.52E-01
ODP	kg CFC11 eq.	2.50E-07	2.35E-07	2.73E-09	0.00E+00	9.10E-10	2.21E-09	1.62E-11	-1.03E-07
AP	mol H^+ eq.	4.59E-02	4.53E-02	5.01E-04	0.00E+00	3.52E-04	7.89E-04	3.36E-06	-5.51E-02
EP-freshwater	kg P eq.	9.00E-05	8.85E-05	1.19E-06	0.00E+00	6.41E-07	7.19E-06	6.18E-09	-3.28E-04
EP-marine	kg N eq.	6.39E-03	6.27E-03	1.66E-04	0.00E+00	1.06E-04	9.70E-05	1.46E-06	-7.32E-03
EP-terrestrial	mol N eq.	7.10E-02	7.00E-02	1.83E-03	0.00E+00	1.17E-03	1.17E-03	1.46E-05	-8.10E-02
POCP	kg NMVOC eq.	3.11E-02	3.06E-02	7.28E-04	0.00E+00	3.91E-04	3.80E-04	4.98E-06	-3.12E-02
ADP-M&M	kg Sb eq.	1.23E-05	1.19E-05	3.57E-07	0.00E+00	1.79E-07	5.91E-06	1.69E-09	7.50E-05
ADP-fossil	MJ	1.30E+02	1.27E+02	1.86E+00	0.00E+00	8.12E-01	1.46E+00	1.28E-02	-1.06E+02
WDP	m^3	8.72E-01	6.69E-01	8.96E-03	0.00E+00	3.49E-03	1.56E-02	-1.33E-04	-1.40E+00

GWP-total: *Global Warming Potential;* ***GWP-fossil:*** *Global Warming Potential fossil fuels;* ***GWP-biogenic:*** *Global Warming Potential biogenic;* ***GWP-LULUC:*** *Global Warming Potential land use and land use change;* ***ODP:*** *Depletion potential of the stratospheric ozone layer;* ***AP:*** *Acidification potential, Accumulated Exceedance;* ***EP-freshwater:*** *Eutrophication potential, fraction of nutrients reaching freshwater end compartment; See "additional Norwegian requirements" for indicator given as PO4 eq.* ***EP-marine:*** *Eutrophication potential, fraction of nutrients reaching freshwater end compartment;* ***EP-terrestrial:*** *Eutrophication potential, Accumulated Exceedance;* ***POCP****: Formation potential of tropospheric ozone;* ***ADP-M&M****: Abiotic depletion potential for non-fossil resources (minerals and metals);* ***ADP-fossil:*** *Abiotic depletion potential for fossil resources;* ***WDP:*** *Water deprivation potential, deprivation weighted water consumption*

*C1 is assumed negligible, and the value is therefore set equal to zero. To show the uncertainty for this assumption, no decimals are used.

Additional environmental impact indicators

Indicator	Unit	A1-A3 (coated)	A1-A3 (uncoated)	A4	C1*	C2	C3	C4	D
PM	Disease incidence	5.78E-07	5.69E-07	1.26E-08	0.00E+00	4.40E-09	1.41E-08	7.21E-11	-6.60E-07
IRP	kBq U235 eq.	8.71E-02	4.83E-02	1.13E-03	0.00E+00	3.21E-04	2.28E-03	3.46E-05	-3.48E-01
ETP-fw	CTUe	1.62E+01	1.33E+01	2.31E-01	0.00E+00	1.30E-01	9.94E-01	2.39E+00	-8.39E+00

HTP-c	CTUh	6.12E-09	6.03E-09	2.18E-11	0.00E+00	9.91E-12	7.93E-11	2.28E-13	-1.13E-08
HTP-nc	CTUh	5.77E-08	5.60E-08	1.17E-09	0.00E+00	4.77E-10	5.18E-09	2.81E-11	-1.15E-08
SQP	Dimensionless	1.54E+01	1.51E+01	1.81E+00	0.00E+00	4.45E-01	1.42E+00	2.22E-02	-5.97E+00

PM: *Particulate matter emissions;* ***IRP:*** *Ionising radiation, human health;* ***ETP-fw:*** *Ecotoxicity (freshwater);* ***ETP-c:*** *Human toxicity, cancer effects;* ***HTP-nc:*** *Human toxicity, non-cancer effects;* ***SQP:*** *Land use related impacts / soil quality*

Classification of disclaimers to the declaration of core and additional environmental impact indicators

ILCD classification	Indicator	Disclaimer
ILCD type / level 1	Global warming potential (GWP)	None
	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
ILCD type / level 2	Acidification potential, Accumulated Exceedance (AP)	None
	Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)	None
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	None
	Formation potential of tropospheric ozone (POCP)	None
	Potential Human exposure efficiency relative to U235 (IRP)	1
ILCD type / level 3	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	2
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2
	Potential Soil quality index (SQP)	2

Disclaimer 1 – 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.

