epd-norge
Global program operatør

Environmental product declaration

In accordance with 14025 and EN15804+A2

Junistar Eco IsoSafe

The Norwegian EPD Foundation

Owner of the declaration:
Elektroskandia Norge AS

Product:
Junistar Eco IsoSafe

Declared unit:
1 pcs

This declaration is based on Product Category Rules:
CEN Standard EN 15804:2012+A2:2019 serves as core PCR
IBU PCR - Part B for luminaires, lamps, and components for luminaires

Program operator:
The Norwegian EPD Foundation

Declaration number:

NEPD-4446-3711-EN

Registration number:

NEPD-4446-3711-EN

Issue date: 08.05.2023

Valid to: 08.05.2028

EPD Software:
LCA.no EPD generator ID: 60516

General information

Product

Junistar Eco IsoSafe

Program operator:

Post Box 5250 Majorstuen, 0303 Oslo, Norway
The Norwegian EPD Foundation
Phone: +47 23 08 80 00
web: post@epd-norge.no

Declaration number:

NEPD-4446-3711-EN

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
IBU PCR - Part B for luminaires, lamps, and components for luminaires

Statement of liability:

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

Declared unit:

1 pcs Junistar Eco IsoSafe

Declared unit with option:

A1,A2,A3,A4,A5,C1,C2,C3,C4,D

Functional unit:

1 Junistar Eco IsoSafe LED luminaire manufactured and installed, including waste treatment at end-of-life.

General information on verification of EPD from EPD tools:

Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4. Individualthird party verification of each EPD is not required when the EPD tool is i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPDNorway, and iii)the proccess is reviewed annualy. See Appendix G of EPD-Norway's General Programme Instructions for further information on EPD tools.

Verification of EPD tool:

Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPDNorway's procedures and guidelines for verification and approval of EPD tools. Approval number: NEPDT41.

Third party verifier:

Vito D'Incognito - Take Care International

(no signature required)

Owner of the declaration:

Elektroskandia Norge AS
Contact person: Pål Kristiansen
Phone: +47 97 66 22 12
e-mail: pkr@elektroskandia.no

Manufacturer:

SG Armaturen AS
Skytterheia 25
4790 Lillesand, Norway

Place of production:

SG Armaturen production site Dong Guan (China
No. 96 Wen Quan South Road, Shi Long Information Industrial Park
523325 Dong Guan, China

Management system:

ISO 14001, ISO 9001

Organisation no:

977 454 700

Issue date: 08.05.2023

Valid to: 08.05.2028

Year of study:

2022

Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804 and seen in a building context.

Development and verification of EPD:

The declaration is created using EPD tool lca.tools ver EPD2021.09, developed by LCA.no. The EPD tool is integrated in the company's management system, and has been approved by EPD Norway.

Developer of EPD: Sabrina Loman Hansen - SG Armaturen AS

Reviewer of company-specific input data and EPD: Peter Søe Mikkelsen - SG Armaturen AS

Approved:

Håkon Hauan
Managing Director of EPD-Norway

Product

Product description:

Cost-efficient downlight for indoor use with a 42° beam angle and 30° tilt function. A flexible diameter of Ø68-83mm makes Junistar Eco a great choice for refurbishing older ceilings. Junistar Eco IsoSafe is testet to be 100% airtight against plaster board ceilings. Supplied as an 8-pack incl drivers. Our IsoSafe product can be mounted directly in insulation. IP44 protection rating.

Wattage: 6W. Luminous flux: 580lm. Efficacy: 83 lm/W. Colour temperature: 2700K. Colour rendering: Ra 98. Control/Dimming type: Trailing edge dimming. Contains light source of energy class: F. Housing: Aluminium. Colour: Black (RAL 9004). Optics: Tempered glass. Height: 40 mm. Diameter: 90 mm. EAN: 7021989052166.

