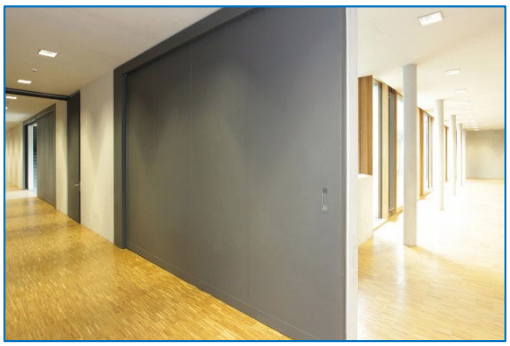
Environmental Product

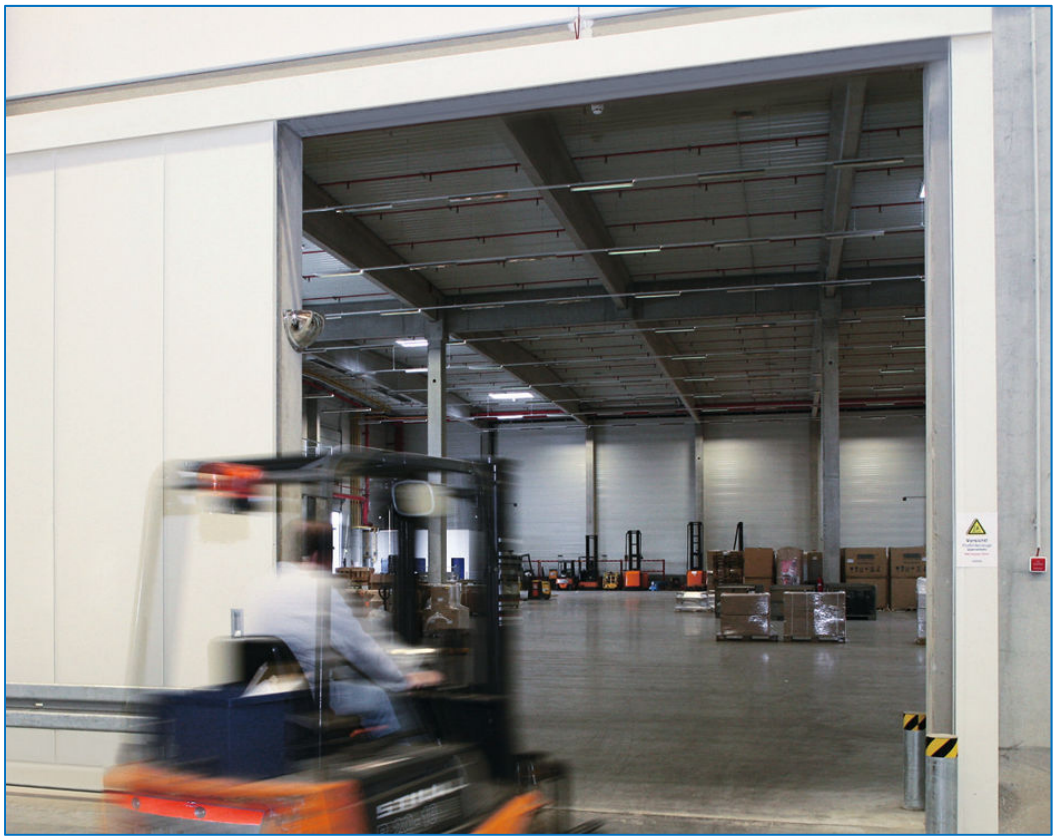
Declaration code EPD-EF-GB-5.2



Teckentrup GmbH & Co. KG

industrial doors and gates

Folding and sliding doors



Basis:

DIN EN ISO 14025
EN 15804 + A2

Company EPD **E**nvironmental **P**roduct **D**eclaration

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Environmental Product

Declaration code EPD-EF-GB-5.2

Programme operator	ift Rosenheim GmbH Theodor-Gietl-Straße 7-9 83026 Rosenheim, Germany		
Practitioner of the LCA	ift Rosenheim GmbH Theodor-Gietl-Straße 7-9 83026 Rosenheim, Germany		
Declaration holder	Teckentrup GmbH & Co. KG Industriestraße 50 33415 Verl-Sürenheide, Germany www.teckentrup.biz		
Declaration code	EPD-EF-GB-5.2		
Designation of declared product	Folding and sliding doors		
Scope	Teckentrup folding and sliding doors for outdoor (as well as indoor) use.		
Basis	This EPD was prepared on the basis of EN ISO 14025:2011 and DIN EN 15804:2012+A2:2019. In addition, the "Allgemeiner Leitfaden zur Erstellung von Typ III Umweltproduktdeklarationen" (General guideline for preparation of Type III Environmental Product Declarations) applies. The declaration is based on PCR documents "PCR Part A" PCR-A-0.3:2018 and “Doors and Gates" PCR TT-3.0:2023.		
Validity	Publication date: 20.06.2023	Last revision: 20.06.2023	Valid until: 20.06.2028
	This verified Company Environmental Product Declaration (company EPD) applies solely to the specified products and is valid for a period of five years from the date of publication in accordance with DIN EN 15804.		
LCA Basis	The LCA was prepared in accordance with DIN EN ISO 14040 and DIN EN ISO 14044. The data collected from production plant of the company Teckentrup GmbH & Co. KG were used as a data basis, as well as generic data from the database “LCA for Experts 10“. LCA calculations were carried out for the included “cradle to gate – with options” including all upstream chains (e.g. raw material extraction, etc.).		
Notes	The ift-Guidance Sheet “Conditions and Guidance for the Use of ift Test Documents” applies. The declaration holder assumes full liability for the underlying data, certificates and verifications.		

Christian Kehrer Head of Certification and Surveillance Body	Dr. Torsten Mielecke Chairman of Expert Committee ift-EPD and PCR	Patrick Wortner External verifier

1 General Product Information

Product definition

The EPD belongs to the product group industrial doors and gates and applies to

1 m² Folding door or sliding door
of company Teckentrup GmbH & Co. KG

The functional unit is obtained by summing up:

Product group	Declared unit	Weight per unit area
Folding door	1 m²	21.32 kg/m²
Sliding door	1 m²	9.65 kg/m²

Table 1 Product groups

The average unit is declared as follows:
Directly used material flows are determined using average sizes (2.5 m x 2.5 m) and allocated to the declared unit. All other inputs and outputs in the manufacture were scaled to the declared unit as a whole, since no direct assignment to the average size is possible. The reference period is the year 2020.

The validity of the EPD is restricted to the following models/series:

