

Environmental Product Declaration



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

Şişecam Float Glass

- ***“Şişecam Ultra Clear float glass”***

- Products Identification code (Width):

4mm 5mm 6mm 8mm 10mm 12mm

- ***“Şişecam Extra Clear float glass”***

- Products Identification code (Width):

4mm 5mm 6mm 8mm 10mm 12mm

from

Şişecam Flat Glass Italy Srl



Programme:

Programme operator:

EPD registration number:

Scope of the EPD®:

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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

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)

Product category rules (PCR):

PCR 2019:14 Construction products (EN 15804:A2) (1.11);

c-PCR-009 Flat glass products used in buildings and other construction works (EN 17074) (2021-01-25)

Other standards:

EN 17074:2019 Glass in building - Environmental product declaration - Product category rules for flat glass products

ISO 21930:2017 "Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services"

PCR review was conducted by:

The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact.

Independent third-party verification of the declaration and data, according to ISO 14025:2006:

☒ External certification ☐ Internal

Covering

☐ EPD process certification ☒ EPD verification

Third party verifier: *SGS Italia S.p.A. Via Caldera, 21, Milan 20153, Italy*

Accredited by: *ACCREDIA*

Accreditation number DAP N° 006H

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:

Şişecam Flat Glass Italy Srl, Via Jacopo Linussio, 2, 33058 San Giorgio di Nogaro UD (ITALY),
<https://www.sisecam.com.tr/it/chi-siamo/sisecam-in-italia>

Contact:

Antonio Santoro: ASANTORO@Şişecam.com

Product-related or management system-related certifications

The production site is certified according to ISO 9001; ISO 14001; ISO 50001; ISO 45001. For the placing on the market of the product in the EU/EFTA (with the exception of Switzerland) Regulation (EU) No. 305/2011 /CPR/dated 9 March 2011 applies. The product needs a Declaration of Performance taking into consideration /EN 572-9:2005 – Glass in buildings// Product standard / and the /CE –marking/. Şişecam Float Glass products are certified according to these standards

Name and location of production site

Şişecam Flat Glass Italy Srl, Via Jacopo Linussio, 2, 33058 San Giorgio di Nogaro (UD)

Description of the organisation

Trakya Cam Sanayii A.Ş. (Şişecam Flat Glass)

Founded in 1935 by İşbank at the directive of Atatürk, the founder and the first President of the Republic of Turkey, Şişecam is one of the most established industrial enterprises in Turkey with a corporate history spanning more than 85 years. As one of the most powerful industrial conglomerates in the country today, Şişecam has also transformed into a global player in all key areas of the glass industry, as well as in soda and chromium compounds business lines.

Şişecam has undertaken major efforts to become an international success with its ever-growing production power, highly reputable brand image, superior product quality and value-creating sustainable growth approach. It is currently one of the world's leading glass producers with production operations located in 14 countries on four continents and some 22,000 employees. Şişecam records sales in over 150 countries around the globe.

Şişecam flat glass Italy s.r.l.

With the purchase of the production plant based in San Giorgio di Nogaro in 2016 Şişecam has become the largest European producer of float glass. Thanks to its capacity and logistics, the plant located in San Giorgio di Nogaro provides important support to the competitive strength of Şişecam in the Western European float glass market. Porto Nogaro's annual float glass production capacity is 220 thousand tons, and also has laminated glass production lines.

Product information

This EPD covers the product “Şişecam float glass” (CPC, Version 1.1 – Code 37113) in the two variants produced by Şişecam Flat Glass Italy Srl in San Giorgio di Nogaro’s plant, commercially named:

- “Şişecam Ultra Clear float glass”
- “Şişecam Extra Clear float glass”

and with the following width:

Şişecam Float Glass	Width	Weight per m2
	4 mm	10,00 kg
	5 mm	12,50 kg
	6 mm	15,00 kg
	8 mm	20,00 kg
	10 mm	25,00 kg
	12 mm	30,00 kg

San Giorgio di Nogaro plant also produces float glass with a thickness of 3 mm and weight per m2 of 7.5 kg. This was, for the period under consideration, entirely used to produce laminated glass and no quantities were sold. Therefore, the 3mm float glass is not one of the products included in this EPD. However, it was taken into account whilst allocating raw materials, energy, transport and production between the different thicknesses of float glass.

“Ultra Clear float glass” and “Extra Clear float glass” both represent a subset of **Float glass** and are produced through the same method, called “**floating**”, in which a perfectly flat glass layer is obtained by pouring the glass from the melting furnace directly onto molten tin (commonly referred to as a “float bath”).

Tin is heavier than glass, does not interact with it, and has a melting point below the temperature at which glass exits the plastic phase. It therefore constitutes the ideal support on which the glass (cast at 1100° C) can spread and acquire its characteristic flatness.

Floating on the tin, the glass is then cooled down to 600°C and, at this temperature, it gains sufficient viscosity and resistance to be picked up and stretched by a roller lane without creating defects on its surface.

Product description:

Şişecam Float glass is primarily made of raw materials like silica sand, soda ash, dolomite, feldspar, limestone, cullet and additional raw materials. The difference between the two types of float glass produced at San Giorgio di Nogaro’s plant relays, as the names suggest, in the different level of transparency obtained by small variations in the percentages of the raw materials used to produce them.

Şişecam Float Glass, as a basic product, offers various solutions for the construction sector through the application of one or more of the following processes:

- Double glazing
- Laminating
- Toughening

- Heat strengthening
- Bending
- Coating
- Making into mirrors
- Acid etching
- Etc...

Product identification:

Şişecam float glass comes in multiple thickness, obtained by modulating the speed of the roller lane. The following table shows the physical properties of the different widths analysed by this study.