The EPD also covers the following products:

EAN: 7021989052159 - Junistar Eco IsoSafe White DimToWarm 510lm 2000-2800K Ra>95 Trailing edge dimming
EAN: 7021989052173 - Junistar Eco IsoSafe Black DimToWarm 470lm 2000-2800K Ra>95 Trailing edge dimming
EAN: 7021989052135 - Junistar Eco IsoSafe White 520lm 2700K Ra 98 Trailing edge dimming
EAN: 7021989052142 - Junistar Eco IsoSafe White 550lm 3000K Ra 98 Trailing edge dimming
EAN: 7021989052241 - Junistar Eco IsoSafe Black 520lm 3000K Ra 98 Trailing edge dimming

Product specification

Materials	kg	%
Electronic - Connector	0,01	2,62
Electronic - LED chip	0,00	0,41
Electronic - LED driver	0,07	21,63
Electronic - Wire	0,01	2,03
Glass	0,01	2,18
Metal - Aluminium	0,05	14,65
Metal - Steel low alloy	0,09	26,81
Plastic - Acrylonitrile butadiene styrene (ABS)	0,01	1,90
Plastic - Polyamide	0,03	9,26
Plastic - Polybutylene terephthalate (PBT)	0,00	0,34
Plastic - Polycarbonate (PC)	0,00	1,03
Plastic - Polyvinyl chloride (PVC)	0,00	0,90
Powder coating	0,05	15,27
Silicon products	0,00	0,97
Total	0,32	

Packaging	kg	%
Packaging - Cardboard	0,06	100,00
Total incl. packaging	0,38	

Technical data:

Link to the CE Declaration on our website:
https://www.sg-as.com/storage/data/700861_Junistar%20ECO/50/700861_Junistar%20Eco%20Isosafe.pdf

Link to product data on our website:
https://www.sg-as.com/products/junistar-eco-isosafe/905216

Market:

Norway.

Reference service life, product

15 years. Estimated based on the characteristics of the product and the intended application.

Reference service life, building or construction works

60 years. Standard service life for buildings according to the PCR Part A of EPD Norway.

LCA: Calculation rules

Declared unit:

1 pcs Junistar Eco IsoSafe

Cut-off criteria:

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows with very small amounts (less than 1%) can be excluded. These cut-off criteria do not apply for hazardous materials and substances.

Allocation:

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

Data quality:

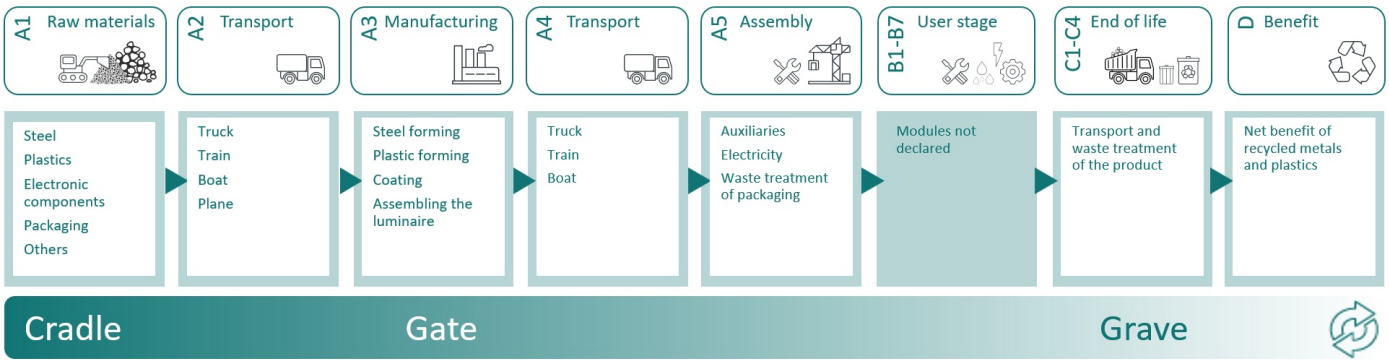
Specific data for the product composition are provided by the manufacturer. The data represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on EPDs according to EN 15804 and different LCA databases. The data quality of the raw materials in A1 is presented in the table below.

Materials	Source	Data quality	Year
Glass	ecoinvent 3.6	Database	2019
Metal - Steel low alloy	ecoinvent 3.6	Database	2019
Packaging - Cardboard	ecoinvent 3.6	Database	2019
Plastic - Acrylonitrile butadiene styrene (ABS)	ecoinvent 3.6	Database	2019
Plastic - Polyamide	ecoinvent 3.6	Database	2019
Plastic - Polybutylene terephthalate (PBT)	ecoinvent 3.6	Database	2019
Plastic - Polycarbonate (PC)	ecoinvent 3.6	Database	2019
Powder coating	Ecoinvent 3.6	Database	2019
Silicon products	ecoinvent 3.6	Database	2019
Electronic - Connector	Material composition + ecoinvent 3.6	Supplier data + database	2019
Electronic - LED driver	Material composition + ecoinvent 3.6	Supplier data + database	2019
Electronic - Wire	Material composition + ecoinvent 3.6	Supplier data + database	2019
Metal - Aluminium	Modified ecoinvent 3.6	Database	2019
Plastic - Polyvinyl chloride (PVC)	Product composition + ecoinvent 3.6	Supplier data + database	2019
Electronic - LED chip	Scholand et al. (2012) + Ecoinvent 3.6	Scientific literature + database	2017