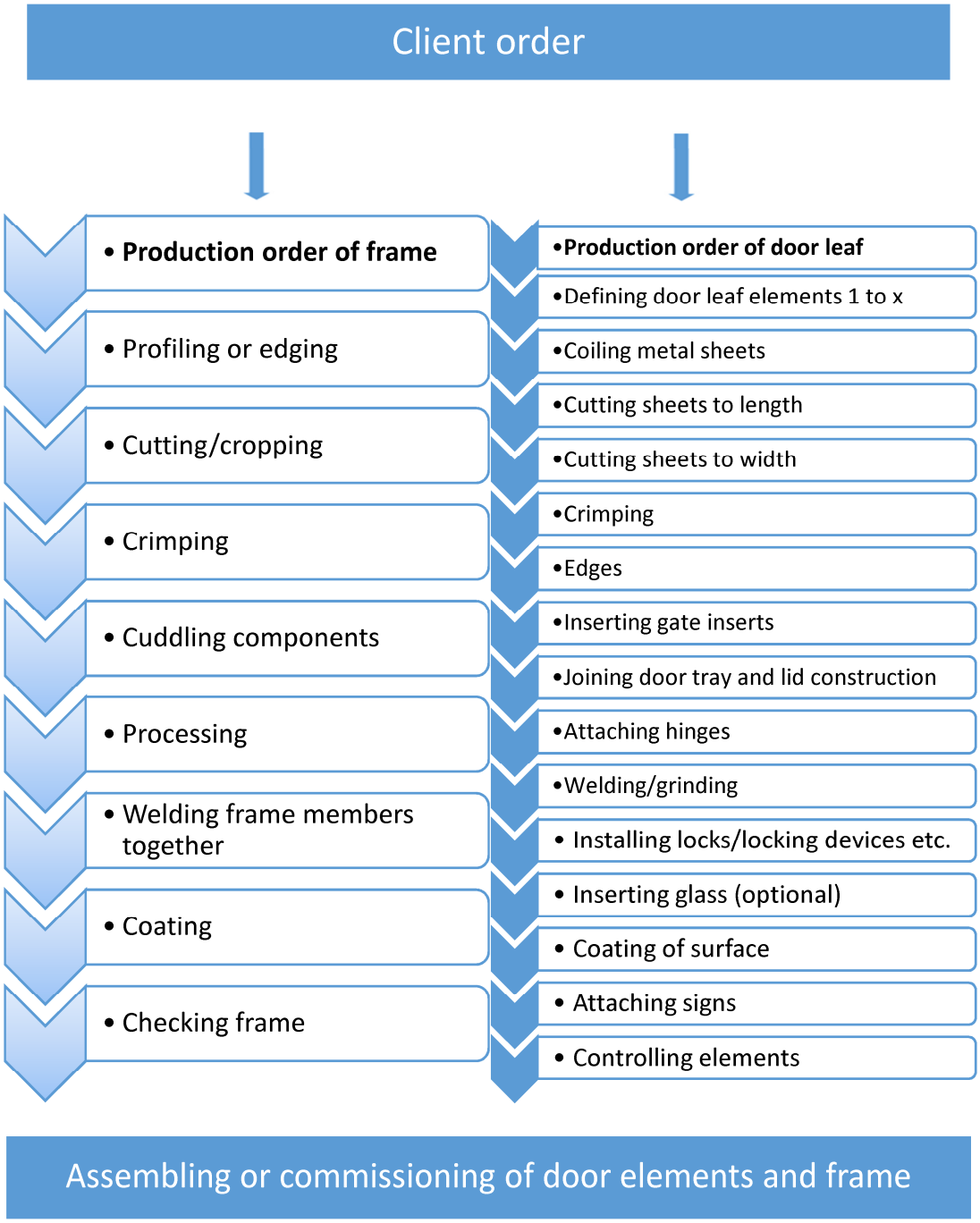
Product group	Designation
Folding door	Folding door FE "Teckentrup 50" Fire department folding door
Sliding door	**Steel sliding door** dw 62-1 „Teckentrup MST“ dw 62-2 „Teckentrup MST“ **Fire protection gate** $EI_2$30-C2-S_a / S_{200} „Teckentrup 62 FST“ single leaf $EI_2$30-C2-S_a / S_{200} „Teckentrup 62 FST“ double leaf $EI_2$90-C2-S_a / S_{200} „Teckentrup 62 FST“ single leaf $EI_2$90-C2-S_a / S_{200} „Teckentrup 62 FST“ double leaf

Table 2 Models per product group

Product description

For a detailed product description refer to the manufacturer specifications at www.teckentrup.biz or the product specifications of the respective offer/quotation.

Product manufacture



Application

Teckentrup folding and sliding doors for exterior (as well as interior) use as closures for structural openings and access routes in the industrial, commercial and private sectors, with or without glazing, to optimize traffic flow, improve the indoor climate and for energy saving.

Test evidence / reports

The following evidences/reports are available for sliding doors:

- Functionality/durability test according to EN 12605:2000

For information on further and updated verifications (including other national approvals) refer to www.teckentrup.biz.

Management systems

The following management systems are held:

- Quality management system as per DIN EN ISO 9001:2015
- Energy management system as per DIN EN ISO 50001:2018
- Environmental management system as per DIN EN ISO 14001:2015
- Management system for safety and health at work as per DIN EN ISO 45001:2018

Additional information

For additional verifications of applicability or conformity refer to the CE marking and the documents accompanying the product.

2 Materials used

Primary materials

The primary materials used are listed in the LCA (see Section 6).

Declarable substances

The product contains no substances from the REACH candidate list (declaration dated 06.12.2022).

All relevant safety data sheets can be obtained from company Teckentrup GmbH & Co. KG.

3 Construction process stage

Processing recommendations, installation

Observe the instructions for assembly/installation, operation, maintenance and disassembly, provided by the manufacturer. For this, see www.teckentrup.biz

4 Use stage

Emissions to the environment

No emissions to indoor air, water and soil are known. There may be VOC emissions.

Reference service life (RSL)

The RSL information was provided by the manufacturer. The RSL must be established under specified reference conditions of use and relate to the declared technical and functional performance of the product within the building. It must be determined according to all specific rules given in European product standards or, if none are available, according to a c-PCR. It must also take into account ISO 15686-1, -2, -7 and -8. If there is guidance on deriving RSLs from European Product Standards or a c-PCR, then such guidance must take precedence.
If it is not possible to determine the service life as the RSL in accordance with ISO 15686, the BBSR table “Nutzungsdauer von Bauteilen zur Lebenszyklusanalyse nach BNB” (service life of building components for life cycle assessment in accordance with the sustainable construction evaluation system) can be used. For further information and explanations refer to www.nachhaltigesbauen.de.

For this report the following applies:
For an EPD "cradle to factory gate with options", with modules C1-C4 and module D (A1-A3 + C + D and one or more additional modules from A4 to B7), the specification of a reference service life (RSL) is only possible if the reference service life conditions are specified.
The service life of the Folding and sliding doors of company Teckentrup GmbH & Co. KG is optionally specified as 50 years based on the BBSR table (steel doors, code no. 344.111).

The service life is dependent on the characteristics of the product and in-use conditions. The features described in the EPD are applied, in particular the following:

- Outdoor environment: Climatic influences may have a negative impact on the service life.
- Indoor environment: No impacts (e.g. humidity, temperature) known that have a negative effect on the service life.

The service life solely applies to the characteristics specified in this EPD or the corresponding references.
The RSL does not reflect the actual life time, which is usually determined by the service life and the redevelopment of a building. It does not give any information on the useful life, warranty referring to performance characteristics or guarantees.

5 End-of-life stage

Possible end-of-life stages

Folding and sliding doors are sent to central collection points. There the products are usually shredded and sorted into their constituents. The end-of-life stage depends on the site where the products are used and is therefore subject to the local regulations. Observe the locally applicable regulatory requirements.

In this EPD, the modules of after-use are presented according to the market situation. Steel, plaster, mineral wool as well as plastics are recycled to certain parts. Residual fractions are sent to landfill or, in part, thermally recycled.

Disposal routes

The LCA includes the average disposal routes.

All life cycle scenarios are detailed in the Annex.

6 Life Cycle Assessment (LCA)

Environmental product declarations are based on life cycle assessments (LCAs) which use material and energy flows for the calculation and subsequent representation of environmental impacts.

As a basis for this, life cycle assessments were prepared for Folding and sliding doors. These LCAs are in conformity with the requirements set out in DIN EN 15804 and the international standards DIN EN ISO 14040, DIN EN ISO 14044, ISO 21930 and EN ISO 14025.

The LCA is representative of the products presented in the Declaration and the specified reference period.

6.1 Definition of goal and scope

Aim

The goal of the LCA is to demonstrate the environmental impacts of the products. In accordance with DIN EN 15804, the environmental impacts covered by this Environmental Product Declaration are presented for the entire product life cycle in the form of basic information. No other additional environmental impacts are specified.

Data quality, data availability and geographical and time-related system boundaries

The specific data originate exclusively from the 2020 fiscal year. They were collected on-site at the plant located in Verl-Sürenheide and originate in parts from company records and partly from values directly obtained by measurement. Validity of the data was checked by the ift Rosenheim.

The generic data originates from the professional database and building materials database software “LCA for Experts”. The last update of both databases was in 2023. Data from before this date originate also from these databases and are not more than four years old. No other generic data were used for the calculation.

Generic data are selected as accurately as possible in terms of geographic reference. If no country-specific data sets are available or if the regional reference cannot be determined, European or globally valid data sets are used.

Data gaps were either filled with comparable data or conservative assumptions, or the data were cut off in compliance with the 1% rule.

The life cycle was modelled using the sustainability software tool “LCA for Experts” for the development of life cycle assessments.

Scope / system boundaries

The system boundaries refer to the supply of raw materials and purchased parts, manufacture/production, use and end-of-life stage of Folding and sliding doors.
No additional data from pre-suppliers/subcontractors or other sites were taken into consideration.

