

Owner: DEKO p|s
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3rd PARTY VERIFIED

EPD

VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | ISO 14025 & EN 15804



Owner of declaration
 DEKO p/s
 Mårkærvej 11, DK-2630 Taastrup
 66674517



Issued:
 12-11-2024

Valid to:
 12-11-2029

Programme
 EPD Danmark
www.epddanmark.dk



- Industry EPD
- Product EPD

Basis of calculation

This EPD is developed in accordance with the European standard EN 15804+A2 and the cPCR EN 17074:2019

Comparability

EPDs of construction products may not be comparable if they do not comply with the requirements in EN 15804. EPD data may not be comparable if the datasets used are not developed in accordance with EN 15804 and if the background systems are not based on the same database.

Validity

This EPD has been verified in accordance with ISO 14025 and is valid for 5 years from the date of issue.

Use

The intended use of an EPD is to communicate scientifically based environmental information for construction products, for the purpose of assessing the environmental performance of buildings.

Declared product(s)
 DEKO FG Fire (clear) EI30
 DEKO FG Fire (clear) EI60
 DEKO FG Fire (clear) EI120

Number of declared datasets/product variations: 3

Production site
 Mårkærvej 11, DK-2630 Taastrup

The products are not manufactured using green certificates (GO) for the energy consumption in A3.

- Use of Guarantees of Origin**
- No certificates used
 - Electricity covered by GoO
 - Biogas covered by GoO

EPD type

- Cradle-to-gate with modules C1-C4 and D
- Cradle-to-gate with options, modules C1-C4 and D
- Cradle-to-grave and module D
- Cradle-to-gate
- Cradle-to-gate with options

Declared unit
 1 m² glazed partition wall system

Functional unit
 1 m² of soundproofing and fireproofing glazed wall partition system, including associated fixing components with a reference service life of 30 years

Year of production site data (A3)
 2022


EPD version
 [Vers. 1], [October 2024]

CEN standard EN 15804 serves as the core PCR

Independent verification of the declaration and data, according to EN ISO 14025

internal external

Third party verifier:


 Linda Høiby
 Life Cycle Assessment Consulting


 Martha Katrine Sørensen
 EPD Danmark

Life cycle stages and modules (MND = module not declared)

Product			Construction process		Use							End of life				Beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport	Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Re-use, recovery and recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Product information

Product description

The main product components are shown in the table below.

Material	Weight-% of declared products
Glass	98 – 98.8
Galvanized steel profile	0.66-0.98
Aluminium profiles incl. powder coating	0.16 – 0.3
Magnesium silicate	<1
Calcium silicate	<1
Sealing silicone	<1
Fire adhesive (inorganic glue)	<1
Plastic (polyamide, PVC)	<1
Steel	<1

Product packaging:

The composition of the sales- and transport packaging of the product is shown in the table below.

Material	Weight-% of packaging
Plastic (LDPE foil, tape and PP straps)	20
Wood (EUR pallet, masonite)	70
Cardboard	7
Steel straps	3

Representativity

This declaration, including data collection and the modelled foreground system including results, represents the production of 1 m² glazed partition wall system on the production site located in Taastrup, DK. Product specific data are based on average values collected in the period 2022. Background data are based on 'LCA for Experts' and EcoInvent database and are less than 10 years old. Generally, the used background datasets are of high quality, and the majority of the datasets are only a couple of years old.

Hazardous substances

DEKO FG Fire glazed partition system does not contain substances listed on the "Candidate List of Substances of Very High Concern for authorisation"

(<http://echa.europa.eu/candidate-list-table>)

Product(s) use

The function of the product is division of indoor spaces, soundproofing and fireproofing.

Essential characteristics

The FG Fire partition systems compose of glass panes, aluminium profiles, galvanized steel profiles, magnesium and calcium silicate, fire adhesive, sealing silicone and small plastic and metal components. The systems offer sound insulation and fireproofing according to the standards; (DS/EN ISO 10140-2) and (DS/EN 13501-2).

	Sound insulation (dB)	Fire performance
EI30	39	A2-S1, d0
EI60	40	A2-S1, d0
EI120	42	A2-S1, d0

Test reports as well as other technical information can be obtained by contacting DEKO.

DEKO FG Fire partition system are covered by harmonised technical specification according to European Technical Assessment ETA-10/0224 of 07/09/2015 in the Construction Products Regulation for the DEKO FG Fire partition system, declaration of performance ref. no. DoP-002-ETA10/0224-EN.

Further technical information can be obtained by contacting the manufacturer or on the manufacturers website:

<https://www.deko.com/>

Reference Service Life (RSL)

The reference service life is 30 years which is determined according to the guarantee DEKO p|s provides on their systems.

Geographical scope

The geographical scope of this study is Europe.

Picture of product(s)

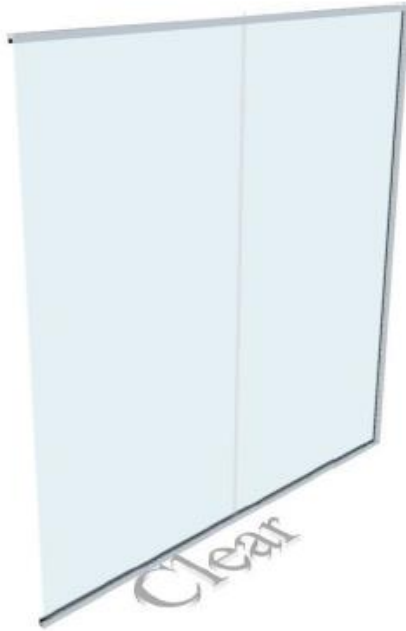


Figure 1: Example of the FG Fire (clear) system

LCA background

Declared unit

The LCI and LCIA results in this EPD relates to 1 m² glazed partition wall system.