Clear Float Glass type	Thickness	Average weight per m ²	Heat transfer coefficient acc. To EN 673 - W/(m ² . K) -	Total energy transmittance acc. To EN 410 - % -	Light transmission level acc. To EN 410 - % -
Ultra clear float glass	4 mm	10,00 kg	5,8	90 +/- 3	91 +/- 3
	5 mm	12,50 kg	5,8	89 +/- 3	91 +/- 3
	6 mm	15,00 kg	5,7	89 +/- 3	91 +/- 3
	8 mm	20,00 kg	5,7	88 +/- 3	91 +/- 3
	10 mm	25,00 kg	5,6	88 +/- 3	90 +/- 3
	12 mm	30,00 kg	5,5	84 +/- 3	90 +/- 3

Clear Float Glass type	Thickness	Average weight per m ²	Heat transfer coefficient acc. To /EN 673/	Total energy transmittance acc. To /EN 410/	Light transmission level acc. To /EN 410/
Extra clear float glass	4 mm	10,00 kg	5,8	85 +/- 3	90 +/- 3
	5 mm	12,50 kg	5,8	84 +/- 3	90 +/- 3
	6 mm	15,00 kg	5,7	83 +/- 3	89 +/- 3
	8 mm	20,00 kg	5,7	80 +/- 3	89 +/- 3
	10 mm	25,00 kg	5,6	77 +/- 3	88 +/- 3
	12 mm	30,00 kg	5,5	73 +/- 3	87 +/- 3

LCA information

Declared unit:

The declared unit is 1 m² of Float glass sold by Şişecam, with weight and width as per table below.

Şişecam Float Glass	Width	Weight per m ²
	4 mm	10,00 kg
	5 mm	12,50 kg
	6 mm	15,00 kg
	8 mm	20,00 kg
	10 mm	25,00 kg
	12 mm	30,00 kg

Reference service life

Not applicable.

Time representativeness

The period covered by the data used for the LCA calculation comprise of the first six months of the year 2021. Such timeframe was chosen due to production data anomalies for 2020, caused by the Covid -19 pandemic outburst, and the outdatedness of data relating to previous years. Operations at Nogaro's plant in the first semester of 2021 has been evaluated as representative for a Business-as-usual scenario.

Database(s) and LCA software used

SimaPro 9.2.0.2, one of the most popular LCA software, was used to reach the results reported in this document. Ecoinvent 3.7.1. was the database used.

Description of system boundaries

Type of the EPD: "Cradle to gate with modules C1-C4 and module D (A1-A3 + C + D)," which includes, therefore, flat glass production, from extraction and/or production of raw materials to the "gate" of the production facility (A1-3), end-of-life, and benefits and loads beyond the system boundary (D).

The life cycle analysis comprises of:

- Module A1: extraction and production of raw materials; production of secondary raw materials (e.g. recycling processes). Energy inputs related to the production process also belongs to this Module, as per PCR;
- Module A2: transport of raw materials and production auxiliaries to the plant;
- Module A3: Production processes. Here, material flows' impacts accounted for belongs to all the processes related to the production of Float clear glass:
 - Mixing and weighing of raw materials
 - Melting
 - Float bath
 - Cooling and cutting
 - Packaging
- Module C1: Deconstruction, including dismantling or demolition, of the product from the building, including initial on-site sorting of materials. For the system under study, the impacts

of this module are set to zero since there is no energy or mass flow involved. Manpower and some tools are sufficient;

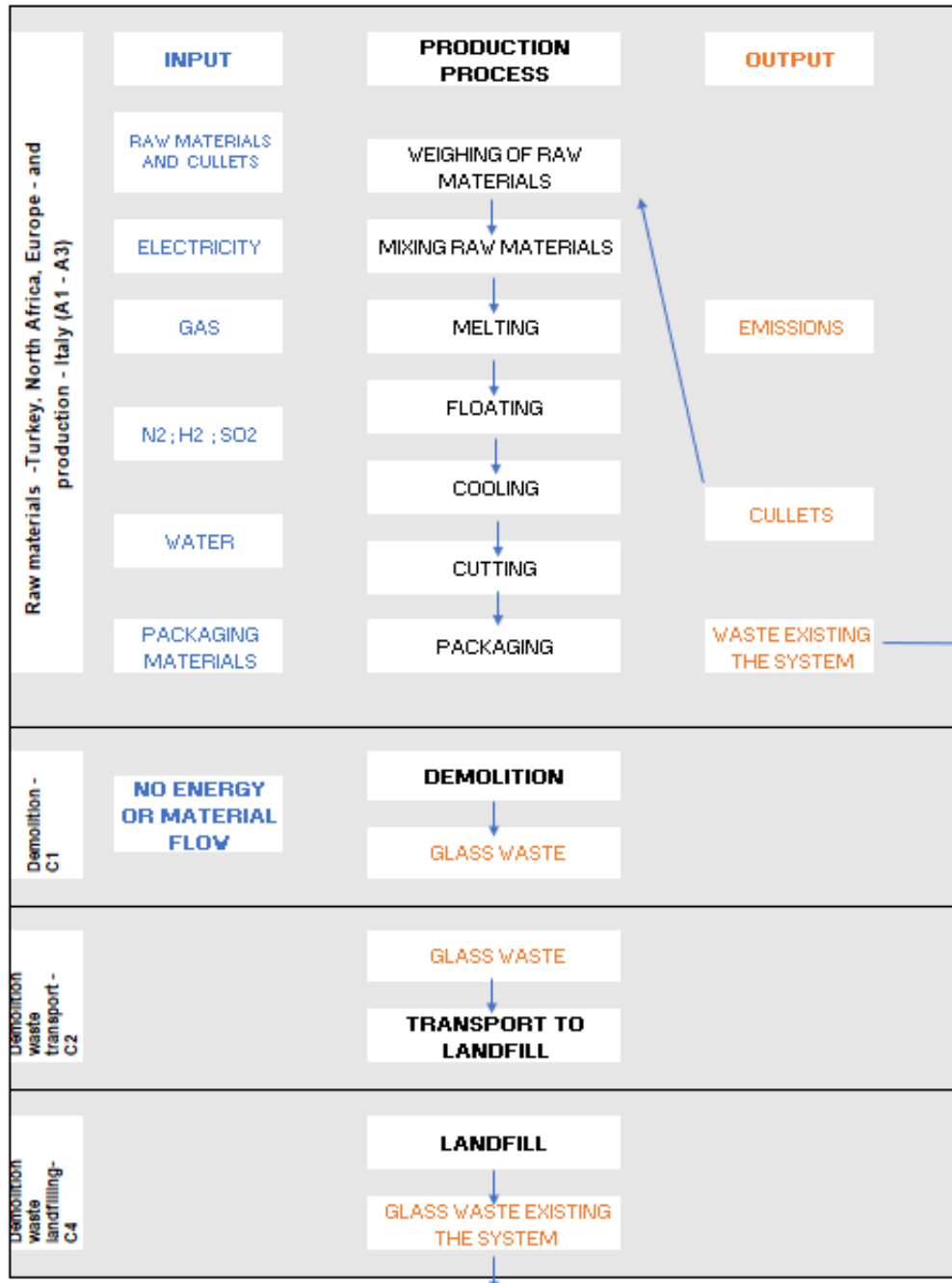
- Module C2: Transport of demolition waste for treatment, e.g. to a recycling centre, and transport of the waste to final disposal;
- Module C3: Treatment of waste materials for re-use, recycling and recovery;
- Module C4: Waste disposal, including physical pre-treatment and management of the disposal site.