Cut-off criteria

All company data collected, i.e. all commodities/input and raw materials used, the thermal energy and electricity consumption, were taken into consideration.

The boundaries cover only the product-relevant data. Building sections/parts of facilities that are not relevant to the manufacture of the products, were excluded.

The transport distances of the pre-products used were taken into consideration as a function of 100% of the mass of the products.
The transport mix is consisted as follows and is derived from the research project "EPDs for transparent components":

- Truck, 26 – 28 t total weight / 18.4 t payload, Euro 6, freight, 85% capacity used, 100 km,
- Truck-trailer, 28 – 34 t total weight / 22 t payload, Euro 6, 50% capacity used, 50 km,
- Freight train, electrical and diesel driven; D 60%, E 51% capacity used, 50 km,
- Seagoing vessel, consumption mix, 50 km.

The criteria for the exclusion of inputs and outputs as set out in DIN EN 15804 are fulfilled. From the data analysis it can be assumed that the total of negligible processes per life cycle stage does not exceed 1% of the mass/primary energy. This way the total of negligible processes does not exceed 5% of the energy and mass input. The life cycle calculation also includes material and energy flows that account for less than 1%.

6.2 Inventory analysis

Aim

All material and energy flows are described below. The processes covered are presented as input and output parameters and refer to the declared/functional units.

Life cycle stages

The complete life cycle of Folding and sliding doors is shown in the annex. The product stage "A1 – A3", construction process stage "A4 – A5", use stage "B2 – B7", end-of-life stage "C1 – C4" and the benefits and loads beyond the system boundaries "D" are considered.

Benefits

The below benefits have been defined as per DIN EN 15804:

- Benefits from recycling
- Benefits (thermal and electrical) from incineration

Allocation of co-products

No allocations occur during production.

Allocations for re-use, recycling and recovery

If the products are reused/recycled and recovered during the product stage (rejects), the elements are shredded, if necessary and then sorted into their constituents. This is done by various process plants, e.g. magnetic separators.
The system boundaries were set following their disposal, reaching the end-of-waste status.

Allocations beyond life cycle boundaries

The use of recycled materials in the manufacturing process was based on the current market-specific situation. In parallel to this, a recycling potential was taken into consideration that reflects the economic value of the product after recycling (recyclate).
The system boundary set for the recycled material refers to collection.

Secondary material

The use of secondary material by Teckentrup GmbH & Co. KG was considered in Module A3. Secondary material is not used.

Inputs

The following manufacturing-related inputs were included in the LCA per 1 m² Folding door or sliding door:

Energy
For the input material natural gas, "Thermal energy from natural gas, DE" was assumed and for forklift gas, "liquefied petroleum gas (LPG), DE". The electricity mix is based on “Strommix Deutschland” (Germany electricity mix).

A portion of the process heat is used for space heating. This can, however, not be quantified, hence a “worst case” figure was taken into account for the product.

Water
There is no water consumption in the individual process steps for production.
The consumption of fresh water specified in Section 6.3 originates (among others) from the process chain of the pre-products.

Raw material/Pre-products
The chart below shows the share of raw materials/pre-products in percent.

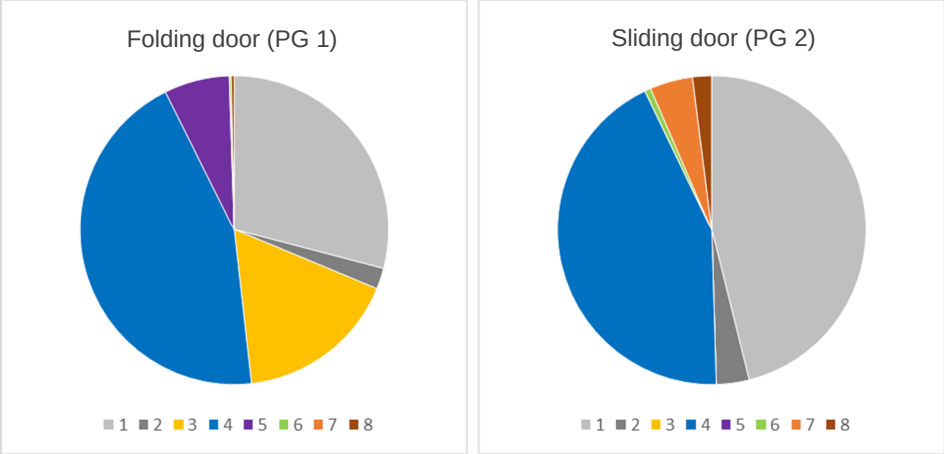


Illustration 1 Percentage of individual materials per declared unit

No.	Material	Mass in %	
		Folding door	Sliding door
1	Steel	29.06	46.10
2	Plaster	2.18	3.43
3	Insulation	16.97	0.00
4	Rock wool	44.43	43.35
5	Seals/Gaskets	6.83	0.00
6	Varnish (powder)	0.20	0.64
7	Varnish (wet)	0.00	4.49
8	Glue	0.32	2.00

Table 3 Percentage of individual materials per declared unit

Ancillary materials and consumables
Ancillary materials and consumables: 26.96 g for folding doors (PG 1) and 19.23 g for sliding doors (PG 2).

Product packaging
The amounts used for product packaging are as follows:

No.	Material	Mass in kg per door/gate	
		Folding door	Sliding door
1	Films and protective covers	0.00	0.36
2	Plastics	0.00	0.02
3	Wood	0.00	4.07
4	Cardboard	0.00	0.03
5	PE foam	0.16	0.00

Table 4 Weight in kg of packaging per declared unit

Biogenic carbon content
Only the biogenic carbon content of the associated packaging is reported, as the total mass of biogenic carbon-containing materials is less than 5% of the total mass of the product and associated packaging. According to EN 16449, the following amounts of biogenic carbon are generated for packaging:

No.	Part	Content in kg C per m²	
		Folding door	Sliding door
1	In the corresponding packaging	0.00	1.83

Table 5 Biogenic carbon content of the packaging at the factory gate

Outputs

The LCA includes the following production-relevant outputs per 1 m² of folding door or sliding door:

Waste
Secondary raw materials were included in the benefits.
See Section 6.3 Impact assessment.

Waste water
No waste water is produced during the manufacturing process.

6.3 Impact assessment

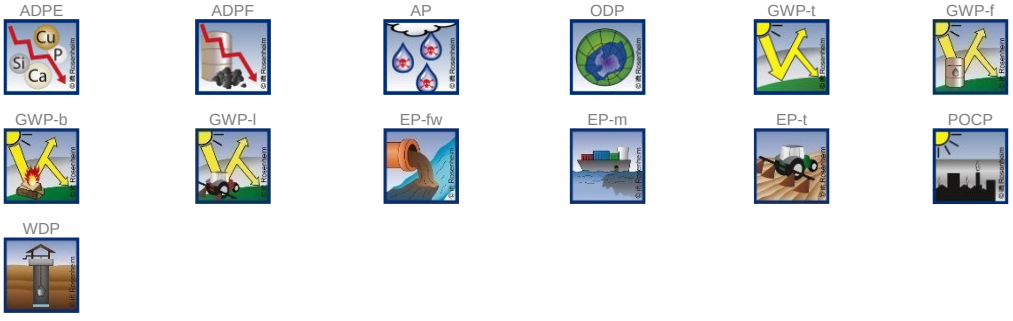
Aim

The impact assessment covers both inputs and outputs. The impact categories applied are stated below:

Impact categories

The models for impact assessment were applied as described in DIN EN 15804-A2. The impact categories presented in the EPD are as follows:

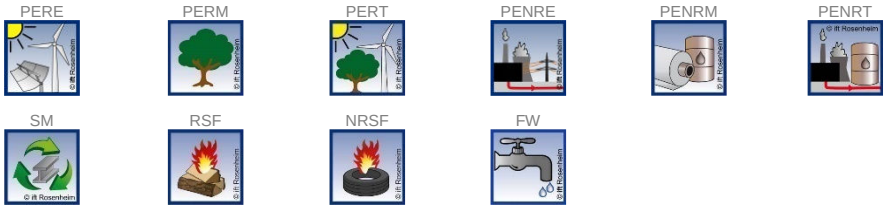
- Depletion of abiotic resources - minerals and metals,
- Depletion of abiotic resources - fossil fuels,
- Acidification;
- Ozone depletion;
- Climate change - total,
- Climate change - fossil;
- Climate change - biogenic;
- Climate change - land use and land use change,
- Eutrophication freshwater;
- Eutrophication salt water;
- Eutrophication land;
- Photochemical ozone creation;
- Water use.