FG Fire (clear) system	EI30	EI60	EI120	Unit
Declared unit	1 m ² glazed partition wall system			-
Density	65.3	95.4	118.5	kg/m ²
Conversion factor to 1 kg.	0.015	0.010	0.008	m ² /kg

Functional unit

1 m² of soundproofing and fireproofing glazed wall partition system, including associated fixing components with a reference service life of 30 years.

Allocation

Allocation is made in accordance with EN 15804 + A2. Energy and waste in module A3 are allocated among the different FG Fire systems based on the total amount of bought glass panes (m²).

Impacts from pre-consumer scrap is allocated to the main product system in which the material is used (FG Fire systems). Impacts from post-consumer scrap is allocated to the former product system. Additionally, transport and recycling process are included to account for the processing of scrap needed to utilise scrap in a new product.

The remaining materials are modelled as primary materials.

PCR

This EPD is developed according to the core rules for the product category of construction products in EN 15804:2012+A2:2019. In addition to this it also follows the c-PCR for glass in buildings EN 17074:2019.

Energy modelling principles

Foreground system:

The products are produced without using any green certificates (GO). Therefore, the energy

consumption in module A3 is modelled using Residual grid mix (DK). Remaining energy processes are modelled using grid mix.

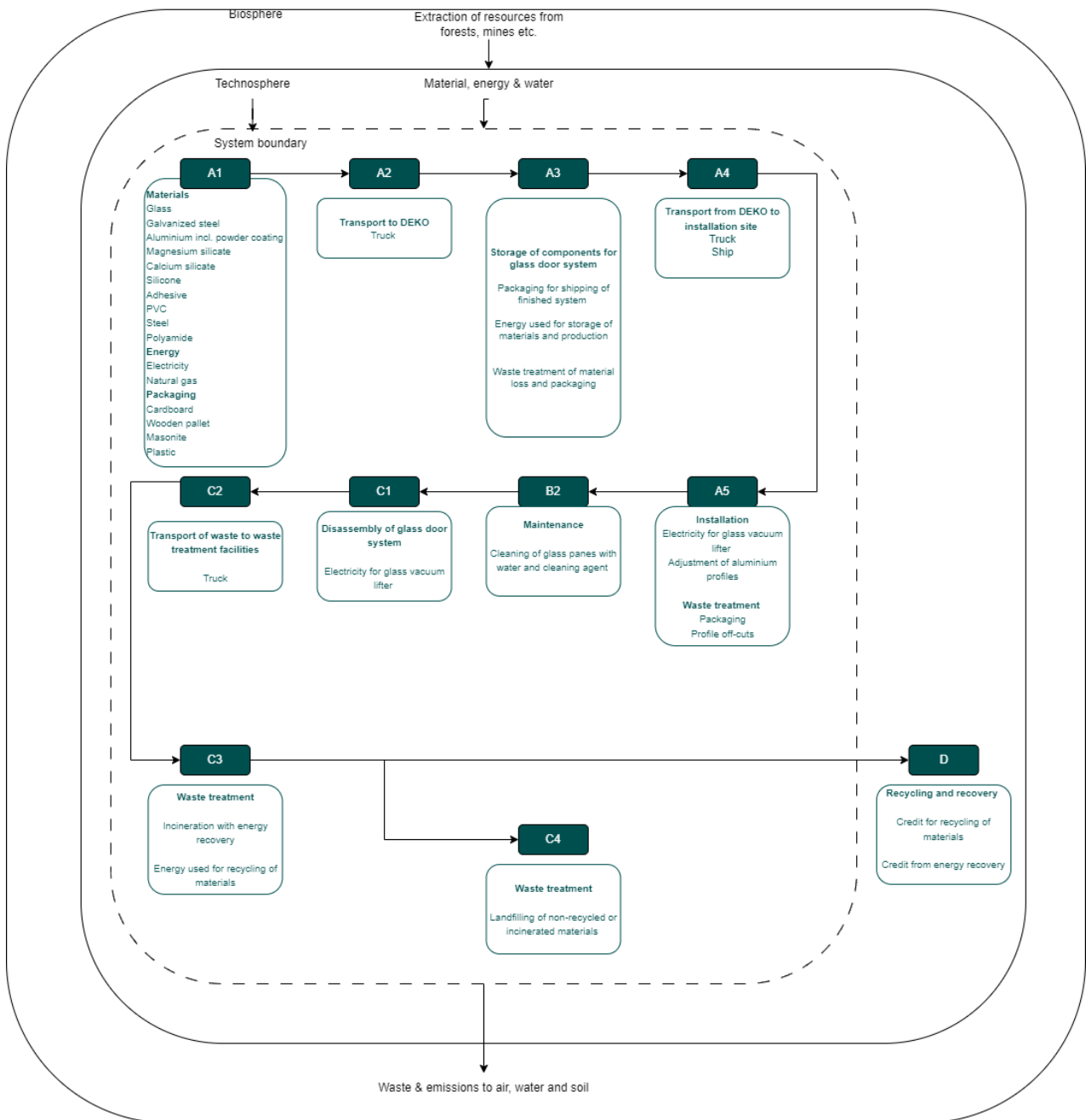
Information about the energy mix in the foreground system:

Electricity grid mix, DK, 2020	0.156	kg CO ₂ -eq/kWh
Electricity grid mix, Europe, 2020	0.289	kg CO ₂ -eq/kWh
Residual grid mix, DK, 2022	0.628	kg CO ₂ -eq/kWh
Thermal energy from natural gas, DK, 2020	0.062	kg CO ₂ -eq/MJ

Background system:

Upstream and downstream processes are modelled using datasets representing average supply mixes for the specific country or region.

Flow diagram



System boundary

This EPD is based on a cradle-to-grave and module D LCA, in which 100 weight-% has been accounted for.

The general rules apply for the exclusion of inputs and outputs in the LCA, which is in compliance with the rules in EN 15804:2012+A2:2019, 6.3.6, in case of insufficient input data gaps for unit process, the cut-off criteria shall be 1% of renewable and non-renewable primary energy usage and 1% of the total mass input of that unit process. The total of neglected input flows per module, e.g. per module A1-A3, A4-A5, B1-B5, B6-B7, C1-C4 and module D shall be a maximum of 5% of energy usage and mass.