Disclaimer 2 – The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

Resource use

Indicator	Unit	A1-A3 (coated)	A1-A3 (uncoated)	A4	C1*	C2	C3	C4	D
RPEE	MJ	3.11E+01	3.10E+01	4.05E-02	0.00E+00	1.29E-02	2.15E-01	1.25E-03	-3.72E+01
RPEM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TPE	MJ	3.11E+01	3.10E+01	4.05E-02	0.00E+00	1.29E-02	2.15E-01	1.25E-03	-3.72E+01
NRPE	MJ	1.30E+02	1.27E+02	1.86E+00	0.00E+00	8.12E-01	1.46E+00	1.28E-02	-1.06E+02
NRPM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TRPE	MJ	1.30E+02	1.27E+02	1.86E+00	0.00E+00	8.12E-01	1.46E+00	1.28E-02	-1.06E+02
SM	kg	1.73E-02	1.73E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
W	m^3	2.48E-01	2.44E-01	2.93E-04	0.00E+00	1.09E-04	7.51E-04	-1.60E-04	-1.95E-01

RPEE *Renewable primary energy resources used as energy carrier;* ***RPEM*** *Renewable primary energy resources used as raw materials;* ***TPE*** *Total use of renewable primary energy resources;* ***NRPE*** *Non-renewable primary energy resources used as energy carrier;* ***NRPM*** *Non-renewable primary energy resources used as materials;* ***TRPE*** *Total use of non-renewable primary energy resources;* ***SM*** *Use of secondary materials;* ***RSF*** *Use of renewable secondary fuels;* ***NRSF*** *Use of non-renewable secondary fuels;* ***W*** *Use of net fresh water*

End of life - Waste

Indicator	Unit	A1-A3 (coated)	A1-A3 (uncoated)	A4	C1*	C2	C3	C4	D
HW	kg	2.16E+00	2.16E+00	2.21E-03	0.00E+00	1.19E-03	1.98E-02	1.55E-04	-2.07E+00
NHW	kg	6.08E+00	6.04E+00	1.91E-01	0.00E+00	5.34E-02	1.75E+00	3.29E-01	-4.26E+00
RW	kg	3.98E-05	2.98E-05	8.05E-07	0.00E+00	2.12E-07	2.29E-06	1.86E-08	-2.61E-04

HW *Hazardous waste disposed;* ***NHW*** *Non-hazardous waste disposed;* ***RW*** *Radioactive waste disposed.*

End of life – output flow

Indicator	Unit	A1-A3 (coated)	A1-A3 (uncoated)	A4	C1*	C2	C3	C4	D
CR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR	kg	4.74E-03	4.74E-03	0.00E+00	0.00E+00	0.00E+00	9.01E-01	0.00E+00	0.00E+00
MER	kg	2.80E-03	2.80E-03	0.00E+00	0.00E+00	0.00E+00	6.20E-02	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ETE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

CR *Components for reuse;* ***MR*** *Materials for recycling;* ***MER*** *Materials for energy recovery;* ***EEE*** *Exported electric energy;* ***ETE*** *Exported thermal energy.*

Information describing the biogenic carbon content at the factory gate

Biogenic carbon content	Unit	Value
Biogenic carbon content in product	kg C	0
Biogenic carbon content in the accompanying packaging	kg C	0

Additional Norwegian requirements

Greenhouse gas emission from the use of electricity in the manufacturing phase

Electricity use in the manufacturing phase (A3) is based on regional physical grid mix without the use of guarantees of origin or similar energy certification instruments. The table below shows the calculation of GWP values for the use of electricity per kg of product in the manufacturing process (A3) in Speira AS, Holmestrand.

Electricity source	Data source	Amount	Unit	GWP total (kg $CO_{2\text{-eq}}$/ kWh)	GPW SUM (kg $CO_{2\text{-eq}}$)
Norwegian high-voltage electricity grid	Speira AS	1.006	kWh/kg	0.0195	0.0196

The residual mix is calculated using the following methodology EN 15804 + A2 (adapted), v3.1 with ecoinvent v3.11 process: {Electricity, high voltage {NO}| market for electricity, high voltage | Cut-off, U}.

Additional environmental impact indicators required in NPCR Part A for construction products.

In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

Indicator	Unit	A1-A3 (coated)	A1-A3 (uncoated)	A4	C1*	C2	C3	C4	D
GWP-IOBC	kg CO2 eq	9.90E+00	9.76E+00	1.28E-01	0.00E+00	5.85E-02	2.41E-01	6.32E-04	-8.66E+00

GWP-IOBC *Global warming potential calculated according to the principle of instantaneous oxidation.*

Hazardous substances

The declaration is based upon reference to threshold values and/or test results and/or material safety data sheets provided to EPD verifiers. Documentation available upon request to EPD owner.

- X The product contains no substances given by the REACH Candidate list or the Norwegian priority list.
- ☐ The product contains substances given by the REACH Candidate list or the Norwegian priority list that are less than 0.1 % by weight.
- ☐ The product contains dangerous substances, more then 0.1% by weight, given by the REACH Candidate List or the Norwegian Priority list, see table.

- ☐ The product contains no substances given by the REACH Candidate list or the Norwegian priority list. The product is classified as hazardous waste (Avfallsforskriften, Annex III), see table.

Indoor environment

Not relevant.

Carbon footprint

An individual carbon footprint has not been worked out for the product but impacts connected to climate change is reported in this EPD.

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