Resource management

The models for impact assessment were applied as described in DIN EN 15804-A2.
The following resource use indicators are presented in the EPD:

- Renewable primary energy as energy source;
- Renewable primary energy for material use;
- Total use of renewable primary energy;
- Non-renewable primary energy as energy source;
- Renewable primary energy for material use;
- Total use of non-renewable primary energy;
- Use of secondary materials;
- Use of renewable secondary fuels;
- Use of non-renewable secondary fuels;
- Net use of freshwater resources.

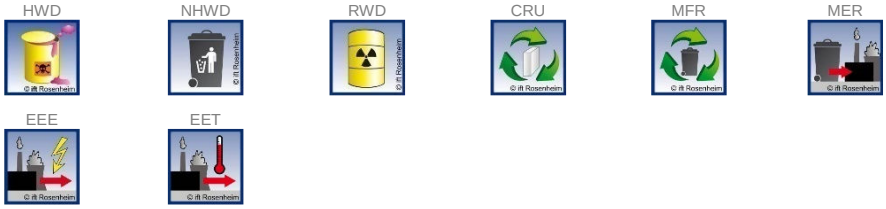


Waste

The waste generated during the production of 1 m² Folding door or sliding **door** is evaluated and shown separately for the fractions trade wastes, special wastes and radioactive wastes. Since waste handling is modelled within the system boundaries, the amounts shown refer to the deposited wastes. A portion of the waste indicated is generated during the manufacture of the pre-products.

The models for impact assessment were applied as described in DIN EN 15804-A2.
The following waste categories and indicators for output closures are presented in the EPD:

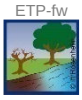
- Disposed hazardous waste;
- Disposed non-hazardous waste;
- Radioactive waste disposed;
- Components for re-use;
- Materials for recycling;
- Materials for energy recovery;
- Exported electrical energy;
- Exported thermal energy.



Additional environmental impact indicators

The models for impact assessment were applied as described in DIN EN 15804-A2.
The additional impact categories presented in the EPD are as follows:

- Fine dust missions,
- Ionizing radiation, human health,
- Ecotoxicity (freshwater),
- Human toxicity, carcinogenic effects,
- Human toxicity, non-carcinogenic effects,
- Impacts associated with land use/soil quality.

Product Manager 
IRP 
ETP-fw 
HTP-c 
HTP-nc 
SQP 

Results per 1 m² folding door															
Unit	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Core indicators															
GWP-t	kg CO_2 equivalent	57.79	1.96	0.50	ND	5.72E-03	0.17	0.00	0.00	0.00	0.00	0.00	6.16E-02	8.49	0.15	-11.60
GWP-f	kg CO_2 equivalent	57.47	1.97	0.50	ND	5.66E-03	0.17	0.00	0.00	0.00	0.00	0.00	6.19E-02	8.48	0.16	-11.60
GWP-b	kg CO_2 equivalent	0.26	-2.71E-02	1.71E-05	ND	5.18E-05	2.36E-04	0.00	0.00	0.00	0.00	0.00	-8.57E-04	1.07E-02	-5.17E-03	-5.54E-02
GWP-l	kg CO_2 equivalent	1.53E-02	1.79E-02	4.95E-07	ND	4.66E-07	2.30E-05	0.00	0.00	0.00	0.00	0.00	5.65E-04	1.42E-04	4.84E-04	-3.59E-03
ODP	kg CFC-11-eq.	2.88E-08	2.51E-13	2.37E-14	ND	6.70E-15	7.10E-14	0.00	0.00	0.00	0.00	0.00	7.93E-15	1.79E-11	3.96E-13	-2.36E-09
AP	mol H^+-eq.	0.18	2.63E-03	4.94E-05	ND	1.76E-05	1.05E-04	0.00	0.00	0.00	0.00	0.00	7.46E-05	4.15E-03	1.10E-03	-1.83E-02
EP-fw	kg P-eq.	1.15E-04	7.06E-06	5.62E-09	ND	4.38E-08	6.04E-08	0.00	0.00	0.00	0.00	0.00	2.23E-07	3.72E-06	3.13E-07	-2.99E-05
EP-m	kg N-eq.	3.20E-02	9.50E-04	1.03E-05	ND	2.96E-06	2.72E-05	0.00	0.00	0.00	0.00	0.00	2.56E-05	1.15E-03	2.85E-04	-5.26E-03
EP-t	mol N-eq.	0.54	1.10E-02	2.33E-04	ND	3.16E-05	3.44E-04	0.00	0.00	0.00	0.00	0.00	3.01E-04	1.54E-02	3.14E-03	-5.60E-02
POCP	kg NMVOC-eq.	0.10	2.32E-03	3.08E-05	ND	1.36E-05	9.42E-05	0.00	0.00	0.00	0.00	0.00	6.51E-05	3.02E-03	8.61E-04	-1.66E-02
ADPF*²	MJ	967.92	26.30	5.95E-02	ND	0.26	1.72	0.00	0.00	0.00	0.00	0.00	0.83	21.10	2.07	-214.00
ADPE*²	kg Sb equivalent	4.40E-06	1.27E-07	2.21E-10	ND	2.34E-10	1.84E-09	0.00	0.00	0.00	0.00	0.00	4.02E-09	1.50E-07	7.18E-09	-1.03E-06
WDP*²	m^3 world-eq. deprived	4.58	2.33E-02	4.62E-02	ND	0.11	1.94E-02	0.00	0.00	0.00	0.00	0.00	7.37E-04	0.97	1.71E-02	-0.90
Resource management															
PERE	MJ	128.67	1.92	1.52E-02	ND	4.62E-03	4.44E-02	0.00	0.00	0.00	0.00	0.00	6.05E-02	12.00	0.34	-41.00
PERM	MJ	0.00	0.00	0.00	ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERT	MJ	128.67	1.92	1.52E-02	ND	4.62E-03	4.44E-02	0.00	0.00	0.00	0.00	0.00	6.05E-02	12.00	0.34	-41.00
PENRE	MJ	859.35	26.40	3.34	ND	0.26	1.72	0.00	0.00	0.00	0.00	0.00	0.83	122.18	7.39	-214.00
PENRM	MJ	109.68	0.00	-3.28	ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-101.08	-5.32	0.00
PENRT	MJ	969.02	26.40	5.96E-02	ND	0.26	1.72	0.00	0.00	0.00	0.00	0.00	0.83	21.10	2.07	-214.00
SM	kg	0.00	0.00	0.00	ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RSF	MJ	4.95E-30	0.00	0.00	ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NRSF	MJ	7.52E-29	0.00	0.00	ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FW	m^3	0.17	2.10E-03	1.08E-03	ND	2.50E-03	5.78E-04	0.00	0.00	0.00	0.00	0.00	6.62E-05	2.74E-02	5.24E-04	-4.56E-02
Categories of waste															
HWD	kg	1.41E-07	8.18E-11	1.34E-12	ND	2.58E-12	4.68E-11	0.00	0.00	0.00	0.00	0.00	2.58E-12	-1.46E-09	4.51E-11	-3.92E-08
NHWD	kg	6.79	4.03E-03	1.99E-03	ND	7.40E-04	2.78E-03	0.00	0.00	0.00	0.00	0.00	1.27E-04	0.18	10.40	-0.13
RWD	kg	2.16E-02	4.94E-05	3.59E-06	ND	1.17E-06	1.13E-05	0.00	0.00	0.00	0.00	0.00	1.56E-06	3.10E-03	2.36E-05	-9.16E-03
Output material flows															
CRU	kg	0.00	0.00	0.00	ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MFR	kg	0.00	0.00	0.00	ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.67	0.00	0.00
MER	kg	0.00	0.00	0.00	ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EEE	MJ	0.40	0.00	1.07	ND	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	12.70	0.00	0.00
EET	MJ	0.94	0.00	1.90	ND	0.00	0.26	0.00	0.00	0.00	0.00	0.00	0.00	29.10	0.00	0.00