Excluded processes in the system include energy use of electric screwdriver during installation and disassembly in module A5 and C1, respectively. The energy use for adjustment of aluminium profiles in module A5 is excluded as this is deemed negligible. As the system is only being stored at DEKO, thus no energy from the production in module A3 has been allocated to the system. Only a minor energy consumption from the office and warehouse is allocated to the system. No water is needed to produce the system, as the water use is exclusively for sanitary purposes. It is estimated that the amount of water allocated to 1 m² FG Fire system is insignificant and falls under the cut-off rule. Therefore, the water usage and sewage originating in module A3 are excluded from the study.

Product stage (A1-A3) includes:

A1 – Extraction and processing of raw materials

A2 – Transport to the production site

A3 – Manufacturing processes

The product stage comprises the acquisition of all raw materials, products and energy, transport to the production site, losses from production, packaging and waste processing up to the “end-of-waste” state or final disposal. The LCA results are declared in aggregated form for the product stage, which means, that the sub-modules A1, A2 and A3 are declared as one module A1-A3.

FG Fire systems compose of glass, aluminium, plastic, galvanized steel, magnesium and calcium silicate, fire adhesive, and sealing silicone.

The glass panes are customised in specific measurement before arriving at DEKO, hence no adjustment is needed.

The aluminium profiles are extruded into profiles prior to the aluminium profiles arrive at DEKO. The scrap content in the aluminium is 6% post-consumer and 85% pre-consumer. The pre-consumer scrap is attributed the same environmental impacts as primary aluminium. The profiles are delivered in standard length and are fitted during installation. The steel profiles are also fitted during installation.

The materials are stored and packed in Taastrup DK.

Construction process stage (A4-A5) includes:

The installation of the FG Fire Clear system is done using electric screw drivers and a glass vacuum lifter. The aluminium and steel profiles are adjusted during installation, thus the transport and treatment of aluminium cut-offs are handled in module A5 and the aluminium is credited in module D. The steel straps for packaging are also assumed recycled in A5 and credited in module D.

The plastic packaging is assumed incinerated with energy recovery and credited in module D. The wooden pallet is assumed reused 25 times. Therefore, 1/25 of the pallet is assumed incinerated and credited in module D. Cardboard and other wooden packaging components are assumed incinerated together with the pallet.

Use stage (B1-B7) includes:

The environmental impacts occurring in the use stage can exclusively be attributed to the cleaning of the glass panes. No replacements are expected during the RSL. It is assumed that the glass panes (incl. profiles) are cleaned three times per year with the use of 0.2 l water and 0.001kg cleaning agent per m² throughout the 30 years (RSL). Subsequently, the used cleaning water and cleaning agent is treated as wastewater.

End of Life (C1-C4) includes:

It is assumed that 100% of the wall partition system is collected at the demolition site and sent for waste treatment. The waste treatment for the specific material fractions follows the guidelines in cPCR EN17074:2019 and supported by literature sources.

The waste is transported to waste treatment facilities. For recycling the distance is set to 230-550 km depending on the material whereas the waste going to incineration is transported 50 km and waste to landfill is transported 70 km.

The following waste treatment rates are applied: between 9-15% loss is assumed for material losses from sorting metals according to EN17074. For plastic components 100% is assumed incinerated. The loss of metal is assumed landfilled. 100% of the glass is assumed landfilled as this is the most likely scenario for fire-resistant glass where recycling is difficult due to the fire-resistant coating.

Materials	Recycling (%)	Incineration (%)	Loss (%)
Glass	0	0	100
Aluminium	91	0	9
Steel & galvanized steel	85	0	15
Magnesium silicate	0	0	100
Calcium silicate	0	0	100
Silicone sealing	0	100	0
Adhesive	0	100	0
PVC	0	100	0
PA6	0	100	0

Re-use, recovery and recycling potential (D) includes:

In module D the potential benefits from recovery and recycling of materials from the product and packaging is modelled.

For aluminium, the secondary material is subtracted to avoid double counting. This entails that only the primary materials are credited in module D.

LCA results

ENVIRONMENTAL IMPACTS PER 1 m ² FG Fire (clear) EI30												
Parameter	Unit	A1-A3	A4	A5	B1	B2	B3-B7	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ eq.]	1.28E+02	2.19E+00	1.52E+00	0.00E+00	3.13E-01	0.00E+00	2.32E-01	5.12E-01	5.78E-01	1.13E+00	-3.52E+00
GWP-fossil	[kg CO ₂ eq.]	1.29E+02	2.16E+00	7.56E-01	0.00E+00	2.92E-01	0.00E+00	2.30E-01	5.04E-01	4.74E-01	9.76E-01	-3.52E+00
GWP-biogenic	[kg CO ₂ eq.]	-9.42E-01*	0.00E+00*	7.59E-01	0.00E+00	0.00E+00*	0.00E+00	1.96E-03	0.00E+00*	1.04E-01	1.51E-01**	-7.46E-03
GWP-luluc	[kg CO ₂ eq.]	9.69E-02	3.53E-02	3.69E-03	0.00E+00	2.12E-02	0.00E+00	3.53E-05	8.47E-03	6.91E-05	5.77E-03	-1.04E-03
ODP	[kg CFC 11 eq.]	2.04E-05	3.12E-13	5.14E-12	0.00E+00	2.42E-08	0.00E+00	4.93E-12	5.08E-14	7.41E-12	2.50E-12	-5.66E-12
AP	[mol H ⁺ eq.]	5.16E-01	9.74E-03	1.50E-03	0.00E+00	2.06E-03	0.00E+00	3.77E-04	2.63E-03	7.78E-04	6.85E-03	-1.30E-02
EP-freshwater	[kg P eq.]	1.05E-03	8.97E-06	1.87E-06	0.00E+00	1.14E-04	0.00E+00	1.06E-06	2.15E-06	1.37E-06	6.29E-06	-3.48E-06
EP-marine	[kg N eq.]	1.28E-01	4.57E-03	5.82E-04	0.00E+00	6.90E-04	0.00E+00	1.10E-04	1.27E-03	2.20E-04	1.80E-03	-2.79E-03
EP-terrestrial	[mol N eq.]	1.53E+00	5.10E-02	6.61E-03	0.00E+00	4.37E-03	0.00E+00	1.15E-03	1.42E-02	2.41E-03	1.95E-02	-3.03E-02
POCP	[kg NMVOC eq.]	3.38E-01	9.37E-03	1.27E-03	0.00E+00	1.23E-03	0.00E+00	2.84E-04	2.54E-03	5.80E-04	5.47E-03	-8.57E-03
ADPm ¹	[kg Sb eq.]	2.39E-01	1.84E-07	6.13E-08	0.00E+00	3.21E-06	0.00E+00	4.95E-08	4.29E-08	6.10E-08	6.17E-08	-2.04E-07
ADPf ¹	[MJ]	1.88E+03	2.81E+01	7.75E+00	0.00E+00	5.34E+00	0.00E+00	4.84E+00	6.58E+00	6.97E+00	1.27E+01	-3.77E+01
WDP ¹	[m ³ world eq. deprived]	1.82E+01	3.26E-02	1.77E-01	0.00E+00	4.16E-01	0.00E+00	4.19E-02	7.50E-03	1.27E-01	1.09E-01	-7.97E-01
Caption	GWP-total = Globale Warming Potential - total; 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 = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water depletion potential											
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,000000000112.											
Disclaimer	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.											

