Environmental Product Declaration

In accordance with ISO 14025 and EN 15804:2012+A2:2019/AC:2021 for:

Altech copper pipes (annealed) - Altech glödgade kylkopparrör i slinga

from

Saint-Gobain Distribution Sweden AB

Program:	The International EPD® System, www.environdec.com
Program operator:	EPD International AB
EPD registration number:	S-P-12718
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EPD of multiple products, based on worst-case results.

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR): Construction Products PCR 2019:14 version 1.3.3
CEN standard EN 15804:2012+A2:2019/AC:2021 serves as the Core Product Category Rules (PCR)
PCR review was conducted by: The Technical Committee of the International EPD@ System.
Life Cycle Assessment (LCA)
LCA accountability: Fanni Végvári, CarbonZero AB
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by the individual verifier Third-party verifier: Stephen Forson, Viridis Pride Ltd., UK Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.

Company information

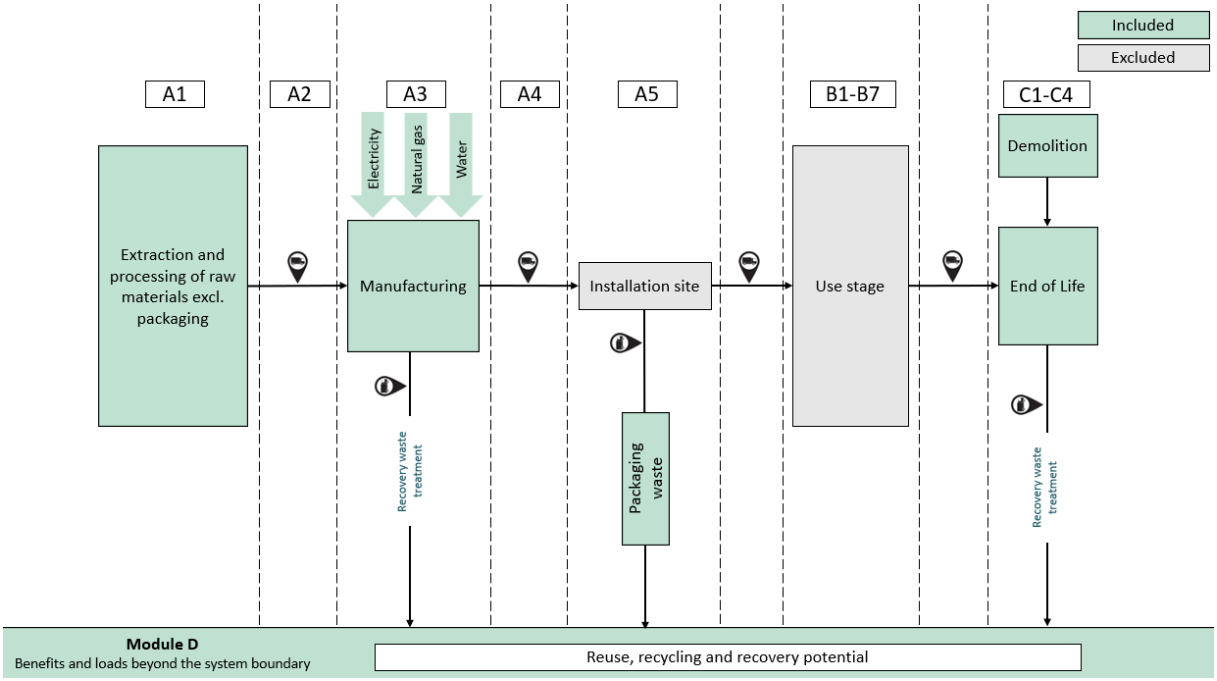
Owner of the EPD	Saint-Gobain Distribution Sweden AB Bryggerivägen 9 168 67 Bromma Stockholm
Contact	SGDS - Beriar Maroof (beriar.maroof@sgdsgruppen.se)
Description of the organisation	Saint-Gobain Distribution Sweden AB - specialists in collaboration for more efficient business in construction and installation. Saint-Gobain Distribution Sweden AB is the head company of some of Sweden's leading trading companies in construction, sheet metal, tiles and installation. All the companies have long and solid industry experience and provide most of Sweden's craftsmen with materials for various projects. Customers in different companies can also buy support items from the sister companies in the group, and in selected cases, we take joint projects to facilitate the logistics of the supply of goods, which is then often critical for a smooth construction project. • Optimera - construction trade for professional carpenters • Dahl – heat, plumbing and sanitary specialist • Bevego - building sheet metal, ventilation and technical insulation • Kakelspecialisten and Konradsson's Tiles - tiles, tiling and bathroom fittings The company's focus is on sales and services with direct contact to about 150,000 customers regularly. Saint-Gobain Distribution Sweden AB is owned by Saint-Gobain with a presence in 64 countries and over 190 000 employees worldwide.
Location of production site	Oinofyta, Greece