Regarding module C3 and C4, a worst-case scenario, where 100% of the deconstruction waste is sent to landfill, was followed.

- Module D: Benefits and loads beyond the system boundary

Regarding module D, the scenario followed is the one suggested by EN 17074, where 30% of waste from deconstruction and demolition goes to recycling.

System diagram:



Other relevant information

Name and contact information of LCA practitioner

This LCA study was carried out with the help of a consultancy agency, Silaq, located in Via Vittor Pisani, 8, 20124 Milano (MI); +39 02 250 34; infsilAQ@silAQ.it.

Data quality and Background data

All the data related to production processes are manufacturer's average or specific data.

All relevant background datasets were taken from the Ecoinvent database (version 3.7.1) within SimaPro software. Only one proxy data was used, representing emulsified fuel.

Allocation

Data were allocated between float glass and laminated glass (both produced at the San Giorgio di Nogaro plant) concerning:

- CO₂ emissions related to natural gas consumption. CO₂ emissions were allocated based on natural gas consumption, monitored separately for float and laminated glass;
- waste produced by the production process that cannot be uniquely attributed to float glass or laminated glass. Waste has been allocated based on gross square metres produced of float glass and laminated glass.
- Wastewater, allocated based on the amount of water used by the respective production process.
- Lucite (polymethyl methacrylate), which is spread on the glass sheets before packaging. This substance prevents them from sticking to each other and shattering when separated. Lucite has been allocated based on square meters shipped of float glass and laminated glass.
- Waste generated from packaging, allocated based on square meters shipped of float and laminated glass;
- End-of-life transportation of waste generated during the manufacturing and packaging processes, allocated based on gross tons produced for the former, and m² sold for the latter.

Among the different thicknesses of Şişecam Float Glass analysed in this study, the following allocations were, then, made:

- Diesel used by the wheel loaders (gross tons produced)
- Tin (gross tons produced)
- Nitrogen (gross tons produced)
- Sulfur dioxide (gross tons produced)
- Hydrogen (gross tons produced)
- Lime (gross tons produced)
- Ammonia (gross tons produced)
- Water withdrawal for flat glass production (gross tons produced)
- Atmospheric emissions except CO₂ (gross tons produced)
- CO₂ emissions from natural gas (natural gas use attributable to each float glass width)
- CO₂ emissions from raw materials (quantity of the specific raw material)
- CO₂ emissions from diesel fuel (total quantity of raw materials)
- Waste and Transport waste common to floor and laminate, including antifreeze (gross square meters produced)
- Waste and transport waste attributable to the plan (gross tons produced)
- Water emissions (gross tons produced)
- Water-gasoline emulsion (gross square meters produced)

- Packaging including transport (tons sold)
- Lucite (square meters sold)
- Packaging waste and relative transport to landfills (square meters sold)

For raw materials, raw material transport and energy consumption, width-specific data were used.

Cut off:

No cut-off has been made

Content declaration

The product covered by this EPD does not contain Substances of Very High Concern (SVHC) as defined by article 59 (10) of Regulation (CE) n° 1907/2006 (dated 2021-07-08), also known as the REACH candidate list, at a concentration at or above 0.1% in weight.

Modules declared, geographical scope, share of specific data (in GWP-GHG indicator) and data variation:

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	1	1	2										3	3	3	3	3
Specific data used	> 90%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	Relevant*					-	-	-	-	-	-	-	Relevant*	Relevant*	Relevant*	Relevant*	Relevant*
Variation – sites	Not relevant					-	-	-	-	-	-	-	Not relevant	Not relevant	Not relevant	Not relevant	Not relevant

ND= not declared

1=Turkey; North Africa (Tunisia and Egypt); Europe (Italy, Germany, Austria, Bosnia Herzegovina)

2=Italy

3=Worldwide

* Impacts for each indicator were calculated for every single width and reported in chapter "Environmental Information"

Content information

Product components	Maximum %	Minimum %	Post-consumer material %	Renewable material %
Silica Sand	53,25%	45,32%	0	0
Soda Ash	16,26%	14,07%	0	0
Dolomite	11,72%	10,08%	0	0
Limestone	5,51%	4,80%	0	0
Feldspar	1,42%	1,34%	0	0
Sodium Sulphate	0,63%	0,56%	0	0
Charcoal	0,0237%	0,023%	0	0
Ferric oxide	0,0029%	0%	0	0
Cobalt	0,00002%	0%	0	0
Cullet	23,73%	11,20%	0	0
Packaging materials	Average Weight, kg		Weight %	
Cardboard	3,44E-02		20,11%	
Wood	1,28E-01		75,04%	
Steel	8,30E-03		4,85%	
TOTAL	1,71E-01		100%	

Environmental Information

Disclaimer: the column "Total w/o D" (total without D) is the sum of modules A1; A2; A3; C1; C2; C3; C4. Module D is excluded.