Key:
GWP-t – Global warming potential – total **GWP-f** – global warming potential fossil fuels **GWP-b** – global warming potential - biogenic **GWP-l** – global warming potential - land use and land use change **ODP** – ozone depletion potential **AP** - acidification potential **EP-fw** - eutrophication potential - aquatic freshwater **EP-m** - eutrophication potential - aquatic marine **EP-t** - feutrophication potential - terrestrial **POCP** - photochemical ozone formation potential **ADPF*²** - abiotic depletion potential – fossil resources **ADPE*²** - abiotic depletion potential –minerals&metals **WDP*²** – Water (user) deprivation potential **PERE** - Use of renewable primary energy **PERM** - use of renewable primary energy resources **PERT** - total use of renewable primary energy resources **PENRE** - use of non-renewable primary energy **PENRM** - use of non-renewable primary energy resources **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 **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

Results per 1 m² folding door															
	Unit	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Additional environmental impact indicators																
PM	Disease incidence	1.56E-06	1.80E-08	2.90E-10	ND	1.09E-10	7.16E-10	0.00	0.00	0.00	0.00	0.00	5.39E-10	2.84E-08	1.36E-08	-1.88E-07
IRP*[1]	kBq U235-eq.	7.87	7.37E-03	5.79E-04	ND	1.87E-04	1.53E-03	0.00	0.00	0.00	0.00	0.00	2.33E-04	0.51	2.73E-03	-1.80
ETP-fw*[2]	CTUe	397.30	18.70	2.74E-02	ND	0.18	1.04	0.00	0.00	0.00	0.00	0.00	0.59	9.14	1.13	-109.00
HTP-c*[2]	CTUh	5.72E-08	3.83E-10	3.26E-12	ND	3.52E-12	2.18E-11	0.00	0.00	0.00	0.00	0.00	1.21E-11	3.61E-10	1.74E-10	-5.60E-09
HTP-nc*[2]	CTUh	2.68E-06	2.06E-08	9.70E-11	ND	1.55E-10	9.40E-10	0.00	0.00	0.00	0.00	0.00	6.47E-10	1.17E-08	1.91E-08	-2.96E-07
SQP*[2]	dimensionless	140.38	11.00	1.88E-02	ND	3.20E-03	5.20E-02	0.00	0.00	0.00	0.00	0.00	0.35	8.09	0.50	-30.30

Key:
PM – particulate matter emissions potential **IRP*[1]** – ionizing radiation potential – human health **ETP-fw*[2]** - Ecotoxicity potential – freshwater **HTP-c*[2]** - Human toxicity potential – cancer effects
HTP-nc*[2] - Human toxicity potential – non-cancer effects **SQP*[2]** – soil quality potential

Disclaimers:

*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 experience with the indicator.

Results per 1 m² sliding door															
Unit	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Core indicators															
GWP-t	kg CO_2 equivalent	19.61	1.29	7.62	ND	5.72E-03	0.00	0.00	0.00	0.00	0.00	0.00	2.79E-02	1.90	6.82E-02	-8.87
GWP-f	kg CO_2 equivalent	26.20	1.30	1.08	ND	5.66E-03	0.00	0.00	0.00	0.00	0.00	0.00	2.80E-02	1.90	7.03E-02	-8.84
GWP-b	kg CO_2 equivalent	-6.54	-1.79E-02	6.54	ND	5.18E-05	0.00	0.00	0.00	0.00	0.00	0.00	-3.88E-04	4.66E-03	-2.33E-03	-2.69E-02
GWP-l	kg CO_2 equivalent	9.82E-03	1.18E-02	4.10E-05	ND	4.66E-07	0.00	0.00	0.00	0.00	0.00	0.00	2.56E-04	5.32E-05	2.18E-04	-2.36E-03
ODP	kg CFC-11-eq.	1.70E-10	1.65E-13	8.40E-13	ND	6.70E-15	0.00	0.00	0.00	0.00	0.00	0.00	3.59E-15	7.82E-12	1.79E-13	-4.23E-11
AP	mol H^+-eq.	8.79E-02	1.73E-03	1.21E-03	ND	1.76E-05	0.00	0.00	0.00	0.00	0.00	0.00	3.38E-05	1.31E-03	4.99E-04	-1.91E-02
EP-fw	kg P-eq.	5.18E-05	4.65E-06	2.35E-07	ND	4.38E-08	0.00	0.00	0.00	0.00	0.00	0.00	1.01E-07	1.60E-06	1.42E-07	-1.20E-05
EP-m	kg N-eq.	1.60E-02	6.25E-04	3.48E-04	ND	2.96E-06	0.00	0.00	0.00	0.00	0.00	0.00	1.16E-05	3.45E-04	1.29E-04	-4.55E-03
EP-t	mol N-eq.	0.27	7.27E-03	5.09E-03	ND	3.16E-05	0.00	0.00	0.00	0.00	0.00	0.00	1.36E-04	4.28E-03	1.42E-03	-4.89E-02
POCP	kg NMVOC-eq.	5.28E-02	1.53E-03	9.58E-04	ND	1.36E-05	0.00	0.00	0.00	0.00	0.00	0.00	2.95E-05	9.11E-04	3.89E-04	-1.42E-02
ADPF*²	MJ	365.00	17.30	2.08	ND	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.38	9.04	0.94	-113.00
ADPE*²	kg Sb equivalent	2.14E-05	8.37E-08	7.79E-09	ND	2.34E-10	0.00	0.00	0.00	0.00	0.00	0.00	1.82E-09	6.55E-08	3.24E-09	-1.15E-05
WDP*²	m^3 world-eq. deprived	1.03	1.54E-02	0.82	ND	0.11	0.00	0.00	0.00	0.00	0.00	0.00	3.34E-04	0.24	7.72E-03	-0.59
Resource management															
PERE	MJ	95.89	1.26	66.28	ND	4.62E-03	0.00	0.00	0.00	0.00	0.00	0.00	2.74E-02	5.29	0.15	-29.10
PERM	MJ	65.76	0.00	-65.76	ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERT	MJ	161.65	1.26	0.52	ND	4.62E-03	0.00	0.00	0.00	0.00	0.00	0.00	2.74E-02	5.29	0.15	-29.10
PENRE	MJ	344.47	17.40	9.87	ND	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.38	22.48	1.64	-114.00
PENRM	MJ	21.94	0.00	-7.79	ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-13.44	-0.71	0.00
PENRT	MJ	366.40	17.40	2.08	ND	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.38	9.04	0.94	-114.00
SM	kg	0.00	0.00	0.00	ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RSF	MJ	3.40E-30	0.00	0.00	ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NRSF	MJ	5.16E-29	0.00	0.00	ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FW	m^3	5.45E-02	1.38E-03	1.94E-02	ND	2.50E-03	0.00	0.00	0.00	0.00	0.00	0.00	3.00E-05	7.74E-03	2.36E-04	-2.58E-02
Categories of waste															
HWD	kg	4.95E-08	5.38E-11	4.13E-11	ND	2.58E-12	0.00	0.00	0.00	0.00	0.00	0.00	1.17E-12	-6.71E-10	2.04E-11	1.61E-11
NHWD	kg	4.03	2.65E-03	0.21	ND	7.40E-04	0.00	0.00	0.00	0.00	0.00	0.00	5.76E-05	3.80E-02	4.68	-0.14
RWD	kg	1.06E-02	3.25E-05	1.10E-04	ND	1.17E-06	0.00	0.00	0.00	0.00	0.00	0.00	7.07E-07	1.39E-03	1.07E-05	-7.17E-03
Output material flows															
CRU	kg	0.00	0.00	0.00	ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MFR	kg	0.00	0.00	0.00	ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.33	0.00	0.00
MER	kg	0.00	0.00	0.00	ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EEE	MJ	0.40	0.00	11.00	ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.49	0.00	0.00
EET	MJ	0.94	0.00	19.90	ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.71	0.00	0.00