Product information

Product name	Altech brass pipes (annealed) - Altech glödgade kylkopparrör i slinga
Product identification	Copper pipes
Product description	Altech brass pipes (annealed) - Altech glödgade kylkopparrör i slinga (Cooling pipes, annealed in ring Leg SS 5015-02). Untinted, soft, annealed, internally oxide-free, shiny, dried with sealed ends, length 15 meters. Cooling copper pipes manufactured in Europe according to EN 12735-1 and Swedish cooling standard.
Use	In cooling applications
Technical data	Max. working pressure is calculated according to EN 12735-1 on a soft annealed copper pipe. Rm = 220 N/mm2 and a safety factor of 4.0.
UN CPC code	41516 - Tubes, pipes and tube or pipe fittings, of copper

LCA information

Functional unit / declared unit	1 kg of Altech brass pipes (annealed) - Altech glödgade kylkopparrör i slinga
Reference service life	Not applicable
Database(s) and LCA software used	Calculation completed in LCA for Experts v10.7 with an integrated Ecoinvent database 3.8
System boundaries	Cradle to gate, with options. (A1-A3, A4-A5, C1-C4, D)



More information

The EPD covers the following range of products from Dahl:

- Altech brass pipes (annealed) - Altech glödgade kylkopparrör i slinga

Article number	Dimensions (inch)	Length (m)
K5121102	¼	15
K5121104	5/16	15
K5121106	3/8	15
K5121108	½	15
K5121110	5/8	15
K5121112	¾	15
K5121114	7/8	15

A1, Raw material supply

This module considers the extraction and processing of all raw materials, energy, and transportation which occur upstream of the studied manufacturing process.

A2, transport to the manufacturer

This module includes the transportation of raw materials to the manufacturing site.

A3, manufacturing

This module includes all resources used during the production of Altech brass pipes (annealed) - Altech glödgade kylkopparrör i slinga and waste produced. This also includes additives and packaging material. Data has been collected by the manufacturer from the production year of 2021, the full 12 months from January 2021 to December 2023.

A4, Transport

Transportation from the manufacturing site in Greece to Saint-Gobain Distribution Sweden AB's distribution center and then from the distribution center to the building site is included.

Scenario information	Unit (expressed per declared unit)
Fuel type and consumption of vehicle or vehicle type used for transport e.g. long distance truck, boat etc.	Average truck trailer with a 27 t payload 0,019 l/tkm diesel
Distance	3 370 + 350 km
Capacity utilisation (including empty returns)	61%
Volume capacity utilisation factor (factor: =1 or <1 or 1 for compressed or nested packaged products	Not applicable

A5, Construction installation

This stage is partially included to balance the biogenic content in packaging.

B1-B7 Use stage

This stage is not declared.

C1 Deconstruction/Demolition

This stage includes the de-construction and/or demolition of the copper pipes (annealed).

C2 Transport
This module represents the transport distance to the waste processing facility.

C3 Waste processing
This module includes any waste treatment needed.

C4 Final disposal
This module includes any material that is landfilled.