Potential environmental impact – mandatory indicators according to EN 15804

Results per declared unit												
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ eq.	4mm	1,24E+01	9,13E+00	4,34E-01	2,59E+00	1,22E+01	0	1,41E-01	0	1,45E-01	-6,99E-01
		5mm	1,63E+01	1,20E+01	5,43E-01	3,46E+00	1,60E+01	0	1,77E-01	0	1,81E-01	-8,72E-01
		6mm	1,80E+01	1,33E+01	6,64E-01	3,64E+00	1,76E+01	0	2,12E-01	0	2,18E-01	-1,05E+00
		8mm	2,38E+01	1,75E+01	8,89E-01	4,81E+00	2,32E+01	0	2,83E-01	0	2,90E-01	-1,40E+00
		10mm	2,99E+01	2,22E+01	1,10E+00	5,85E+00	2,92E+01	0	3,53E-01	0	3,63E-01	-1,75E+00
		12mm	3,64E+01	2,79E+01	1,23E+00	6,45E+00	3,56E+01	0	4,24E-01	0	4,36E-01	-2,11E+00
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
GWP-biogenic	kg CO ₂ eq.	4mm	9,46E-02	1,04E-01	3,30E-04	-1,46E-01	-4,21E-02	0	1,00E-04	0	1,37E-01	-1,42E-02
		5mm	1,16E-01	1,32E-01	4,12E-04	-1,87E-01	-5,46E-02	0	1,25E-04	0	1,71E-01	-1,77E-02
		6mm	1,28E-01	1,50E-01	5,05E-04	-2,28E-01	-7,68E-02	0	1,51E-04	0	2,05E-01	-2,13E-02
		8mm	1,65E-01	2,00E-01	6,76E-04	-3,09E-01	-1,08E-01	0	2,01E-04	0	2,73E-01	-2,83E-02
		10mm	2,08E-01	2,56E-01	8,41E-04	-3,91E-01	-1,34E-01	0	2,51E-04	0	3,41E-01	-3,55E-02
		12mm	2,52E-01	3,14E-01	9,39E-04	-4,72E-01	-1,58E-01	0	3,01E-04	0	4,10E-01	-4,27E-02
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
GWP-luluc	kg CO ₂ eq.	4mm	1,74E-03	1,45E-03	3,63E-06	2,79E-04	1,73E-03	0	1,87E-06	0	4,91E-07	-3,95E-04
		5mm	2,21E-03	1,85E-03	4,56E-06	3,50E-04	2,21E-03	0	2,33E-06	0	6,14E-07	-4,93E-04
		6mm	2,61E-03	2,18E-03	5,54E-06	4,17E-04	2,60E-03	0	2,80E-06	0	7,37E-07	-5,93E-04
		8mm	3,49E-03	2,92E-03	7,41E-06	5,56E-04	3,48E-03	0	3,73E-06	0	9,83E-07	-7,91E-04
		10mm	4,26E-03	3,55E-03	9,18E-06	6,95E-04	4,26E-03	0	4,67E-06	0	1,23E-06	-9,89E-04
		12mm	4,63E-03	3,78E-03	1,02E-05	8,36E-04	4,62E-03	0	5,60E-06	0	1,47E-06	-1,19E-03
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq.	4mm	1,25E+01	9,23E+00	4,35E-01	2,44E+00	1,21E+01	0	1,41E-01	0	2,82E-01	-7,13E-01
		5mm	1,65E+01	1,21E+01	5,44E-01	3,27E+00	1,59E+01	0	1,77E-01	0	3,52E-01	-8,90E-01
		6mm	1,81E+01	1,34E+01	6,65E-01	3,41E+00	1,75E+01	0	2,12E-01	0	4,23E-01	-1,07E+00
		8mm	2,40E+01	1,77E+01	8,90E-01	4,50E+00	2,31E+01	0	2,83E-01	0	5,64E-01	-1,43E+00
		10mm	3,01E+01	2,25E+01	1,11E+00	5,46E+00	2,90E+01	0	3,54E-01	0	7,04E-01	-1,79E+00
		12mm	3,67E+01	2,82E+01	1,23E+00	5,98E+00	3,54E+01	0	4,24E-01	0	8,45E-01	-2,15E+00
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
ODP	kg CFC 11 eq.	4mm	1,76E-06	1,59E-06	9,86E-08	3,59E-08	1,72E-06	0	3,19E-08	0	6,89E-09	-3,52E-08
		5mm	2,32E-06	2,10E-06	1,23E-07	4,68E-08	2,27E-06	0	3,99E-08	0	8,62E-09	-4,39E-08
		6mm	2,55E-06	2,29E-06	1,51E-07	5,07E-08	2,49E-06	0	4,78E-08	0	1,03E-08	-5,28E-08
		8mm	3,36E-06	3,02E-06	2,02E-07	6,68E-08	3,28E-06	0	6,38E-08	0	1,38E-08	-7,04E-08
		10mm	4,29E-06	3,86E-06	2,51E-07	8,36E-08	4,19E-06	0	7,97E-08	0	1,72E-08	-8,80E-08
		12mm	5,54E-06	5,05E-06	2,80E-07	1,03E-07	5,43E-06	0	9,57E-08	0	2,07E-08	-1,06E-07
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
AP	mol H ⁺ eq.	4mm	4,35E-02	1,85E-02	5,10E-03	1,86E-02	4,22E-02	0	4,98E-04	0	7,76E-04	-3,30E-03
		5mm	5,65E-02	2,39E-02	6,57E-03	2,44E-02	5,49E-02	0	6,23E-04	0	9,70E-04	-4,12E-03
		6mm	6,30E-02	2,74E-02	7,75E-03	2,59E-02	6,10E-02	0	7,47E-04	0	1,16E-03	-4,95E-03
		8mm	8,34E-02	3,64E-02	1,03E-02	3,41E-02	8,09E-02	0	9,97E-04	0	1,55E-03	-6,60E-03
		10mm	1,04E-01	4,54E-02	1,25E-02	4,27E-02	1,01E-01	0	1,25E-03	0	1,94E-03	-8,26E-03
		12mm	1,23E-01	5,27E-02	1,38E-02	5,30E-02	1,19E-01	0	1,49E-03	0	2,33E-03	-9,96E-03
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
EP-freshwater	kg PO ₄ ³⁻ eq.	4mm	3,02E-04	2,84E-04	7,47E-07	1,54E-05	3,00E-04	0	1,01E-06	0	1,54E-07	-7,05E-05
		5mm	3,84E-04	3,62E-04	9,36E-07	1,91E-05	3,83E-04	0	1,26E-06	0	1,93E-07	-8,80E-05
		6mm	4,49E-04	4,24E-04	1,14E-06	2,19E-05	4,47E-04	0	1,51E-06	0	2,31E-07	-1,06E-04
		8mm	6,00E-04	5,68E-04	1,53E-06	2,86E-05	5,98E-04	0	2,01E-06	0	3,08E-07	-1,41E-04
		10mm	7,38E-04	6,98E-04	1,90E-06	3,54E-05	7,35E-04	0	2,52E-06	0	3,85E-07	-1,76E-04
		12mm	8,13E-04	7,65E-04	2,11E-06	4,26E-05	8,09E-04	0	3,02E-06	0	4,62E-07	-2,13E-04
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
EP-freshwater	kg P eq.	4mm	9,82E-05	9,26E-05	2,43E-07	5,01E-06	9,78E-05	0	3,28E-07	0	5,02E-08	-2,30E-05