* According to EN15804, the uptake of biogenic carbon from datasets describing transport, energy, detergent and water in module A2, A3, A4, B2 and C2 is balanced out as it represents less than 5 weight% of the biogenic carbon in the declared product.

** The reason for the large emission of biogenic carbon is the use of a generic dataset for landfilling of calcium and magnesium silicate. The emissions are conservative estimates of the impact for this indicator.

ADDITIONAL ENVIRONMENTAL IMPACTS PER 1 m ² FG Fire (clear) EI30												
Parameter	Unit	A1-A3	A4	A5	B1	B2	B3-B7	C1	C2	C3	C4	D
PM	[Disease incidence]	2.72E-07	7.79E-08	1.06E-08	0.00E+00	2.04E-08	0.00E+00	3.06E-09	1.37E-08	6.26E-09	8.59E-08	-2.23E-07
IRP ²	[kBq U235 eq.]	6.65E-01	7.38E-03	1.23E-01	0.00E+00	2.14E-02	0.00E+00	7.10E-02	1.19E-03	1.80E-01	1.30E-02	-1.84E-01
ETP-fw ¹	[CTUe]	2.78E+01	2.09E+01	3.62E+00	0.00E+00	5.42E+00	0.00E+00	1.23E+00	4.84E+00	2.07E+00	7.45E+00	-9.69E+00
HTP-c ¹	[CTUh]	2.90E-09	4.21E-10	1.30E-10	0.00E+00	3.72E-10	0.00E+00	8.21E-11	9.72E-11	1.17E-10	1.75E-10	-4.35E-09
HTP-nc ¹	[CTUh]	5.58E-08	1.88E-08	3.85E-09	0.00E+00	1.04E-08	0.00E+00	1.06E-09	4.32E-09	2.41E-09	6.91E-09	-2.18E-08
SQP ¹	-	1.45E+02	1.36E+01	3.43E+00	0.00E+00	3.97E+00	0.00E+00	2.49E+00	3.25E+00	2.90E+00	3.46E+00	-8.20E+00
Caption	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)											
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,000000000112.											
Disclaimers	¹ The results of this environmental 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 PER 1 m ² FG Fire (clear) EI30												
Parameter	Unit	A1-A3	A4	A5	B1	B2	B3-B7	C1	C2	C3	C4	D
PERE	[MJ]	4.45E+02	9.40E-01	1.20E+01	0.00E+00	1.78E+00	0.00E+00	4.52E+00	5.95E-01	8.30E-02	8.27E-01	-4.97E+01
PERM	[MJ]	8.39E+00	0.00E+00	-8.39E+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
PERT	[MJ]	4.54E+02	9.40E-01	3.64E+00	0.00E+00	1.78E+00	0.00E+00	4.52E+00	5.95E-01	8.30E-02	8.27E-01	-4.97E+01
PENRE	[MJ]	1.88E+03	1.32E+01	1.52E+01	0.00E+00	5.34E+00	0.00E+00	7.55E+00	8.20E+00	2.50E+00	5.35E+00	-2.10E+02
PENRM	[MJ]	3.35E+01	0.00E+00	-7.40E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.26E+00	0.00E+00	0.00E+00
PENRT	[MJ]	1.91E+03	1.32E+01	7.75E+00	0.00E+00	5.34E+00	0.00E+00	7.55E+00	8.20E+00	2.37E-01	5.35E+00	-2.10E+02
SM	[kg]	7.15E+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	0.00E+00
RSF	[MJ]	9.39E-11	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
NRSF	[MJ]	1.11E-09	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
FW	[m ³]	7.01E-01	1.03E-03	5.49E-03	0.00E+00	9.70E-03	0.00E+00	3.63E-03	6.52E-04	4.64E-03	1.20E-03	-6.82E-02
Caption	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 material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Net use of fresh water											
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.											