Processes	Unit (expressed per declared unit)
Collection process specified by type	1 kg collected
	0 kg collected with mixed construction waste
Recovery system specified by type	0 kg for re-use
	0,95 kg for recycling
	0 kg for energy recovery
Disposal specified by type	0,05 kg product or material for final deposition
Assumptions for scenario development, e.g. transportation	The transportation model is modelled as in module A4, except the transportation distance is assumed to be 50 km to the waste processing.

D Benefits and loads beyond the system boundary
This module includes emission credits obtained from energy recovery and/or recycling materials.

Omissions of life cycle stages
The following flows were excluded from the system boundary:

- **A1-A3**: The plants, production of machines and transportation systems are excluded since the related flows are supposed to be negligible compared to the potential environmental impacts through the life cycle of the product
- **A5**: The installation of the products
- **B1-B7**:The use phase of the products is not included

In addition, the following flows are excluded from the system boundaries:

- Flows related to human activities, such as employee transport

Cut-off criteria
The following procedures were followed for the exclusion of inputs and output.

- All input and output flows in a unit process were considered i.e., taking into account the value of all flows in the unit process and the corresponding LCI where data was available
- Data gaps were filled by conservative assumptions with average or generic data. Any assumptions in such cases were documented
- The use of cut-off criterion on mass inputs and primary energy at the unit process level (1%) and at the information module level (5%)

All hazardous and toxic materials and substances are included in the inventory and the cut-off rules do not apply.

Content declaration

Content

Content declaration	Amount (kg)
Copper	1
Total	***1***

Packaging materials	Weight, kg	Weight-% (versus the product)
Cardboard	2,27E-02	0,0227
LDPE	4,98E-04	0,000498
PET	4,87E-03	0,00487
PVC	3,10E-04	0,00031
PP	4,07E-05	0,0000407
Steel	1,39E-04	0,000139
Adhesive	1,33E-04	0,000133
Pallet	1,68E-02	0,0168
Total	***0,0455***	**4,55%**

Modules declared and geographical scope

	Product stage	Assembly stage	Use stage	End of life stage	Benefits & loads

																	beoyond 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
Modules	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GR	GR	GR	EU	SE	-	-	-	-	-	-	-	SE	SE	SE	SE	SE
Specific data used	7%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation products	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

The specific data is based on the amount of impact that derives from the impact indicator GWP-GHG.

Environmental Information

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks. As module C is included in the EPD, it is discouraging the use of the results of modules A1-A3 (A1-A5 for services) without considering the results of module C.

Potential environmental impact – indicators according to EN 15804+A2, EF 3.1

		Results per declared unit: 1 kg							
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	kg CO2 eq	2,66E+00	2,79E-01	4,00E-02	6,34E-04	1,19E-04	1,63E-03	2,31E-03	-1,59E+00
GWP-fossil	kg CO2 eq	2,70E+00	2,67E-01	1,16E-02	6,07E-04	1,16E-04	1,63E-03	2,34E-03	-1,63E+00
GWP-biogenic	kg CO2 eq	-4,37E-02	1,20E-02	2,84E-02	2,74E-05	3,44E-06	3,28E-03	2,89E-05	-4,33E-02
GWP-luluc	kg CO2 eq	7,95E-03	1,51E-05	6,20E-07	3,37E-08	8,70E-09	1,84E-07	2,38E-06	-2,49E-04
ODP	kg CFC-11 eq	5,30E-09	6,23E-08	4,36E-12	1,40E-10	1,76E-11	2,59E-11	3,86E-15	-2,12E-12
AP	mole H+ eq	4,04E-02	7,88E-04	8,30E-06	3,70E-06	1,30E-06	1,51E-05	7,50E-06	-4,02E-03
EP-freshwater	kg P eq	6,41E-06	2,85E-06	8,13E-08	6,38E-09	1,06E-09	5,01E-08	2,12E-09	-7,86E-07
EP-marine	kg N eq	2,36E-03	2,32E-04	2,63E-06	1,49E-06	3,33E-07	7,01E-06	1,88E-06	-6,60E-04
EP-terrestrial	mole N eq	2,46E-02	2,55E-03	3,26E-05	1,63E-05	3,62E-06	7,62E-05	2,07E-05	-5,93E-03
POCP	kg NMVOC eq	8,24E-03	5,80E-04	7,20E-06	4,33E-06	9,17E-07	2,26E-05	5,90E-06	-2,65E-03
ADP-minerals & metals	kg Sb eq	1,79E-03	4,83E-08	2,09E-09	1,08E-10	2,06E-11	5,69E-10	6,40E-11	-9,17E-06
ADP-fossil	MJ	3,03E+01	3,81E+00	2,10E-02	8,53E-03	2,69E-03	2,13E-02	3,49E-02	-1,64E+01
WDP	m3	1,55E+00	4,02E-03	4,27E-03	9,00E-06	1,11E-05	7,20E-05	-3,18E-05	-1,12E-01
Acronyms	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; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption								

* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

Use of resources

		Results per declared unit: 1 kg							
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	9,01E+00	1,11E-02	5,21E-03	2,23E-05	1,15E-03	1,22E-04	3,14E-03	-1,15E-01
PERM	MJ	1,44E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	9,03E+00	1,11E-02	5,21E-03	2,23E-05	1,15E-03	1,22E-04	3,14E-03	-1,15E-01
PENRE	MJ	3,04E+01	3,81E+00	2,10E-02	8,53E-03	2,69E-03	2,13E-02	3,50E-02	-1,64E+01
PENRM	MJ	5,88E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	3,04E+01	3,81E+00	2,10E-02	8,53E-03	2,69E-03	2,13E-02	3,50E-02	-1,64E+01
SM	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
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
FW	m3	2,69E-02	9,51E-05	1,01E-04	2,10E-07	1,69E-06	1,68E-06	3,94E-07	-1,64E-01
Acronyms	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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water								

Additional voluntary indicators

		Results per declared unit: 1 kg							
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO2 eq	2,71E+00	2,67E-01	1,16E-02	6,07E-04	1,16E-04	1,63E-03	2,34E-03	-1,63E+00
Acronyms	GWP-GHG global warming potential - greenhouse gases								

Waste and output flows

Waste

		Results per declared unit: 1 kg							
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	kg	4,61E-08	-2,42E-13	3,72E-14	0,00E+00	-2,41E-13	0,00E+00	2,89E-12	-1,63E-07
NHWD	kg	9,57E-01	1,49E-06	9,90E-04	0,00E+00	1,52E-06	0,00E+00	5,01E-02	-1,94E-01
RWD	kg	1,74E-04	4,33E-07	1,12E-06	0,00E+00	4,34E-07	0,00E+00	4,06E-07	-2,95E-05
Acronyms	HW Hazardous waste disposed; NHW Non-hazardous waste disposed; RW Radioactive waste disposed								

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO2 is set to zero.

Output flows

		Results per declared unit: 1 kg							
Indicator	**Unit**	**A1-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
MFR	kg	0,00E+00	0,00E+00	2,32E-02	0,00E+00	0,00E+00	9,50E-01	0,00E+00	0,00E+00
MER	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
EEE	MJ	0,00E+00	0,00E+00	-5,62E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EET	MJ	0,00E+00	0,00E+00	-1,01E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Acronyms	CRU Components for reuse; MR Materials for recycling; MER Materials for energy recovery; EEE Exported electric energy; ETE Exported thermal energy								

Information on biogenic carbon content

Biogenic carbon content	**Unit per DU**	**Amount**
Biogenic carbon content in product	kg C	0
Biogenic carbon content in packaging	kg C	1,64E-02

1 kg biogenic carbon is equivalent to 44/12 kg CO2.