		5mm	1,25E-04	1,18E-04	3,05E-07	6,23E-06	1,25E-04	0	4,10E-07	0	6,27E-08	-2,87E-05
		6mm	1,46E-04	1,38E-04	3,72E-07	7,14E-06	1,46E-04	0	4,92E-07	0	7,53E-08	-3,45E-05
		8mm	1,95E-04	1,85E-04	4,98E-07	9,33E-06	1,95E-04	0	6,56E-07	0	1,00E-07	-4,60E-05
		10mm	2,41E-04	2,27E-04	6,18E-07	1,15E-05	2,40E-04	0	8,20E-07	0	1,25E-07	-5,75E-05
		12mm	2,65E-04	2,49E-04	6,89E-07	1,39E-05	2,64E-04	0	9,84E-07	0	1,51E-07	-6,93E-05
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
EP-marine	kg N eq.	4mm	6,41E-02	8,36E-03	1,34E-03	5,39E-02	6,36E-02	0	1,57E-04	0	3,82E-04	-2,12E-03
		5mm	8,40E-02	1,07E-02	1,72E-03	7,09E-02	8,33E-02	0	1,97E-04	0	4,78E-04	-2,64E-03
		6mm	9,06E-02	1,25E-02	2,03E-03	7,52E-02	8,98E-02	0	2,36E-04	0	5,73E-04	-3,17E-03
		8mm	1,20E-01	1,67E-02	2,71E-03	9,90E-02	1,18E-01	0	3,15E-04	0	7,65E-04	-4,24E-03
		10mm	1,49E-01	2,05E-02	3,29E-03	1,24E-01	1,48E-01	0	3,94E-04	0	9,56E-04	-5,30E-03
		12mm	1,81E-01	2,21E-02	3,63E-03	1,54E-01	1,80E-01	0	4,72E-04	0	1,15E-03	-6,39E-03
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
EP-terrestrial	mol N eq.	4mm	2,68E-01	4,02E-02	1,48E-02	2,07E-01	2,62E-01	0	1,73E-03	0	4,19E-03	-7,82E-03
		5mm	3,50E-01	5,17E-02	1,91E-02	2,72E-01	3,43E-01	0	2,17E-03	0	5,24E-03	-9,76E-03
		6mm	3,80E-01	5,95E-02	2,26E-02	2,89E-01	3,71E-01	0	2,60E-03	0	6,28E-03	-1,17E-02
		8mm	5,01E-01	7,92E-02	3,00E-02	3,80E-01	4,89E-01	0	3,47E-03	0	8,38E-03	-1,56E-02
		10mm	6,25E-01	9,82E-02	3,65E-02	4,75E-01	6,10E-01	0	4,34E-03	0	1,05E-02	-1,96E-02
		12mm	7,61E-01	1,12E-01	4,03E-02	5,91E-01	7,43E-01	0	5,20E-03	0	1,26E-02	-2,36E-02
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
POCP	kg NMVOC eq.	4mm	1,64E-01	1,12E-02	3,85E-03	1,45E-01	1,60E-01	0	4,72E-04	0	3,34E-03	-1,65E-03
		5mm	2,15E-01	1,46E-02	4,94E-03	1,90E-01	2,10E-01	0	5,90E-04	0	4,18E-03	-2,06E-03
		6mm	2,30E-01	1,65E-02	5,85E-03	2,02E-01	2,24E-01	0	7,08E-04	0	5,01E-03	-2,48E-03
		8mm	3,03E-01	2,19E-02	7,78E-03	2,66E-01	2,95E-01	0	9,44E-04	0	6,68E-03	-3,31E-03
		10mm	3,79E-01	2,75E-02	9,48E-03	3,32E-01	3,69E-01	0	1,18E-03	0	8,36E-03	-4,14E-03
		12mm	4,68E-01	3,26E-02	1,05E-02	4,13E-01	4,56E-01	0	1,42E-03	0	1,00E-02	-4,98E-03
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
ADP-minerals&metals ¹	kg Sb eq.	4mm	2,24E-05	3,24E-07	1,45E-08	2,20E-05	2,24E-05	0	8,26E-09	0	1,67E-09	-9,48E-08
		5mm	2,94E-05	4,13E-07	1,80E-08	2,90E-05	2,94E-05	0	1,03E-08	0	2,09E-09	-1,18E-07
		6mm	3,12E-05	4,92E-07	2,22E-08	3,07E-05	3,12E-05	0	1,24E-08	0	2,51E-09	-1,43E-07
		8mm	4,11E-05	6,54E-07	2,99E-08	4,04E-05	4,11E-05	0	1,65E-08	0	3,34E-09	-1,90E-07
		10mm	5,14E-05	8,00E-07	3,74E-08	5,06E-05	5,14E-05	0	2,07E-08	0	4,18E-09	-2,39E-07
		12mm	6,38E-05	8,70E-07	4,19E-08	6,29E-05	6,38E-05	0	2,48E-08	0	5,01E-09	-3,02E-07
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
ADP-fossil ¹	MJ	4mm	1,48E+02	1,35E+02	6,02E+00	4,38E+00	1,45E+02	0	1,99E+00	0	4,27E-01	-7,99E+00
		5mm	1,93E+02	1,77E+02	7,53E+00	5,70E+00	1,90E+02	0	2,48E+00	0	5,34E-01	-9,97E+00
		6mm	2,14E+02	1,95E+02	9,21E+00	6,17E+00	2,11E+02	0	2,98E+00	0	6,41E-01	-1,20E+01
		8mm	2,83E+02	2,58E+02	1,23E+01	8,13E+00	2,78E+02	0	3,97E+00	0	8,55E-01	-1,60E+01
		10mm	3,59E+02	3,28E+02	1,53E+01	1,02E+01	3,53E+02	0	4,96E+00	0	1,07E+00	-2,00E+01
		12mm	4,54E+02	4,17E+02	1,71E+01	1,25E+01	4,46E+02	0	5,96E+00	0	1,28E+00	-2,41E+01
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
WDP ¹	m3	4mm	2,01E+00	1,92E+00	-1,31E-03	1,18E-01	2,04E+00	0	6,64E-04	0	-2,21E-02	-4,92E-01
		5mm	2,57E+00	2,44E+00	-1,64E-03	1,53E-01	2,60E+00	0	8,30E-04	0	-2,76E-02	-6,14E-01
		6mm	3,00E+00	2,87E+00	-2,00E-03	1,67E-01	3,03E+00	0	9,96E-04	0	-3,31E-02	-7,38E-01
		8mm	4,02E+00	3,84E+00	-2,68E-03	2,20E-01	4,06E+00	0	1,33E-03	0	-4,42E-02	-9,85E-01
		10mm	4,94E+00	4,72E+00	-3,33E-03	2,74E-01	4,99E+00	0	1,66E-03	0	-5,52E-02	-1,23E+00
		12mm	5,41E+00	5,14E+00	-3,72E-03	3,38E-01	5,48E+00	0	1,99E-03	0	-6,62E-02	-1,49E+00
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	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.											