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

Product stage			Construction installation stage		Use stage							End of life stage				Beyond the system boundaries
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	X	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

System boundary:



Additional technical information:

Link to the user manual on our website, for proper use of the product:
https://www.sg-as.com/storage/data/700861_Junistar%20ECO/20/700861_Junistar%20Eco%20IsoSafe_User%20manual.pdf

LCA: Scenarios and additional technical information

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

Module A4 = Transportation by truck (40 km) from the production site in Dong Guan, China to the harbor. After this the goods are transported by ship (19000 km) from Dong Guan, China to Hamburg, Germany. Then with a truck (520 km) from Hamburg, Germany to the harbor in Hirtshals, Denmark, where the truck is transported by sea (140 km) to Kristiansand, Norway. The truck then drives from Kristiansand, Norway to the warehouse in Lillesand, Norway (20 km). From Lillesand, Norway the goods are transported by truck to Elektroskandia, Langhus, Norway (300km) + 300 km for Norwegian market.

Module A5 = Installation is performed in Norway and done by manual labor. Packaging of the final product consist of a corrugated board box.

Module C1 = The de-installation of the luminaire is done by manual labor. The use of portable electrical devices (e.g., drill) usually have low energy requirements falling under the cut-off-criterion of 1% and is therefor neglected.

Module C2 = Transportation from building site to the waste treatment facility with an average distance of 300km.

Modules C3 and C4 = Waste treatment of the product follows the default values provided in EN 50693, Product Category Rules for life cycle assessments of electronic and electrical products and systems, table G.4. This table specified how different types of raw materials used in A1 will likely be treated during the end-of-life of the product. Waste treatments in C3 include material recycling and incineration with and without energy recovery and fly ash extraction. Disposal in C4 consist of landfilling of different waste fractions and of ashes.

Module D = The recyclability of metals, plastics, and electronic components allows the producers a credit for the net scrap that is produced at the end of a product's life. The benefits from recycling of net scrap are described in formula from EN 15804:2012+A2:2019. Substitution of heat and electricity generated by the incineration with energy recovery of plastic insulation and other parts is also calculated in module D.

Transport from production place to user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Ship, Ferry, Sea (km)	50,0 %	140	0,034	l/tkm	4,76
Ship, Freight, Transoceanic (km)	65,0 %	19000	0,003	l/tkm	57,00
Truck, 16-32 tonnes, EURO 6 (km)	36,7 %	40	0,043	l/tkm	1,72
Truck, 16-32 tonnes, EURO 6 (km)	36,7 %	520	0,043	l/tkm	22,36
Truck, 16-32 tonnes, EURO 6 (km)	36,7 %	20	0,043	l/tkm	0,86
Truck, 16-32 tonnes, EURO 6 (km)	36,7 %	600	0,043	l/tkm	25,80

Assembly (A5)	Unit	Value			
Waste, cardboard and paper, to average treatment - A5 including transport (kg)	kg	0,06			

Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 6 (km)	36,7 %	300	0,043	l/tkm	12,90

Waste processing (C3)	Unit	Value			
Acrylonitrile butadiene styrene (ABS) to recycling	kg	0,00			
Aluminium to recycling (kg)	kg	0,03			
Copper to recycling (kg)	kg	0,00			
Glass to recycling (kg)	kg	0,00			
Steel to recycling (kg)	kg	0,08			
Waste treatment of hazardous waste, incineration with fly ash extraction (kg)	kg	0,05			
Waste treatment of non-hazardous waste, incineration with energy recovery and fly ash extraction (kg)	kg	0,00			
Waste treatment of plastic mixture, incineration with energy recovery and fly ash extraction (kg)	kg	0,03			
Waste treatment per kg electronics scrap from PWB, with components, recycling of metals C3 (kg)	kg	0,02			
Waste treatment per kg used electronic components, manual seperation (kg)	kg	0,08			
Waste treatment per kg used PWB, shredding and separation - C3 (kg)	kg	0,04			