Key:
GWP-t – Global warming potential – total **GWP-f** – global warming potential fossil fuels **GWP-b** – global warming potential - biogenic **GWP-l** – global warming potential - land use and land use change **ODP** – ozone depletion potential **AP** - acidification potential **EP-fw** - eutrophication potential - aquatic freshwater **EP-m** - eutrophication potential - aquatic marine **EP-t** - feutrophication potential - terrestrial **POCP** - photochemical ozone formation potential **ADPF*²** - abiotic depletion potential – fossil resources **ADPE*²** - abiotic depletion potential –minerals&metals **WDP*²** – Water (user) deprivation potential **PERE** - Use of renewable primary energy **PERM** - use of renewable primary energy resources **PERT** - total use of renewable primary energy resources **PENRE** - use of non-renewable primary energy **PENRM** - use of non-renewable primary energy resources **PENRT** - total use of non-renewable primary energy resources
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	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Results per 1 m² sliding door																
Additional environmental impact indicators																
PM	Disease incidence	1.69E-06	1.18E-08	8.76E-09	ND	1.09E-10	0.00	0.00	0.00	0.00	0.00	0.00	2.44E-10	9.77E-09	6.13E-09	-2.46E-07
IRP*[1]	kBq U235-eq.	1.27	4.85E-03	1.72E-02	ND	1.87E-04	0.00	0.00	0.00	0.00	0.00	0.00	1.05E-04	0.23	1.23E-03	-1.17
ETP-fw*[2]	CTUe	128.98	12.30	1.04	ND	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.27	3.96	0.51	-30.50
HTP-c*[2]	CTUh	2.92E-07	2.52E-10	8.51E-11	ND	3.52E-12	0.00	0.00	0.00	0.00	0.00	0.00	5.47E-12	1.43E-10	7.86E-11	-1.57E-07
HTP-nc*[2]	CTUh	4.32E-07	1.36E-08	6.06E-09	ND	1.55E-10	0.00	0.00	0.00	0.00	0.00	0.00	2.93E-10	4.07E-09	8.65E-09	-8.39E-08
SQP*[2]	dimensionless	1069.13	7.24	0.61	ND	3.20E-03	0.00	0.00	0.00	0.00	0.00	0.00	0.16	3.51	0.23	-20.20

Key:
PM – particulate matter emissions potential **IRP*[1]** – ionizing radiation potential – human health **ETP-fw*[2]** - Ecotoxicity potential – freshwater **HTP-c*[2]** - Human toxicity potential – cancer effects
HTP-nc*[2] - Human toxicity potential – non-cancer effects **SQP*[2]** – soil quality potential

Disclaimers:

*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 experience with the indicator.

6.4 Interpretation, LCA presentation and critical review

Evaluation

The environmental impacts of

- Folding doors (PG 1)
- Sliding doors (PG 2)

differ considerably from each other. The differences lie in the different pre-products and raw materials used and in the used masses of the used pre-products and raw materials. In particular, the higher volume of (high-grade) steel and mineral wool used for folding doors led us to expect this.

In the area of production, the environmental impact of the folding doors mainly results from the use of steel and the insulation material. Mineral wool affects the environmental impacts to a lesser but still strong degree. Further marginal environmental impacts are caused by the use of EPDM seals. For sliding doors, the insulation material and EPDM are omitted. Accordingly, the environmental impacts here arise mainly from the use of steel (especially stainless steel), and to a lesser extent from mineral wool.

During the utilisation phase, folding doors have marginal environmental impacts due to the replacement of EPDM seals. The cleaning process plays a minor role for folding and sliding doors.

In scenario C4, only marginal expenditures for the physical pretreatment and the landfill operation are to be expected. Allocation to individual products is almost impossible for site disposal.

When recycling the folding doors, about 3.03% of the environmental impacts occurring in the life cycle can be credited to Scenario D for steel, about 1.1 % for EPDM, about < 0.1 % for gypsum, about 2.3 % for isocyanate, and about 2.9 % for polyol.
When recycling the sliding doors, about 7.8% of the environmental impacts occurring in the life cycle can be credited to Scenario D for steel, about 7.1 % for stainless steel, and about < 0.1 % for gypsum.

The LCA results differ considerably from the results presented in the EPD prepared five years ago. This is partly due to methodological changes in modelling and partly reflects production changes. The sources of the differences are listed below:

1. Extensive further development/optimization of products, including replacement of materials used and reduction of material usage (including renaming of products)
2. Updating of the data basis and optimization of the data collection by the manufacturer

3. Selection of other, more suitable "LCA for Experts" data sets
4. Amendment of background data in "LCA for Experts" (version update)
5. Update of modeling basis due to revision of EN 15804+A1 to EN 15804+A2
6. Extension of considered life cycle modules

The charts below show the allocation of the main environmental impacts.

The values obtained from the LCA calculation are suitable for the certification of buildings.

Diagrams
The diagrams below show the B modules with reference to the specified RSL.

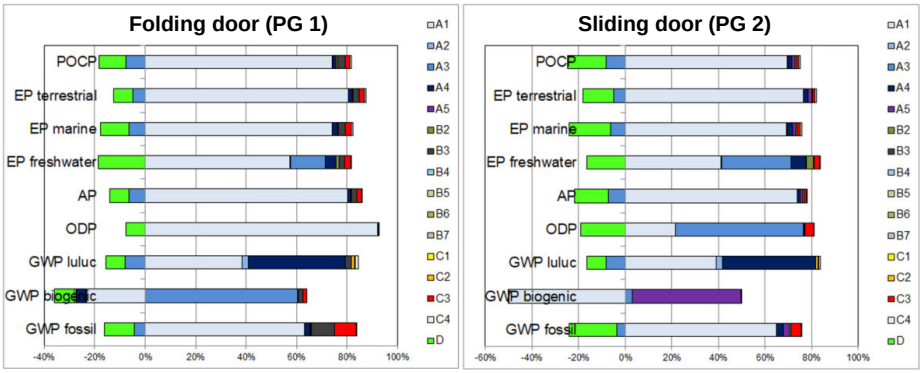

Illustration 2 Percentage of the modules in selected environmental impact indicators

Report

The LCA report underlying this EPD was developed according to the requirements of DIN EN ISO 14040 and DIN EN ISO 14044 as well as DIN EN 15804 and DIN EN ISO 14025. It is deposited with ift Rosenheim. The results and conclusions reported to the target group are complete, correct, without bias and transparent. The results of the study are not designed to be used for comparative statements intended for publication.

Critical review

The critical review of the LCA and of the report took place in the course of verification of the EPD and was carried out by the external auditor Patrick Wortner, MBA and Eng., Dipl.-Ing.

7 General information regarding the EPD

Comparability

This EPD was prepared in accordance with DIN EN 15804 and is therefore only comparable to those EPDs that also comply with the requirements set out in DIN EN 15804.
Any comparison must refer to the building context and the same boundary conditions of the various life cycle stages.
For comparing EPDs of construction products, the rules set out in DIN EN 15804, Clause 5.3, apply.

The detailed individual results of the products were summarised on the basis of conservative assumptions and differ from the average results. Identification of the product groups and the resulting variations are documented in the background report.

Communication

The communications format of this EPD meets the requirements of EN 15942:2012 and is therefore the basis for B2B communication. Only the nomenclature has been changed according to DIN EN 15804.

Verification

Verification of the Environmental Product Declaration is documented in accordance with the ift "Richtlinie zur Erstellung von Typ III Umweltproduktdeklarationen" (Guidance on preparing Type III Environmental Product Declarations) in accordance with the requirements set out in DIN EN ISO 14025.

This declaration is based on PCR documents "PCR Part A" PCR-A-0.3:2018 and “Doors and Gates" PCR TT-3.0:2023.

The European standard EN 15804 serves as the core PCR [a)]
Independent verification of the declaration and statement according to EN ISO 14025:2010
Independent third party verifier: [b)] Patrick Wortner
[a)] Product category rules [b)] Optional for business-to-business communication Mandatory for business-to-consumer communication (see EN ISO 14025:2010, 9.4).

Revisions of this document

No.	Date	Note	Person in charge	Testing personnel
1	20.06.2023	External verification	Pscherer	Wortner

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9 Annex

Description of life cycle scenarios for Folding and sliding doors

Product stage			Cons-truction process stage		Use stage*							End-of-life stage				Benefits and loads beyond system boundaries
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Raw material supply	Transport	production	Transport	Construction/installation process	Use	maintenance	Repair	replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/demolition	Transport	Waste processing	Disposal	Reuse Recovery Recycling potential
✓	✓	✓	✓	✓	—	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

* For declared B-modules, the calculation of the results is performed taking into account the specified RSL related to one year

Table 6 Overview of applied life cycle stages

The scenarios were calculated taking into account the defined RSL (see 4 Use stage).