WASTE CATEGORIES AND OUTPUT FLOWS PER 1 m ² FG Fire (clear) EI30												
Parameter	Unit	A1-A3	A4	A5	B1	B2	B3-B7	C1	C2	C3	C4	D
HWD	[kg]	3.54E-02	1.07E-09	6.90E-09	0.00E+00	1.08E-10	0.00E+00	7.62E-09	2.13E-10	9.90E-09	3.03E-09	-7.86E-09
NHWD	[kg]	1.04E+01	4.56E-03	7.40E-02	0.00E+00	1.75E-02	0.00E+00	4.48E-03	1.02E-03	4.72E-02	6.42E+01	-8.18E-01
RWD	[kg]	1.05E-01	5.09E-05	7.49E-04	0.00E+00	1.04E-05	0.00E+00	7.71E-04	8.50E-06	1.09E-03	1.19E-04	-1.52E-03

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	0.00E+00
MFR	[kg]	1.13E+00	0.00E+00	1.69E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.68E-01	0.00E+00	0.00E+00
MER	[kg]	1.60E-03	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
EEE	[MJ]	3.63E-02	0.00E+00	1.08E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.46E-01	0.00E+00	0.00E+00
EET	[MJ]	6.59E-02	0.00E+00	1.94E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.39E-01	0.00E+00	0.00E+00
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy											
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.											

BIOGENIC CARBON CONTENT PER 1 m ² FG Fire (clear) EI30		
Parameter	Unit	At the factory gate
Biogenic carbon content in product	[kg C]	0
Biogenic carbon content in accompanying packaging	[kg C]	0.21
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO ₂	

ENVIRONMENTAL IMPACTS PER 1 m ² FG Fire (clear) EI60												
Parameter	Unit	A1-A3	A4	A5	B1	B2	B3-B7	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ eq.]	1.77E+02	3.09E+00	1.52E+00	0.00E+00	3.13E-01	0.00E+00	2.33E-01	7.30E-01	2.47E-01	1.62E+00	-3.67E+00
GWP-fossil	[kg CO ₂ eq.]	1.78E+02	3.04E+00	7.57E-01	0.00E+00	2.92E-01	0.00E+00	2.31E-01	7.18E-01	1.49E-01	1.43E+00	-3.66E+00
GWP-biogenic	[kg CO ₂ eq.]	-9.36E-01*	0.00E+00*	7.59E-01	0.00E+00	0.00E+00*	0.00E+00	1.96E-03	0.00E+00*	9.83E-02	1.80E-01**	-7.47E-03
GWP-luluc	[kg CO ₂ eq.]	1.35E-01	4.96E-02	3.71E-03	0.00E+00	2.12E-02	0.00E+00	3.53E-05	1.21E-02	1.98E-05	8.47E-03	-1.11E-03
ODP	[kg CFC 11 eq.]	2.80E-05	4.39E-13	5.14E-12	0.00E+00	2.42E-08	0.00E+00	4.93E-12	7.23E-14	1.38E-13	3.69E-12	-5.74E-12
AP	[mol H ⁺ eq.]	7.39E-01	1.37E-02	1.50E-03	0.00E+00	2.06E-03	0.00E+00	3.77E-04	3.73E-03	1.54E-04	1.01E-02	-1.34E-02
EP-freshwater	[kg P eq.]	1.19E-03	1.26E-05	1.88E-06	0.00E+00	1.14E-04	0.00E+00	1.06E-06	3.06E-06	3.66E-08	8.15E-06	-3.58E-06
EP-marine	[kg N eq.]	1.76E-01	6.42E-03	5.85E-04	0.00E+00	6.90E-04	0.00E+00	1.10E-04	1.80E-03	6.37E-05	2.63E-03	-2.88E-03
EP-terrestrial	[mol N eq.]	2.15E+00	7.17E-02	6.65E-03	0.00E+00	4.37E-03	0.00E+00	1.15E-03	2.01E-02	7.68E-04	2.85E-02	-3.12E-02
POCP	[kg NMVOC eq.]	4.65E-01	1.32E-02	1.28E-03	0.00E+00	1.23E-03	0.00E+00	2.84E-04	3.60E-03	1.65E-04	8.00E-03	-8.85E-03
ADPm ¹	[kg Sb eq.]	2.39E-01	2.58E-07	6.14E-08	0.00E+00	3.21E-06	0.00E+00	4.95E-08	6.11E-08	9.65E-10	9.07E-08	-2.10E-07
ADPf ¹	[MJ]	2.51E+03	3.96E+01	7.77E+00	0.00E+00	5.34E+00	0.00E+00	4.85E+00	9.37E+00	2.34E-01	1.86E+01	-3.89E+01
WDP ¹	[m ³ world eq. deprived]	1.76E+01	4.58E-02	1.77E-01	0.00E+00	4.16E-01	0.00E+00	4.19E-02	1.07E-02	3.72E-02	1.60E-01	-7.99E-01
Caption	GWP-total = Globale Warming Potential - total; 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 = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water depletion potential											
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.											
Disclaimer	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.											

* According to EN15804, the uptake of biogenic carbon from datasets describing transport, energy, detergent and water in module A2, A3, A4, B2 and C2 is balanced out as it represents less than 5 weight% of the biogenic carbon in the declared product.

** The reason for the large emission of biogenic carbon is the use of a generic dataset for landfilling of calcium and magnesium silicate. The emissions are conservative estimates of the impact for this indicator.