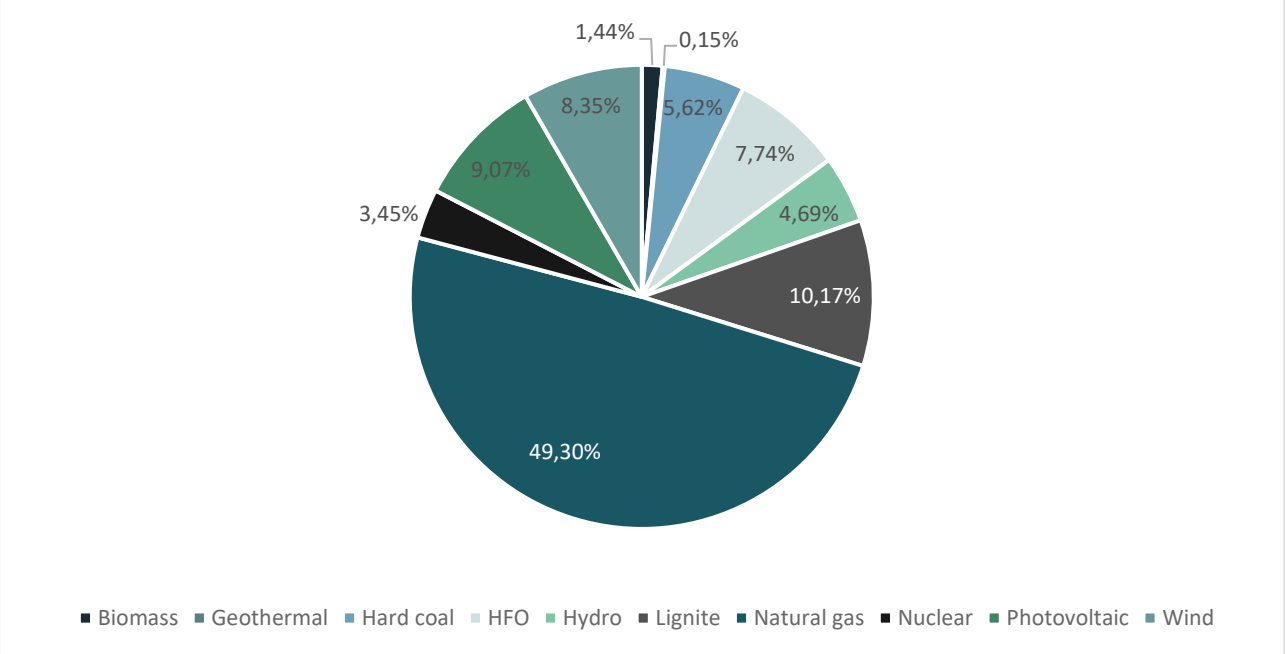
Disclaimers

ILCD classification	Indicator	Disclaimer
ILCD Type 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 2	Acidification potential, Accumulated Exceedance (AP)	None
	Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater)	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 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 experience with the indicator.		

Additional information

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

Residual mix	Unit	Value
Location		Greece
Electricity mix		Biomass: 1,44% Geothermal: 0,15% Hard coal: 5,62% Heavy Fuel Oil: 7,74% Hydro: 4,69% Lignite: 10,17% Natural gas: 49,30% Nuclear: 3,45% Photovoltaic: 9,07% Wind: 8,35%
Reference year		2021
Source		European Residual Mixes 2021 - Association of Issuing Bodies
GWP excl. Biogenic	kg CO_2-eq. /kWh	0,169



References

Association of Issuing Bodies	AIB (2022) European Residual Mixes 2021. Ver. 1.0.
Construction Products PCR 2019:14 version 1.3.2	EPD International (2021) PCR 2019:14 Construction products and construction services, version 1.3.2
EN 15804:2012+A2:2019	Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products
GPI	General Programme Instructions of the International EPD® System. Version 4.
ISO 14020:2000	Environmental labels and declarations — General principles
ISO 14025:2010	Environmental labels and declarations - Type III environmental declarations - Principles and procedures
ISO 14044:2006	Environmental management - Life cycle assessment - Requirements and guidelines
SCB – Swedish Statistics	(2020) Treated waste by treatment category and waste category. Every second year 2010 - 2020 https://www.statistikdatabasen.scb.se/pxweb/en/ssd/START__MI__MI0305/MI0305T003/ Assessed 2024-02-22.