The scenarios were based on information provided by the manufacturer. The scenarios were furthermore based on the research project "EPDs for transparent building components" (1).

Note: The standard scenarios selected are presented in bold type. They were also used for calculating the indicators in the summary table.

✓ Included in the LCA
— Not included in the LCA

A4 Transport to construction site

No.	Scenario	Description
A4.1	**Small series direct marketing on site/client/ Domestic branch**	**40 t truck (Euro 0-6 mix), diesel, 27 t payload, 60 % capacity utilization, approx. 420 km there and back 10 % capacity utilization**
A4.2	Small series direct marketing on site/client/ Branch abroad	40 t truck (Euro 0-6 mix), diesel, 27 t payload, 65 % capacity utilization, approx. 1,260 km there and back 10 % capacity utilization

A4 Transport to construction site	Transport weight [kg/m²]	Density [kg/mm²*mm]	Thickness [mm]
Folding door (PG 1)	21.48	426.39	50.00
Sliding door (PG 2)	14.14	192.96	62.00

A4 Transport to construction site	Unit	Folding door (PG 1)		Sliding door (PG 2)	
		A4.1	A4.2	**A4.1**	A4.2
Core indicators					
GWP-t	kg CO_2 equivalent	**1.96**	5.71	**1.29**	3.76
GWP-f	kg CO_2 equivalent	**1.97**	5.73	**1.30**	3.77
GWP-b	kg CO_2 equivalent	**-2.71E-02**	-7.91E-02	**-1.79E-02**	-5.21E-02
GWP-l	kg CO_2 equivalent	**1.79E-02**	5.21E-02	**1.18E-02**	3.43E-02
ODP	kg CFC-11-eq.	**2.51E-13**	7.32E-13	**1.65E-13**	4.82E-13
AP	mol H^+-eq.	**2.63E-03**	7.29E-03	**1.73E-03**	4.80E-03
EP-fw	kg P-eq.	**7.06E-06**	2.06E-05	**4.65E-06**	1.35E-05
EP-m	kg N-eq.	**9.50E-04**	2.58E-03	**6.25E-04**	1.70E-03
EP-t	mol N-eq.	**1.10E-02**	3.01E-02	**7.27E-03**	1.98E-02
POCP	kg NMVOC-eq.	**2.32E-03**	6.44E-03	**1.53E-03**	4.24E-03
ADPF	MJ	**26.30**	76.70	**17.30**	50.50
ADPE	kg Sb equivalent	**1.27E-07**	3.71E-07	**8.37E-08**	2.44E-07
WDP	m^3 world-eq. deprived	**2.33E-02**	6.80E-02	**1.54E-02**	4.48E-02
Resource management					
PERE	MJ	**1.92**	5.58	**1.26**	3.67
PERM	MJ	**0.00**	0.00	**0.00**	0.00
PERT	MJ	**1.92**	5.58	**1.26**	3.67
PENRE	MJ	**26.40**	77.00	**17.40**	50.70
PENRM	MJ	**0.00**	0.00	**0.00**	0.00
PENRT	MJ	**26.40**	77.00	**17.40**	50.70
SM	kg	**0.00**	0.00	**0.00**	0.00
RSF	MJ	**0.00**	0.00	**0.00**	0.00
NRSF	MJ	**0.00**	0.00	**0.00**	0.00
FW	m^3	**2.10E-03**	6.11E-03	**1.38E-03**	4.02E-03
Categories of waste					
HWD	kg	**8.18E-11**	2.38E-10	**5.38E-11**	1.57E-10
NHWD	kg	**4.03E-03**	1.17E-02	**2.65E-03**	7.72E-03
RWD	kg	**4.94E-05**	1.44E-04	**3.25E-05**	9.48E-05
Output material flows					
CRU	kg	**0.00**	0.00	**0.00**	0.00
MFR	kg	**0.00**	0.00	**0.00**	0.00
MER	kg	**0.00**	0.00	**0.00**	0.00
EEE	MJ	**0.00**	0.00	**0.00**	0.00
EET	MJ	**0.00**	0.00	**0.00**	0.00

Additional environmental impact indicators					
PM	Disease incidence	**1,80E-08**	5,02E-08	**1,18E-08**	3,30E-08
IRP	kBq U235-eq.	**7,37E-03**	2,15E-02	**4,85E-03**	1,41E-02
ETPfw	CTUe	**18,70**	54,50	**12,30**	35,80
HTPc	CTUh	**3,83E-10**	1,11E-09	**2,52E-10**	7,34E-10
HTPnc	CTUh	**2,06E-08**	5,97E-08	**1,36E-08**	3,93E-08
SQP	dimensionless	**11,00**	32,00	**7,24**	21,10

A5 Construction/Installation

No.	Scenario	Description
A5	**Manual**	**According to the manufacturer, folding and sliding doors are installed without additional lifting and auxiliary devices**

In case of deviating consumption during installation/assembly of the products which forms part of the site management, they are covered at the building level.

Ancillary materials, consumables, use of energy and water, other resource use, material losses, direct emissions as well as waste during construction / installation are negligible.

It is assumed that the packaging material in the Module construction / installation is sent to waste handling. Waste is only thermally recycled in line with the conservative approach: Benefits from A5 are specified in module D. Benefits from waste incineration: Benefits from waste incineration: electricity replaces electricity mix (RER); thermal energy replaces thermal energy from European natural gas (RER).
Transport to the recycling plants is not taken into account.

Since this is a single scenario, the results are shown in the relevant summary table.

B2 Inspection, maintenance, cleaning
Since this is a single scenario, the results are shown in the relevant summary table.

B2.1 Cleaning

No.	Scenario	Description
B2.1	**Rarely, manual**	**Manual using suitable cleaning agents: as specified by the manufacturer, yearly. (2.5 l per year; 125 l/RSL) (1).**

Ancillary materials, consumables, use of energy, material losses and waste as well as transport distances during cleaning are negligible.

B2.2 Maintenance

No.	Scenario	Description
B2.2	**Normal use**	**Annual functional check, visual inspection, lubrication/greasing and, if necessary, repair according to manufacturer. 0.25 kg lubricants per 50 years (1).**

Ancillary materials, consumables, use of energy and water, waste, material losses and transport distances during maintenance are negligible.

B3 Repair

No.	Scenario	Description
B3	**Normal use**	**One-time replacement* of sealants.**

* Assumptions for evaluation of possible environmental impacts; statements made do not constitute any guaranty or warranty of performance.

For updated information refer to the relevant instructions for assembly/installation, operation and maintenance from Teckentrup GmbH & Co. KG.

The service life of the folding and sliding doors of company Teckentrup GmbH & Co. KG is optionally specified with 50 years. For scenario B3, the respective components of the building elements whose useful life is less than the specified RSL are accounted for. The results were based on one year, taking into account the RSL.

It is assumed that the replaced components in the repair module will be sent for recycling. Plastics in incineration plants. Benefits from B3 are specified in module D. Benefits from waste incineration: Benefits from waste incineration: electricity replaces electricity mix (RER); thermal energy replaces thermal energy from European natural gas (RER).
Transport to the recycling plants is not taken into account.

Ancillary materials, consumables, use of energy and water, waste, material losses and transport distances during repair are negligible.

Since this is a single scenario, the results are shown in the relevant summary table.

B4 Exchange/replacement

No.	Scenario	Description
B4.1	**No replacement**	**According to manufacturer, a replacement is not planned. Ancillary materials, consumables, use of energy and water, material losses, waste as well as transport distances during replacement are negligible.**
B4.2	Normal use and heavy use	One-time replacement after 50 years (RSL)*. The environmental impacts of the selected scenario originate from the product, construction and disposal phases.

* Assumptions for evaluation of possible environmental impacts; statements made do not constitute any guaranty or warranty of performance.

The statements made in this EPD are only informative to allow evaluation at the building level.

It is assumed that no replacement will be necessary during the 50-year reference service life according to BBSR Table and the 50-year building service life. The results were based on one year, taking into account the RSL.

For updated information refer to the relevant instructions for assembly/installation, operation and maintenance from Teckentrup GmbH & Co. KG.