ADDITIONAL ENVIRONMENTAL IMPACTS PER 1 m ² FG Fire (clear) EI60												
Parameter	Unit	A1-A3	A4	A5	B1	B2	B3-B7	C1	C2	C3	C4	D
PM	[Disease incidence]	3.03E-07	1.10E-07	1.06E-08	0.00E+00	2.04E-08	0.00E+00	3.06E-09	1.95E-08	1.05E-09	1.26E-07	-2.28E-07
IRP ²	[kBq U235 eq.]	6.72E-01	1.04E-02	1.23E-01	0.00E+00	2.14E-02	0.00E+00	7.11E-02	1.69E-03	2.40E-03	1.97E-02	-1.84E-01
ETP-fw ¹	[CTUe]	3.15E+01	2.94E+01	3.63E+00	0.00E+00	5.42E+00	0.00E+00	1.23E+00	6.89E+00	1.18E-01	1.09E+01	-9.91E+00
HTP-c ¹	[CTUh]	3.13E-09	5.92E-10	1.30E-10	0.00E+00	3.72E-10	0.00E+00	8.22E-11	1.38E-10	6.88E-12	2.56E-10	-4.55E-09
HTP-nc ¹	[CTUh]	5.99E-08	2.65E-08	3.86E-09	0.00E+00	1.04E-08	0.00E+00	1.06E-09	6.16E-09	7.07E-10	1.01E-08	-2.23E-08
SQP ¹	-	1.48E+02	1.91E+01	3.44E+00	0.00E+00	3.97E+00	0.00E+00	2.49E+00	4.64E+00	6.91E-02	5.08E+00	-8.23E+00
Caption	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)											
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.											
Disclaimers	¹ The results of this environmental 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 PER 1 m ² FG Fire (clear) EI60												
Parameter	Unit	A1-A3	A4	A5	B1	B2	B3-B7	C1	C2	C3	C4	D
PERE	[MJ]	2.88E+02	3.35E+00	1.20E+01	0.00E+00	1.78E+00	0.00E+00	3.45E+00	7.92E-01	8.35E-02	3.17E+00	-1.65E+01
PERM	[MJ]	8.39E+00	0.00E+00	-8.39E+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
PERT	[MJ]	2.96E+02	3.35E+00	3.64E+00	0.00E+00	1.78E+00	0.00E+00	3.45E+00	7.92E-01	8.35E-02	3.17E+00	-1.65E+01
PENRE	[MJ]	2.49E+03	3.96E+01	1.52E+01	0.00E+00	5.34E+00	0.00E+00	4.85E+00	9.37E+00	2.50E+00	1.86E+01	-3.89E+01
PENRM	[MJ]	3.90E+01	0.00E+00	-7.40E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.26E+00	0.00E+00	0.00E+00
PENRT	[MJ]	2.53E+03	3.96E+01	7.77E+00	0.00E+00	5.34E+00	0.00E+00	4.85E+00	9.37E+00	2.35E-01	1.86E+01	-3.89E+01
SM	[kg]	1.13E+01	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
RSF	[MJ]	1.52E-10	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
NRSF	[MJ]	1.78E-09	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
FW	[m ³]	1.25E-01	3.73E-03	5.49E-03	0.00E+00	9.70E-03	0.00E+00	1.14E-03	8.89E-04	8.92E-04	4.88E-03	-3.07E-02
Caption	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 material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Net use of fresh water											
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.											

WASTE CATEGORIES AND OUTPUT FLOWS PER 1 m ² FG Fire (clear) EI60												
Parameter	Unit	A1-A3	A4	A5	B1	B2	B3-B7	C1	C2	C3	C4	D
HWD	[kg]	1.56E+00	1.51E-09	6.90E-09	0.00E+00	1.08E-10	0.00E+00	7.62E-09	3.03E-10	1.75E-10	4.48E-09	-7.96E-09
NHWD	[kg]	9.50E+00	6.41E-03	7.63E-02	0.00E+00	1.75E-02	0.00E+00	4.48E-03	1.46E-03	4.04E-02	9.43E+01	-8.20E-01
RWD	[kg]	7.28E-02	7.16E-05	7.50E-04	0.00E+00	1.04E-05	0.00E+00	7.71E-04	1.21E-05	1.53E-05	1.78E-04	-1.53E-03
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	0.00E+00
MFR	[kg]	5.27E-01	0.00E+00	1.82E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.27E-01	0.00E+00	0.00E+00
MER	[kg]	1.60E-03	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
EEE	[MJ]	3.63E-02	0.00E+00	1.08E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.35E-01	0.00E+00	0.00E+00
EET	[MJ]	6.59E-02	0.00E+00	1.94E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.16E-01	0.00E+00	0.00E+00
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy											
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.											

BIOGENIC CARBON CONTENT PER 1 m ² FG Fire (clear) EI60		
Parameter	Unit	At the factory gate
Biogenic carbon content in product	[kg C]	0
Biogenic carbon content in accompanying packaging	[kg C]	0.21
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO ₂	

ENVIRONMENTAL IMPACTS PER 1 m ² FG Fire (clear) EI120												
Parameter	Unit	A1-A3	A4	A5	B1	B2	B3-B7	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ eq.]	2.73E+02	3.83E+00	1.52E+00	0.00E+00	3.13E-01	0.00E+00	2.33E-01	8.99E-01	3.13E-01	1.97E+00	-3.84E+00
GWP-fossil	[kg CO ₂ eq.]	2.74E+02	3.77E+00	7.59E-01	0.00E+00	2.92E-01	0.00E+00	2.31E-01	8.84E-01	1.88E-01	1.78E+00	-3.83E+00
GWP-biogenic	[kg CO ₂ eq.]	-8.79E-01*	0.00E+00*	7.59E-01	0.00E+00	0.00E+00*	0.00E+00	1.96E-03	0.00E+00*	1.25E-01	1.85E-01**	-7.63E-03
GWP-luluc	[kg CO ₂ eq.]	1.89E-01	6.06E-02	3.73E-03	0.00E+00	2.12E-02	0.00E+00	3.53E-05	1.49E-02	2.50E-05	1.05E-02	-1.18E-03
ODP	[kg CFC 11 eq.]	5.96E-05	5.37E-13	5.14E-12	0.00E+00	2.42E-08	0.00E+00	4.94E-12	8.90E-14	1.65E-13	4.62E-12	-6.02E-12
AP	[mol H ⁺ eq.]	1.03E+00	1.67E-02	1.51E-03	0.00E+00	2.06E-03	0.00E+00	3.78E-04	4.58E-03	1.95E-04	1.25E-02	-1.38E-02
EP-freshwater	[kg P eq.]	1.42E-03	1.54E-05	1.88E-06	0.00E+00	1.14E-04	0.00E+00	1.06E-06	3.77E-06	4.46E-08	9.12E-06	-3.80E-06
EP-marine	[kg N eq.]	2.49E-01	7.85E-03	5.88E-04	0.00E+00	6.90E-04	0.00E+00	1.10E-04	2.22E-03	8.05E-05	3.26E-03	-2.98E-03
EP-terrestrial	[mol N eq.]	3.01E+00	8.77E-02	6.68E-03	0.00E+00	4.37E-03	0.00E+00	1.15E-03	2.47E-02	9.72E-04	3.55E-02	-3.23E-02
POCP	[kg NMVOC eq.]	6.59E-01	1.61E-02	1.29E-03	0.00E+00	1.23E-03	0.00E+00	2.84E-04	4.43E-03	2.09E-04	9.94E-03	-9.19E-03
ADPm ¹	[kg Sb eq.]	2.39E-01	3.16E-07	6.15E-08	0.00E+00	3.21E-06	0.00E+00	4.95E-08	7.52E-08	1.14E-09	1.13E-07	-2.18E-07
ADPf ¹	[MJ]	3.86E+03	4.84E+01	7.78E+00	0.00E+00	5.34E+00	0.00E+00	4.85E+00	1.15E+01	2.88E-01	2.32E+01	-4.05E+01
WDP ¹	[m ³ world eq. deprived]	2.39E+01	5.60E-02	1.77E-01	0.00E+00	4.16E-01	0.00E+00	4.20E-02	1.32E-02	4.70E-02	2.00E-01	-8.05E-01
Caption	GWP-total = Globale Warming Potential - total; 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 = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water depletion potential											
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.											
Disclaimer	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.											