Potential environmental impact – additional mandatory and voluntary indicators

Results per declared unit												
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
GWP-GHG	kg CO2 eq.	4mm	1,21E+01	8,93E+00	4,32E-01	2,42E+00	1,18E+01	0	1,40E-01	0	1,90E-01	-6,81E-01
		5mm	1,59E+01	1,17E+01	5,40E-01	3,23E+00	1,55E+01	0	1,76E-01	0	2,38E-01	-8,50E-01
		6mm	1,75E+01	1,30E+01	6,60E-01	3,39E+00	1,70E+01	0	2,11E-01	0	2,85E-01	-1,02E+00
		8mm	2,32E+01	1,72E+01	8,84E-01	4,49E+00	2,25E+01	0	2,81E-01	0	3,80E-01	-1,36E+00
		10mm	2,91E+01	2,17E+01	1,10E+00	5,45E+00	2,83E+01	0	3,51E-01	0	4,75E-01	-1,70E+00
		12mm	3,54E+01	2,73E+01	1,22E+00	5,96E+00	3,45E+01	0	4,21E-01	0	5,70E-01	-2,06E+00
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Particulate matter	Disease inc.	4mm	1,00E-06	1,27E-07	2,37E-08	8,33E-07	9,84E-07	0	9,00E-09	0	1,05E-08	-3,34E-08
		5mm	1,31E-06	1,62E-07	2,94E-08	1,10E-06	1,29E-06	0	1,13E-08	0	1,31E-08	-4,17E-08
		6mm	1,42E-06	1,90E-07	3,63E-08	1,16E-06	1,39E-06	0	1,35E-08	0	1,57E-08	-5,01E-08
		8mm	1,87E-06	2,55E-07	4,87E-08	1,53E-06	1,83E-06	0	1,80E-08	0	2,10E-08	-6,69E-08
		10mm	2,33E-06	3,11E-07	6,08E-08	1,91E-06	2,29E-06	0	2,25E-08	0	2,62E-08	-8,36E-08
		12mm	2,84E-06	3,33E-07	6,80E-08	2,38E-06	2,78E-06	0	2,70E-08	0	3,15E-08	-1,01E-07
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Ionising radiation ¹	KBq U-235 eq	4mm	1,52E-01	8,48E-02	2,65E-02	2,99E-02	1,41E-01	0	8,54E-03	0	1,85E-03	-1,82E-02
		5mm	1,94E-01	1,08E-01	3,31E-02	3,92E-02	1,81E-01	0	1,07E-02	0	2,31E-03	-2,27E-02
		6mm	2,24E-01	1,26E-01	4,05E-02	4,20E-02	2,08E-01	0	1,28E-02	0	2,78E-03	-2,73E-02
		8mm	2,98E-01	1,68E-01	5,43E-02	5,53E-02	2,77E-01	0	1,71E-02	0	3,70E-03	-3,64E-02
		10mm	3,71E-01	2,09E-01	6,74E-02	6,92E-02	3,45E-01	0	2,14E-02	0	4,63E-03	-4,55E-02
		12mm	4,29E-01	2,37E-01	7,52E-02	8,58E-02	3,98E-01	0	2,56E-02	0	5,55E-03	-5,49E-02
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Land use ²	Pt	4mm	3,04E+01	1,65E+01	1,91E-02	1,14E+01	2,79E+01	0	1,12E-02	0	2,55E+00	-4,61E+00
		5mm	3,85E+01	2,10E+01	2,39E-02	1,42E+01	3,53E+01	0	1,40E-02	0	3,19E+00	-5,76E+00
		6mm	4,57E+01	2,47E+01	2,92E-02	1,70E+01	4,18E+01	0	1,68E-02	0	3,83E+00	-6,91E+00
		8mm	6,10E+01	3,31E+01	3,91E-02	2,27E+01	5,59E+01	0	2,24E-02	0	5,11E+00	-9,20E+00
		10mm	7,52E+01	4,03E+01	4,86E-02	2,84E+01	6,87E+01	0	2,80E-02	0	6,38E+00	-1,15E+01
		12mm	8,43E+01	4,24E+01	5,42E-02	3,41E+01	7,66E+01	0	3,36E-02	0	7,66E+00	-1,38E+01
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Ecotoxicity, freshwater ²	CTUe	4mm	8,31E+01	6,94E+01	2,28E+00	4,53E+00	7,62E+01	0	8,87E-01	0	5,94E+00	-1,84E+01
		5mm	1,06E+02	8,89E+01	2,85E+00	5,89E+00	9,76E+01	0	1,11E+00	0	7,43E+00	-2,30E+01
		6mm	1,24E+02	1,04E+02	3,49E+00	6,40E+00	1,14E+02	0	1,33E+00	0	8,92E+00	-2,77E+01
		8mm	1,66E+02	1,39E+02	4,67E+00	8,44E+00	1,53E+02	0	1,77E+00	0	1,19E+01	-3,69E+01
		10mm	2,03E+02	1,70E+02	5,82E+00	1,05E+01	1,86E+02	0	2,22E+00	0	1,49E+01	-4,61E+01
		12mm	2,21E+02	1,81E+02	6,50E+00	1,30E+01	2,00E+02	0	2,66E+00	0	1,78E+01	-5,56E+01
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Human toxicity, cancer effects ²	CTUh	4mm	2,34E-08	1,05E-09	4,46E-11	3,33E-10	1,43E-09	0	1,20E-11	0	2,19E-08	-2,90E-10
		5mm	2,92E-08	1,33E-09	5,63E-11	4,18E-10	1,81E-09	0	1,49E-11	0	2,74E-08	-3,57E-10
		6mm	3,50E-08	1,55E-09	6,80E-11	4,95E-10	2,11E-09	0	1,79E-11	0	3,29E-08	-4,25E-10
		8mm	4,67E-08	2,07E-09	9,09E-11	6,59E-10	2,82E-09	0	2,39E-11	0	4,39E-08	-5,65E-10
		10mm	5,83E-08	2,52E-09	1,12E-10	8,23E-10	3,46E-09	0	2,99E-11	0	5,48E-08	-7,07E-10
		12mm	6,96E-08	2,68E-09	1,25E-10	9,91E-10	3,79E-09	0	3,59E-11	0	6,58E-08	-8,55E-10
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Human toxicity, non cancer effects ²	CTUh	4mm	6,99E-08	2,75E-08	3,38E-09	2,60E-09	3,34E-08	0	1,33E-09	0	3,51E-08	-6,86E-09
		5mm	8,82E-08	3,51E-08	4,19E-09	3,35E-09	4,27E-08	0	1,66E-09	0	4,39E-08	-8,56E-09
		6mm	1,05E-07	4,10E-08	5,18E-09	3,70E-09	4,99E-08	0	2,00E-09	0	5,26E-08	-1,03E-08
		8mm	1,40E-07	5,49E-08	6,95E-09	4,87E-09	6,67E-08	0	2,66E-09	0	7,02E-08	-1,37E-08
		10mm	1,73E-07	6,73E-08	8,67E-09	6,07E-09	8,20E-08	0	3,33E-09	0	8,77E-08	-1,72E-08
		12mm	2,00E-07	7,34E-08	9,71E-09	7,45E-09	9,06E-08	0	3,99E-09	0	1,05E-07	-2,08E-08
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. 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.											