Disposal (C4)	Unit	Value			
Landfilling of aluminium (kg)	kg	0,01			
Landfilling of ashes from incineration of Hazardous waste, process per kg ashes and residues - C4 (kg)	kg	0,01			
Landfilling of ashes from incineration of Non-hazardous waste, process per kg ashes and residues (kg)	kg	0,00			
Landfilling of ashes from incineration of Plastic mixture, process per kg ashes and residues (kg)	kg	0,00			
Landfilling of copper (kg)	kg	0,00			
Landfilling of glass (kg)	kg	0,00			
Landfilling of hazardous waste (kg)	kg	0,02			
Landfilling of non-hazardous waste (kg)	kg	0,00			
Landfilling of plastic mixture (kg)	kg	0,03			
Landfilling of steel (kg)	kg	0,02			

Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of acrylonitrile butadiene styrene, ABS, granulate (kg)	kg	0,00			
Substitution of electricity, in Norway (MJ)	MJ	0,05			
Substitution of primary aluminium with net scrap (kg)	kg	0,00			
Substitution of primary copper with net scrap (kg)	kg	0,00			
Substitution of primary metals with net scrap from PWB, with components (kg)	kg	0,01			
Substitution of primary steel with net scrap (kg)	kg	0,07			
Substitution of thermal energy, district heating, in Norway (MJ)	MJ	0,79			

LCA: Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

Environmental impact												
	Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
	GWP-total	kg CO_2 -eq	6,19E+00	2,74E-03	1,43E-01	1,46E-01	9,43E-02	0,00E+00	1,84E-02	2,12E-01	1,41E-02	-4,06E-01
	GWP-fossil	kg CO_2 -eq	6,24E+00	2,74E-03	1,43E-01	1,45E-01	8,90E-04	0,00E+00	1,84E-02	2,09E-01	1,29E-02	-4,04E-01
	GWP-biogenic	kg CO_2 -eq	-5,93E-02	1,13E-06	3,61E-05	5,00E-05	9,34E-02	0,00E+00	7,62E-06	2,76E-03	1,18E-03	-9,71E-04
	GWP-luluc	kg CO_2 -eq	1,39E-02	9,75E-07	2,29E-05	7,59E-05	2,94E-07	0,00E+00	6,55E-06	7,22E-05	3,97E-05	-4,63E-04
	ODP	kg CFC11 -eq	5,38E-06	6,19E-10	2,11E-09	3,18E-08	1,88E-10	0,00E+00	4,17E-09	1,39E-08	6,85E-10	-3,32E-04
	AP	mol H+ -eq	4,42E-02	7,87E-06	7,58E-04	2,58E-03	4,21E-06	0,00E+00	5,29E-05	2,64E-04	3,58E-05	-2,23E-02
	EP-FreshWater	kg P -eq	6,51E-04	2,19E-08	3,22E-06	8,79E-07	7,31E-09	0,00E+00	1,47E-07	3,34E-06	2,57E-07	-1,27E-04
	EP-Marine	kg N -eq	7,18E-03	1,56E-06	1,56E-04	6,25E-04	1,39E-06	0,00E+00	1,05E-05	5,70E-05	1,46E-05	-1,18E-03
	EP-Terrestial	mol N -eq	7,97E-02	1,74E-05	1,72E-03	6,96E-03	1,51E-05	0,00E+00	1,17E-04	6,34E-04	9,73E-05	-1,61E-02
	POCP	kg NMVOC -eq	2,67E-02	6,67E-06	4,54E-04	1,86E-03	4,34E-06	0,00E+00	4,49E-05	1,75E-04	3,79E-05	-4,72E-03
	ADP-minerals&metals[1]	kg Sb -eq	1,47E-03	7,57E-08	4,47E-07	2,54E-06	2,17E-08	0,00E+00	5,09E-07	5,46E-07	3,93E-08	-4,97E-04
	ADP-fossil[1]	MJ	7,50E+01	4,14E-02	1,28E+00	2,03E+00	1,24E-02	0,00E+00	2,78E-01	6,84E-01	8,83E-02	-4,97E+00
	WDP[1]	m^3	1,70E+02	4,01E-02	2,06E-01	1,24E+00	1,58E-02	0,00E+00	2,69E-01	3,77E+00	9,10E-01	-8,09E-02

GWP total Global Warming Potential total; GWP fossil Global Warming Potential fossil fuels ; GWP biogenic Global Warming Potential biogenic; GWP luluc Global W Potential land use change; ODP Ozone Depletion; AP Acidification; EP freshwater Eutrophication aquatic freshwater; EP marine Eutrophication aquatic marine; EP terrestrial Eutrophication terrestrial ;POCP Photochemical zone formation; ADPE Abiotic Depletion Potential minerals and metals; ADPf Abiotic Depletion Potential fossil fuels;

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

1. 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

Remarks to environmental impacts

The product is compliant with the European RoHS Directive 2011/65/EU on Restriction of the use of certain Hazardous Substances in Electrical and Electronic equipment and with the European REACH regulation (EC) No 1907/2006 on Registration, Evaluation, Authorization and Restriction of Chemicals.