* According to EN15804, the uptake of biogenic carbon from datasets describing transport, energy, detergent and water in module A2, A3, A4, B2 and C2 is balanced out as it represents less than 5 weight% of the biogenic carbon in the declared product.

** The reason for the large emission of biogenic carbon is the use of a generic dataset for landfilling of calcium and magnesium silicate. The emissions are conservative estimates of the impact for this indicator.

ADDITIONAL ENVIRONMENTAL IMPACTS PER 1 m ² FG Fire (clear) EI120												
Parameter	Unit	A1-A3	A4	A5	B1	B2	B3-B7	C1	C2	C3	C4	D
PM	[Disease incidence]	3.64E-07	1.34E-07	1.07E-08	0.00E+00	2.04E-08	0.00E+00	3.07E-09	2.41E-08	1.32E-09	1.57E-07	-2.34E-07
IRP ²	[kBq U235 eq.]	7.56E-01	1.27E-02	1.23E-01	0.00E+00	2.14E-02	0.00E+00	7.11E-02	2.08E-03	2.80E-03	2.51E-02	-1.89E-01
ETP-fw ¹	[CTUe]	3.84E+01	3.59E+01	3.64E+00	0.00E+00	5.42E+00	0.00E+00	1.23E+00	8.49E+00	1.47E-01	1.35E+01	-1.02E+01
HTP-c ¹	[CTUh]	3.66E-09	7.24E-10	1.30E-10	0.00E+00	3.72E-10	0.00E+00	8.22E-11	1.71E-10	8.57E-12	3.18E-10	-4.77E-09
HTP-nc ¹	[CTUh]	7.03E-08	3.23E-08	3.87E-09	0.00E+00	1.04E-08	0.00E+00	1.06E-09	7.59E-09	8.94E-10	1.25E-08	-2.29E-08
SQP ¹	-	1.72E+02	2.34E+01	3.45E+00	0.00E+00	3.97E+00	0.00E+00	2.50E+00	5.71E+00	8.37E-02	6.34E+00	-8.66E+00
Caption	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)											
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.											
Disclaimers	¹ The results of this environmental 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 PER 1 m ² FG Fire (clear) EI120												
Parameter	Unit	A1-A3	A4	A5	B1	B2	B3-B7	C1	C2	C3	C4	D
PERE	[MJ]	5.14E+02	4.10E+00	1.20E+01	0.00E+00	1.78E+00	0.00E+00	3.46E+00	9.75E-01	9.90E-02	3.96E+00	-1.68E+01
PERM	[MJ]	8.39E+00	0.00E+00	-8.39E+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
PERT	[MJ]	5.23E+02	4.10E+00	3.65E+00	0.00E+00	1.78E+00	0.00E+00	3.46E+00	9.75E-01	9.90E-02	3.96E+00	-1.68E+01
PENRE	[MJ]	4.02E+03	4.84E+01	1.52E+01	0.00E+00	5.34E+00	0.00E+00	4.85E+00	1.15E+01	3.16E+00	2.32E+01	-4.05E+01
PENRM	[MJ]	7.33E+01	0.00E+00	-7.40E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.87E+00	0.00E+00	0.00E+00
PENRT	[MJ]	4.10E+03	4.84E+01	7.78E+00	0.00E+00	5.34E+00	0.00E+00	4.85E+00	1.15E+01	2.88E-01	2.32E+01	-4.05E+01
SM	[kg]	1.39E+01	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
RSF	[MJ]	1.86E-10	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
NRSF	[MJ]	2.18E-09	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
FW	[m ³]	1.02E+00	4.57E-03	5.49E-03	0.00E+00	9.70E-03	0.00E+00	1.14E-03	1.10E-03	1.13E-03	6.09E-03	-3.10E-02
Caption	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 material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Net use of fresh water											
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.											

WASTE CATEGORIES AND OUTPUT FLOWS PER 1 m ² FG Fire (clear) EI120												
Parameter	Unit	A1-A3	A4	A5	B1	B2	B3-B7	C1	C2	C3	C4	D
HWD	[kg]	3.28E+00	1.85E-09	6.90E-09	0.00E+00	1.08E-10	0.00E+00	7.63E-09	3.73E-10	2.08E-10	5.61E-09	-8.33E-09
NHWD	[kg]	1.55E+01	7.84E-03	7.87E-02	0.00E+00	1.75E-02	0.00E+00	4.48E-03	1.79E-03	5.13E-02	1.17E+02	-8.23E-01
RWD	[kg]	1.32E-01	8.76E-05	7.50E-04	0.00E+00	1.04E-05	0.00E+00	7.72E-04	1.49E-05	1.79E-05	2.25E-04	-1.56E-03
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	0.00E+00
MFR	[kg]	5.64E-01	0.00E+00	1.96E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.91E-01	0.00E+00	0.00E+00
MER	[kg]	1.71E-03	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
EEE	[MJ]	3.86E-02	0.00E+00	1.08E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.25E-01	0.00E+00	0.00E+00
EET	[MJ]	7.01E-02	0.00E+00	1.94E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.08E-01	0.00E+00	0.00E+00
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy											
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.											