Use of resources

Results per declared unit												
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
PERE	MJ	4mm	5,55E+00	3,26E+00	8,62E-03	2,27E+00	5,55E+00	0	2,55E-03	0	7,46E-04	-4,84E-01
		5mm	7,01E+00	4,14E+00	1,08E-02	2,85E+00	7,01E+00	0	3,19E-03	0	9,33E-04	-6,04E-01
		6mm	8,16E+00	4,75E+00	1,32E-02	3,40E+00	8,16E+00	0	3,83E-03	0	1,12E-03	-7,27E-01
		8mm	1,09E+01	6,32E+00	1,77E-02	4,53E+00	1,09E+01	0	5,11E-03	0	1,49E-03	-9,68E-01
		10mm	1,38E+01	8,09E+00	2,20E-02	5,66E+00	1,38E+01	0	6,38E-03	0	1,87E-03	-1,21E+00
		12mm	1,67E+01	9,90E+00	2,45E-02	6,80E+00	1,67E+01	0	7,66E-03	0	2,24E-03	-1,48E+00
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
PERM	MJ	4mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		5mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		6mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		8mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		10mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		12mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
PERT	MJ	4mm	5,55E+00	3,26E+00	8,62E-03	2,27E+00	5,55E+00	0	2,55E-03	0	7,46E-04	-4,84E-01
		5mm	7,01E+00	4,14E+00	1,08E-02	2,85E+00	7,01E+00	0	3,19E-03	0	9,33E-04	-6,04E-01
		6mm	8,16E+00	4,75E+00	1,32E-02	3,40E+00	8,16E+00	0	3,83E-03	0	1,12E-03	-7,27E-01
		8mm	1,09E+01	6,32E+00	1,77E-02	4,53E+00	1,09E+01	0	5,11E-03	0	1,49E-03	-9,68E-01
		10mm	1,38E+01	8,09E+00	2,20E-02	5,66E+00	1,38E+01	0	6,38E-03	0	1,87E-03	-1,21E+00
		12mm	1,67E+01	9,90E+00	2,45E-02	6,80E+00	1,67E+01	0	7,66E-03	0	2,24E-03	-1,48E+00
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
PENRE	MJ	4mm	1,62E+02	1,48E+02	6,40E+00	4,71E+00	1,60E+02	0	2,11E+00	0	4,54E-01	-8,60E+00
		5mm	2,13E+02	1,95E+02	8,00E+00	6,14E+00	2,09E+02	0	2,63E+00	0	5,67E-01	-1,07E+01
		6mm	2,35E+02	2,15E+02	9,78E+00	6,64E+00	2,32E+02	0	3,16E+00	0	6,81E-01	-1,29E+01
		8mm	3,11E+02	2,84E+02	1,31E+01	8,75E+00	3,06E+02	0	4,21E+00	0	9,08E-01	-1,72E+01
		10mm	3,95E+02	3,61E+02	1,63E+01	1,09E+01	3,88E+02	0	5,27E+00	0	1,13E+00	-2,15E+01
		12mm	4,99E+02	4,60E+02	1,82E+01	1,35E+01	4,91E+02	0	6,32E+00	0	1,36E+00	-2,60E+01
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
PENRM	MJ	4mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		5mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		6mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		8mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		10mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		12mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
PENRT	MJ	4mm	1,62E+02	1,48E+02	6,40E+00	4,71E+00	1,60E+02	0	2,11E+00	0	4,54E-01	-8,60E+00
		5mm	2,13E+02	1,95E+02	8,00E+00	6,14E+00	2,09E+02	0	2,63E+00	0	5,67E-01	-1,07E+01
		6mm	2,35E+02	2,15E+02	9,78E+00	6,64E+00	2,32E+02	0	3,16E+00	0	6,81E-01	-1,29E+01
		8mm	3,11E+02	2,84E+02	1,31E+01	8,75E+00	3,06E+02	0	4,21E+00	0	9,08E-01	-1,72E+01
		10mm	3,95E+02	3,61E+02	1,63E+01	1,09E+01	3,88E+02	0	5,27E+00	0	1,13E+00	-2,15E+01
		12mm	4,99E+02	4,60E+02	1,82E+01	1,35E+01	4,91E+02	0	6,32E+00	0	1,36E+00	-2,60E+01
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
SM	kg	4mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		5mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		6mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		8mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		10mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		12mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
RSF	MJ	4mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		5mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		6mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		8mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		10mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		12mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00

Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
NRSF	MJ	4mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		5mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		6mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		8mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		10mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		12mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
FW	m3	4mm	5,41E-02	5,11E-02	1,22E-05	3,44E-03	5,46E-02	0	4,62E-05	0	-5,09E-04	-1,30E-02
		5mm	6,90E-02	6,51E-02	1,53E-05	4,47E-03	6,96E-02	0	5,78E-05	0	-6,36E-04	-1,62E-02
		6mm	8,06E-02	7,64E-02	1,86E-05	4,88E-03	8,13E-02	0	6,94E-05	0	-7,63E-04	-1,95E-02
		8mm	1,08E-01	1,02E-01	2,49E-05	6,43E-03	1,09E-01	0	9,25E-05	0	-1,02E-03	-2,60E-02
		10mm	1,33E-01	1,26E-01	3,07E-05	8,04E-03	1,34E-01	0	1,16E-04	0	-1,27E-03	-3,26E-02
		12mm	1,46E-01	1,37E-01	3,42E-05	9,89E-03	1,47E-01	0	1,39E-04	0	-1,53E-03	-3,94E-02
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											

Waste production and output flows

Waste production

Results per declared unit												
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	4mm	2,69E-04	1,79E-04	1,29E-05	7,04E-05	2,62E-04	0	5,36E-06	0	1,12E-06	-5,96E-06
		5mm	3,51E-04	2,36E-04	1,59E-05	9,11E-05	3,43E-04	0	6,71E-06	0	1,40E-06	-7,44E-06
		6mm	3,84E-04	2,58E-04	1,97E-05	9,66E-05	3,75E-04	0	8,05E-06	0	1,68E-06	-8,95E-06
		8mm	5,05E-04	3,40E-04	2,65E-05	1,26E-04	4,92E-04	0	1,07E-05	0	2,24E-06	-1,19E-05
		10mm	6,40E-04	4,34E-04	3,31E-05	1,56E-04	6,24E-04	0	1,34E-05	0	2,79E-06	-1,49E-05
		12mm	8,12E-04	5,63E-04	3,71E-05	1,93E-04	7,93E-04	0	1,61E-05	0	3,35E-06	-1,80E-05
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Non-hazardous waste disposed	kg	4mm	1,66E+00	1,19E-01	3,28E-04	8,56E-02	2,05E-01	0	5,48E-04	0	1,45E+00	-3,13E-02
		5mm	2,08E+00	1,52E-01	4,11E-04	1,12E-01	2,65E-01	0	6,85E-04	0	1,81E+00	-3,90E-02
		6mm	2,48E+00	1,78E-01	5,02E-04	1,20E-01	2,98E-01	0	8,22E-04	0	2,18E+00	-4,70E-02
		8mm	3,30E+00	2,38E-01	6,72E-04	1,57E-01	3,96E-01	0	1,10E-03	0	2,90E+00	-6,26E-02
		10mm	4,11E+00	2,82E-01	8,34E-04	1,97E-01	4,80E-01	0	1,37E-03	0	3,63E+00	-7,88E-02
		12mm	4,90E+00	2,96E-01	9,30E-04	2,43E-01	5,40E-01	0	1,64E-03	0	4,35E+00	-9,78E-02
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Radioactive waste disposed	kg	4mm	1,51E-04	8,67E-05	4,36E-05	4,00E-06	1,34E-04	0	1,41E-05	0	3,05E-06	-1,89E-05
		5mm	1,92E-04	1,11E-04	5,46E-05	5,08E-06	1,70E-04	0	1,76E-05	0	3,81E-06	-2,36E-05
		6mm	2,27E-04	1,28E-04	6,67E-05	5,84E-06	2,01E-04	0	2,11E-05	0	4,57E-06	-2,84E-05
		8mm	3,03E-04	1,72E-04	8,94E-05	7,75E-06	2,69E-04	0	2,82E-05	0	6,09E-06	-3,78E-05
		10mm	3,77E-04	2,13E-04	1,11E-04	9,69E-06	3,34E-04	0	3,52E-05	0	7,62E-06	-4,73E-05
		12mm	4,28E-04	2,41E-04	1,24E-04	1,17E-05	3,77E-04	0	4,22E-05	0	9,14E-06	-5,70E-05

Environmental information describing output flows

Results per declared unit												
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Components for re-use	kg	4mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		5mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		6mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		8mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		10mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		12mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Materials for recycling	kg	4mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		5mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		6mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		8mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		10mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		12mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Materials for energy recovery	kg	4mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		5mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		6mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		8mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		10mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		12mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
Indicator	Unit	Width	Total w/o D	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Exported energy	Mj	4mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		5mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		6mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		8mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		10mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00
		12mm	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0	0,00E+00	0,00E+00

Information on biogenic carbon content

Results per declared unit							
BIOGENIC CARBON CONTENT	Unit	4mm	5mm	6mm	8mm	10mm	12mm
Biogenic carbon content in product	kgC/m ²	0	0	0	0	0	0
Biogenic carbon content in packaging	kgC/m ²	1,40E-01	1,75E-01	2,10E-01	2,80E-01	3,50E-01	4,20E-01

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

References

PCR 2019:14 Construction products (EN 15804:A2) (1.11);

c-PCR-009 Flat glass products used in buildings and other construction works (EN 17074) (2021-01-25)

EN 15804:2012+A2:2019: Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products

EN 17074:2019 Glass in building - Environmental product declaration - Product category rules for flat glass products

ISO 14040-44: UNI EN ISO 14040:2021: Environmental management - Life cycle assessment - Principles and framework and UNI EN ISO 14040:2006) Requirements and guidelines

EN 673:2011 Glass in building - Determination of thermal transmittance (U value) - Calculation method

EN 410:2011 Glass in building - Determination of luminous and solar characteristics of glazing

EN 572-2:2012 Glass in building. Basic soda lime silicate glass products. Float glass.

CE marking: Construction Products Regulation (CPR) Regulation (EU) No 305/2011 of the European Parliament and of the Council

Construction Products Regulation (CPR: Construction Products Regulation (CPR) Regulation (EU) No 305/2011 of The European Parliament and of the Council

Ecoinvent: Ecoinvent Centre, www.ecoinvent.com

GPI: General Programme Instruction v.3.1

SimaPro: SimaPro LCA Package, Pré Consultants, the Netherlands, www.pre-sustainability.com