Additional environmental impact indicators

Indicator		Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
	PM	Disease incidence	3,51E-07	1,68E-10	1,02E-08	4,59E-09	6,20E-11	0,00E+00	1,13E-09	3,13E-09	5,61E-10	-5,12E-08
	IRP[2]	kgBq U235 -eq	2,19E-01	1,81E-04	1,11E-03	8,79E-03	5,33E-05	0,00E+00	1,22E-03	3,20E-03	3,01E-04	-1,53E-02
	ETP-fw[1]	CTUe	4,06E+02	3,07E-02	3,76E+00	1,35E+00	1,66E-02	0,00E+00	2,06E-01	2,76E+00	2,30E+01	-1,63E+02
	HTP-c[1]	CTUh	8,59E-09	0,00E+00	4,10E-11	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,36E-10	2,30E-11	-1,19E-09
	HTP-nc[1]	CTUh	2,59E-07	3,10E-11	1,77E-09	9,40E-10	2,10E-11	0,00E+00	2,25E-10	2,02E-08	2,70E-10	-5,51E-08
	SQP[1]	dimensionless	2,31E+01	2,90E-02	2,72E-01	8,90E-01	8,35E-03	0,00E+00	1,95E-01	2,34E-01	2,30E-01	-3,73E+00

PM Particulate Matter emissions; IRP Ionizing radiation – human health; ETP-fw Eco toxicity – freshwater; HTP-c Human toxicity – cancer effects; HTP-nc Human toxicity – non cancer effects; SQP Soil Quality (dimensionless)

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

1. 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
2. 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.

Resource use												
Indicator		Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
	PERE	MJ	7,12E+00	5,93E-04	1,29E-01	2,19E-02	2,05E-04	0,00E+00	3,99E-03	1,12E-01	2,15E-02	-8,25E-01
	PERM	MJ	4,51E-01	0,00E+00	0,00E+00	0,00E+00	-4,51E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	PERT	MJ	7,57E+00	5,93E-04	1,29E-01	2,19E-02	-4,51E-01	0,00E+00	3,99E-03	1,12E-01	2,15E-02	-8,25E-01
	PENRE	MJ	7,26E+01	4,14E-02	1,28E+00	2,03E+00	1,24E-02	0,00E+00	2,78E-01	6,84E-01	8,84E-02	-4,97E+00
	PENRM	MJ	2,45E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-2,92E+00	0,00E+00	0,00E+00
	PENRT	MJ	7,50E+01	4,14E-02	1,28E+00	2,03E+00	1,24E-02	0,00E+00	2,78E-01	-2,24E+00	8,84E-02	-5,23E+00
	SM	kg	1,02E-01	0,00E+00	8,98E-07	0,00E+00	1,26E-05	0,00E+00	0,00E+00	3,17E-05	6,45E-04	3,64E-02
	RSF	MJ	1,14E-01	2,12E-05	1,13E-04	7,15E-04	6,80E-06	0,00E+00	1,43E-04	2,34E-03	1,22E-04	2,88E-03
	NRSF	MJ	3,34E-02	7,58E-05	1,07E-03	3,82E-03	2,80E-05	0,00E+00	5,10E-04	-2,32E-04	4,29E-03	5,47E-02
	FW	m^3	6,07E-02	4,43E-06	3,50E-03	1,65E-04	5,87E-06	0,00E+00	2,98E-05	6,58E-04	8,63E-05	-3,67E-03

PERE Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM Use of renewable primary energy resources used as raw materials; PERT Total use of renewable primary energy resources; PENRE Use of non renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM Use of non renewable primary energy resources used as raw materials; PENRT 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; FW Use of net fresh water