BIOGENIC CARBON CONTENT PER 1 m ² FG Fire (clear) EI120		
Parameter	Unit	At the factory gate
Biogenic carbon content in product	[kg C]	0
Biogenic carbon content in accompanying packaging	[kg C]	0.21
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO ₂	

Additional information

LCA interpretation

The results of this EPD are calculated based on 1 m² FG Fire system with different levels of fire safety; EI30, EI60 and EI120. The calculated results reflect that the glass production entails the greatest environmental impacts for the systems. This can be expected as the glass panes account for 98-99% of the weight and glass is energy and material intensive.

Technical information on scenarios

Transport to the building site (A4)

Scenario information	Truck	Ship	Unit
Fuel type	Diesel	Heavy fuel oil	-
Vehicle type	Truck, Euro 5, 26 - 28t gross weight / 18.4t payload capacity	Container ship, 5.000 to 200.000 dwt payload capacity, deep sea	-
Transport distance	217	33	km
Capacity utilisation (including empty runs)	<42.5	<42.5	%
Gross density of products transported	65.3 - 118.5		kg/m ²

Installation of the product in the building (A5)

Scenario information	Value	Unit
Waste materials (packaging + aluminium cut-offs + steel cut-offs)	0.79 - 0.83	kg
Output materials = installed FG Fire (clear)	65.3 - 118.5	kg

Reference service life

RSL information		Unit
Reference service Life	30	Years
Maintenance	Cleaning 3 times a year during the RSL	-

Use (B1-B7) – B2 Maintenance

Scenario information	Value	Unit
Maintenance process	The partition systems are assumed cleaned 3 times a year with mild cleaning agent.	
Maintenance cycle	3	/year
Waste materials resulting from maintenance (water and mild cleaning agent) during the RSL	0.201	kg
Net freshwater consumption during maintenance during the RSL	0.2	m ³

End of life (C1-C4)

Scenario information	EI30	EI60	EI120	Unit
Collected separately	65.09	95.20	118.25	kg
Collected with mixed waste	0.20	0.20	0.25	kg
For reuse	0	0	0	kg
For recycling	0.77	0.83	0.89	kg
For energy recovery	0.20	0.20	0.25	kg
For landfilling	64.13	94.14	117.16	kg
Assumptions for scenario development	Aluminium and steel are assumed recycled with an efficiency of 91%, 85% and 30%, respectively. 100% of the plastic is assumed incinerated. 100% of magnesium, calcium silicate and fire-resistant glass are assumed landfilled .			

Re-use, recovery and recycling potential (D)

Module	Scenario information	EI30	EI60	EI120	Unit
A5 (packaging and aluminium & steel cut-off)	Materials sent for recycling	0.194	0.209	0.226	kg
	Energy recovery from waste incineration (electricity)	1.6	1.6	1.6	MJ
	Energy recovery from waste incineration (thermal)	2.9	2.9	2.9	MJ
C3 (declared product)	Materials sent for recycling	0.77	0.83	0.89	kg
	Energy recovery from waste incineration (electricity)	0.35	0.34	0.43	MJ
	Energy recovery from waste incineration (thermal)	0.74	0.72	0.91	MJ

Indoor air

This EPD give information on release of dangerous substances to indoor air as DEKO has the FG Fire systems certified according to EuroFins Indoor Air Comfort Gold certification. Read more on release of dangerous substances to indoor air in EN15804+A2 chapter 7.4.1.

Soil and water

The EPD does not give information on release of dangerous substances to soil and water because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.2.

References

Publisher	 www.epddanmark.dk <small>Template version 2022.2</small>
Programme operator	Danish Technological Institute Buildings & Environment Gregersensvej DK-2630 Taastrup www.teknologisk.dk
LCA-practitioner	<i>Kasper Brodersen Møller Artelia A/S Mariane Thomsens Gade 1c 8000 Aarhus C Denmark</i> <i>Mathias Gustavsen Artelia A/S Mariane Thomsens Gade 1c 8000 Aarhus C Denmark</i>
LCA software / background data	<i>Sphera LCA for Experts vers. 10.7, professional database, version 2023.1 and EcoInvent vers. 3.9.1</i>
3rd party verifier	<i>Linda Høibye Life Cycle Assessment Consulting</i>

General programme instructions

General Programme Instructions, version 2.0, spring 2020
www.epddanmark.dk

EN 15804

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

EN 15942

DS/EN 15942:2011 – "Sustainability of construction works – Environmental product declarations – Communication format business-to-business"

EN 17074

DS/EN 17074:2019 – "Glass in building – Environmental product declaration – Product category rules for flat glass products"

DS/EN ISO 10140-2

Acoustics – Laboratory measurement of sound insulation of building elements – Part 2: Measurement of airborne sound insulation (ISO 10140-2:2021)

DS/EN 13501-2

Fire classification of construction products and building elements – Part 2: Classification using data from fire resistance and/or smoke control tests, excluding ventilation services

ISO 14025

DS/EN ISO 14025:2010 – “ Environmental labels and declarations – Type III environmental declarations – Principles and procedures”

ISO 14040

DS/EN ISO 14040:2008 – “ Environmental management – Life cycle assessment – Principles and framework”

ISO 14044

DS/EN ISO 14044:2008 – “ Environmental management – Life cycle assessment – Requirements and guidelines”