B4 Exchange/replacement	Unit	Folding door (PG 1)		Sliding door (PG 2)	
		B4.1	B4.2	**B4.1**	B4.2
Core indicators					
GWP-t	kg CO_2 equivalent	**0.00**	1.15	**0.00**	0.43
GWP-f	kg CO_2 equivalent	**0.00**	1.14	**0.00**	0.43
GWP-b	kg CO_2 equivalent	**0.00**	3.61E-03	**0.00**	-7.65E-04
GWP-l	kg CO_2 equivalent	**0.00**	6.15E-04	**0.00**	3.97E-04
ODP	kg CFC-11-eq.	**0.00**	5.30E-10	**0.00**	2.73E-12
AP	mol H^+-eq.	**0.00**	3.41E-03	**0.00**	1.47E-03
EP-fw	kg P-eq.	**0.00**	1.93E-06	**0.00**	9.31E-07
EP-m	kg N-eq.	**0.00**	5.83E-04	**0.00**	2.58E-04
EP-t	mol N-eq.	**0.00**	1.03E-02	**0.00**	4.69E-03
POCP	kg NMVOC-eq.	**0.00**	1.88E-03	**0.00**	8.49E-04
ADPF	MJ	**0.00**	16.09	**0.00**	5.63
ADPE	kg Sb equivalent	**0.00**	7.33E-08	**0.00**	2.02E-07
WDP	m^3 world-eq. deprived	**0.00**	9.48E-02	**0.00**	3.06E-02
Resource management					
PERE	MJ	**0.00**	2.04	**0.00**	2.80
PERM	MJ	**0.00**	0.00	**0.00**	0.00
PERT	MJ	**0.00**	2.04	**0.00**	2.80
PENRE	MJ	**0.00**	16.11	**0.00**	5.64
PENRM	MJ	**0.00**	0.00	**0.00**	0.00
PENRT	MJ	**0.00**	16.11	**0.00**	5.64
SM	kg	**0.00**	0.00	**0.00**	0.00
RSF	MJ	**0.00**	9.90E-32	**0.00**	6.80E-32
NRSF	MJ	**0.00**	1.50E-30	**0.00**	1.03E-30
FW	m^3	**0.00**	3.02E-03	**0.00**	1.15E-03
Categories of waste					
HWD	kg	**0.00**	2.00E-09	**0.00**	9.79E-10
NHWD	kg	**0.00**	0.34	**0.00**	0.18
RWD	kg	**0.00**	3.13E-04	**0.00**	9.90E-05
Output material flows					
CRU	kg	**0.00**	0.00	**0.00**	0.00
MFR	kg	**0.00**	0.15	**0.00**	8.66E-02
MER	kg	**0.00**	0.00	**0.00**	0.00
EEE	MJ	**0.00**	0.28	**0.00**	0.28
EET	MJ	**0.00**	0.64	**0.00**	0.53
Additional environmental impact indicators					
PM	Disease incidence	**0.00**	2.87E-08	**0.00**	2.95E-08
IRP	kBq U235-eq.	**0.00**	0.13	**0.00**	6.99E-03
ETPfw	CTUe	**0.00**	6.36	**0.00**	2.33
HTPc	CTUh	**0.00**	1.05E-09	**0.00**	2.71E-09
HTPnc	CTUh	**0.00**	4.88E-08	**0.00**	7.61E-09
SQP	dimensionless	**0.00**	2.60	**0.00**	21.21

B5 Improvement/modernization - not relevant

According to the manufacturer, the elements are not included in the improvement / modernisation activities for buildings.

For updated information refer to the relevant instructions for assembly/installation, operation and maintenance from Teckentrup GmbH & Co. KG.

Ancillary materials, consumables, use of energy and water, material losses, waste as well as transport distances during replacement are negligible.

Since this is a single scenario, the results are shown in the relevant summary table.

B6 Operational energy use - not relevant

There is no energy used during normal use. Folding and sliding doors are opened by manual control.

There is no transport consumption for energy use in buildings. Ancillary materials, consumables and water, waste materials and other scenarios are negligible.

Since this is a single scenario, the results are shown in the summary table.

B7 Operational water use - not relevant

No water consumption when used as intended. Water consumption for cleaning is specified in Module B2.1.

There is no transport consumption for water use in buildings. Ancillary materials, consumables, waste materials and other scenarios are negligible.

Since this is a single scenario, the results are shown in the summary table.

C1 Deconstruction

No.	Scenario	Description
C1	**Deconstruction**	**Folding and sliding doors 95 % deconstruction.** **Further deconstruction rates are possible, give adequate reasons.**

No relevant inputs or outputs apply to the scenario selected. The energy consumed for deconstruction is negligible. Any arising consumption is marginal.

Since this is a single scenario, the results are shown in the summary table.

In case of deviating consumption the removal of the products forms part of site management and is covered at the building level.

C2 Transport

No.	Scenario	Description
C2	Transport	Transport to collection point with 40 t truck (Euro 0-6 Mix), diesel, 27 t payload, 80 % capacity used, 50 km

Since this is a single scenario, the results are shown in the relevant summary table.

C3 Waste management

No.	Scenario	Description
C3	Current market situation	**Share for recirculation of materials:** • **98% (stainless) steel in melt** (UBA, 2017) • **Plastics (EPDM, isocyanate, polyol) 66 % thermal recycling in incineration plants** (Zukunft Bauen, 2017), • **Plastics (EPDM, isocyanate, polyol) 34 % recycled** (Zukunft Bauen, 2017), • **Powder coating/wet paint/PU adhesive 100 % thermal recycling** (worst case assumption), • **Mineral wool 100 % in landfill** (2), • **Gypsum 59.6% recycled material** (3), • **Promat 100 % in landfill** (Worst case assumption), • **Remainder to landfill/disposal.**

Electricity consumption of recycling plant: 0.5 MJ/kg.

As the products are placed on the European market, the disposal scenario is based on average European data sets.

The below table presents the disposal processes and their percentage by mass/weight. The calculation is based on the above mentioned shares in percent related to the declared unit of the product system.

C3 Disposal	Unit	Folding door (PG 1)	Sliding door (PG 2)
Collection process, collected separately	kg	20.25	9.17
Collection process, collected as mixed construction waste	kg	1.07	0.48
Recovery system, for re-use	kg	0.00	0.00
Recovery system, for recycling	kg	7.43	4.20
Recovery system, for energy recovery	kg	3.27	0.59
Disposal	kg	10.63	4.86

The 100% scenarios differ from the current average recovery shown here (in background report C3.4). The evaluation of each scenario is described in the background report.

Since this is a single scenario, the results are shown in the summary table.

C4 Disposal

No.	Scenario	Description
C4	**Disposal**	**The non-recordable amounts and losses within the re-use/recycling chain (C1 and C3) are modelled as "disposed" (RER).**

The 100% scenarios differ from the current average recovery shown here (in background report C4.4). The evaluation of each scenario is described in the background report.

The consumption in scenario C4 results from physical pre-treatment, waste recycling and management of the disposal site. The benefits obtained here from the substitution of primary material production are allocated to Module D, e.g. electricity and heat from waste incineration.

Since this is a single scenario, the results are shown in the summary table.

D Benefits and loads from beyond the system boundaries

No.	Scenario	Description
D	**Recycling potential (current market situation)**	**Steel scrap from C3 excluding the scrap used in A3 replaces 60% of steel; Stainless steel scrap from C3 excluding the scrap used in A3 replaces 60% of stainless steel; EPDM recyclate from C3 excluding of the EPDM used in A3 replace 60% of EPDM; Gypsum recyclate from C3 excluding the gypsum used in A3 replaces 60% of gypsum; Polyol recyclate from C3 excluding the Polyols used in A3 replaces 60% of Polyol; Isocyanate recyclate from C3 excluding the Isocyanates used in A3 replaces 60% of Isocyanate. Benefits from incineration plant: Benefits from waste incineration: electricity replaces electricity mix (RER); thermal energy replaces thermal energy from European natural gas (RER).**

The values in Module "D" result from recycling of the packaging material in Module A5, the recycling of replaced seals in B3, and from deconstruction at the end of service life.

The 100% scenarios differ from the current average recovery shown here (in background report D4). The evaluation of each scenario is described in the background report.

Since this is a single scenario, the results are shown in the summary table.

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Notes
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