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

End of life - Waste

Indicator		Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
	HWD	kg	2,96E-02	2,14E-06	1,56E-04	9,60E-05	5,49E-05	0,00E+00	1,44E-05	6,15E-05	2,25E-02	-1,69E-03
	NHWD	kg	7,81E-01	2,01E-03	1,18E-02	5,54E-02	6,22E-04	0,00E+00	1,35E-02	1,40E-02	8,49E-02	-8,67E-02
	RWD	kg	1,76E-04	2,82E-07	9,76E-07	1,40E-05	8,23E-08	0,00E+00	1,90E-06	9,60E-07	2,20E-07	-1,32E-05

HWD Hazardous waste disposed; NHWD Non-hazardous waste disposed; RWD Radioactive waste disposed;

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

End of life - Output flow

Indicator		Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
	CRU	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	0,00E+00	0,00E+00
	MFR	kg	1,84E-03	0,00E+00	1,86E-04	0,00E+00	5,12E-02	0,00E+00	0,00E+00	1,23E-01	4,46E-04	3,38E-02
	MER	kg	6,18E-05	0,00E+00	6,34E-09	0,00E+00	7,49E-08	0,00E+00	0,00E+00	4,90E-02	5,22E-06	9,12E-06
	EEE	MJ	4,98E-04	0,00E+00	2,55E-08	0,00E+00	3,15E-03	0,00E+00	0,00E+00	5,20E-02	4,88E-05	-1,37E-04
	EET	MJ	7,54E-03	0,00E+00	3,86E-07	0,00E+00	4,76E-02	0,00E+00	0,00E+00	7,87E-01	7,39E-04	-2,07E-03

CRU Components for re-use; MFR Materials for recycling; MER Materials for energy recovery; EEE Exported electrical energy; EET Exported Energy Thermal

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

Biogenic Carbon Content

Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	0,00E+00
Biogenic carbon content in accompanying packaging	kg C	2,55E-02

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO2

Additional Norwegian requirements

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

National production mix from import, low voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

Electricity mix	Data source	Amount	Unit
Electricity, China (kWh)	ecoinvent 3.6	1102,91	g CO2-eq/kWh

Dangerous substances

The product contains substances given by the REACH Candidate list and the Norwegian priority list that are less than 0,1 % by weight.

Name	CASNo	Amount
Lead	7439-92-1	<0,1%

Indoor environment

No effect on indoor environment.

Additional Environmental Information

Environmental impact indicators EN 15804+A1 and NPCR Part A v2.0											
Indicator	**Unit**	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO_2 -eq	5,27E+00	2,71E-03	1,35E-01	1,44E-01	9,42E-02	0,00E+00	1,82E-02	2,10E-01	1,26E-02	-7,76E-02
ODP	kg CFC11 -eq	3,46E-07	5,03E-10	2,26E-09	2,85E-08	1,51E-10	0,00E+00	3,38E-09	1,30E-08	6,03E-10	-2,43E-09
POCP	kg C_2H_4 -eq	3,35E-03	3,31E-07	2,55E-05	5,82E-05	1,26E-07	0,00E+00	2,23E-06	1,08E-05	4,23E-06	-9,74E-05
AP	kg SO_2 -eq	2,88E-02	5,41E-06	6,06E-04	2,04E-03	2,26E-06	0,00E+00	3,64E-05	2,07E-04	2,40E-05	-1,55E-03
EP	kg PO_4^{3-} -eq	4,07E-03	5,76E-07	6,06E-05	2,19E-04	3,89E-07	0,00E+00	3,87E-06	3,38E-05	5,85E-06	-1,00E-04
ADPM	kg Sb -eq	1,44E-03	7,57E-08	4,47E-07	2,54E-06	2,17E-08	0,00E+00	5,09E-07	5,46E-07	3,98E-08	-9,78E-06
ADPE	MJ	6,00E+01	4,06E-02	1,28E+00	2,00E+00	1,22E-02	0,00E+00	2,73E-01	6,16E-01	8,28E-02	-8,06E-01
GWPIOBC	kg CO_2 -eq	5,90E+00	2,74E-03	1,35E-01	1,46E-01	0,00E+00	0,00E+00	1,84E-02	2,11E-01	4,79E-03	-4,38E-01

GWP Global warming potential; ODP Depletion potential of the stratospheric ozone layer; POCP Formation potential of tropospheric photochemical oxidants; AP Acidification potential of land and water; EP Eutrophication potential; ADPM Abiotic depletion potential for non fossil resources; ADPE Abiotic depletion potential for fossil resources; GWP-IOBC/GHG Global warming potential calculated according to the principle of instantanious oxidation (except emissions and uptake of biogenic carbon)

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