Environmental Product Declaration (EPD)

Declaration Code: EPD-DB-GB-8.2

ASSA ABLOY (Schweiz) AG

Accessories for doors

Drop-down seals for doors

Basis:

DIN EN ISO 14025
EN 15804 + A2

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

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Declaration holder	ASSA ABLOY (Schweiz) AG Untere Schwandenstrasse 22 8805 Richterswil (Switzerland)t www.planet.ag		
Declaration code	EPD-DB-GB-8.2		
Designation of declared product	Drop-down seals for doors		
Scope	Planet drop-down seals close the gap between the door and the floor. They protect against noise, smoke, fire and more.		
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” (Guidance on preparing Type III Environmental Product Declarations) applies. The Declaration is based on the PCR documents “PCR Part A” PCR-A-1.0:2023 and " Accessories for windows and doors” PCR-ZFT-1.3:2025.		
Validity	Publication date: 16.07.2025	Last revision: 23.07.2025	Valid until 16.07.2030
	This verified company Environmental Product Declaration 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 base data includes both the data collected at the production site of ASSA ABLOY (Schweiz) AG and the generic data from the ”LCA for Experts 10“ database. LCA calculations were carried out for the included “cradle to gate with options” life cycle including all upstream chains (e.g. raw material extraction, etc.).		
Notes	The “Conditions and Guidance on the Use of ift Test Documents” apply. The declaration holder assumes full liability for the underlying data, certificates and verifications.		

Christoph Seehauser Deputy Head of Sustainability	Dr. Torsten Mielecke Chairman of Expert Committee ift-EPD and PCR	Susanne Volz External verifier

1 General product information

Product definition

The EPD relates to the product group Accessories for doors and applies to:

1 running metre of drop-down door seal
made by ASSA ABLOY (Schweiz) AG

The declared unit is obtained as follows:

Assessed product	Declared unit	Mass per length
Product group 1	1 running metre	0.400 kg/lfm
Product group 2	1 running metre	0.649 kg/lfm
Product group 3	1 running metre	0.989 kg/lfm

Table 1: Product groups

The average unit is declared as follows:
Directly used material flows are determined using the product weight relative to the standard length for submersible seals of 960 mm and allocated to the declared unit (1 m). All other inputs and outputs during manufacture are allocated in their entirety to the declared unit, as they cannot be directly related to the average size. The reference period is the year 2024.

The validity of the EPD is limited to the following models:

Product group 1	Product group 2	Product group 3
Planet TW	Planet US Pivot	Planet KG-D10
Planet WA	Planet Sockel	Planet BL (4mm)
Planet US	Planet KT	Planet KG-D8
Planet VL	Planet HS	Planet KG-F8
	Planet RH	Planet KG-S
	Planet ZA	Planet KG-F10
	Planet FT	Planet MinE-F/V
	Planet MF	Planet MinE-F/S
	Planet RF	Planet KG-F12
	Planet PU	Planet KG-F16
	Planet KG-U	Planet MinE-V
	Planet RO	Planet MinE-S
	Planet JP	Planet X3
	Planet SN	Planet KG-A8
	Planet RS	Planet KG-A10
		Planet KG-SL10
		Planet KG-A12
		Planet GH

All drop-down seals that are not listed can be assigned to a product group in consultation with ASSA ABLOY (Schweiz) AG.

Product description

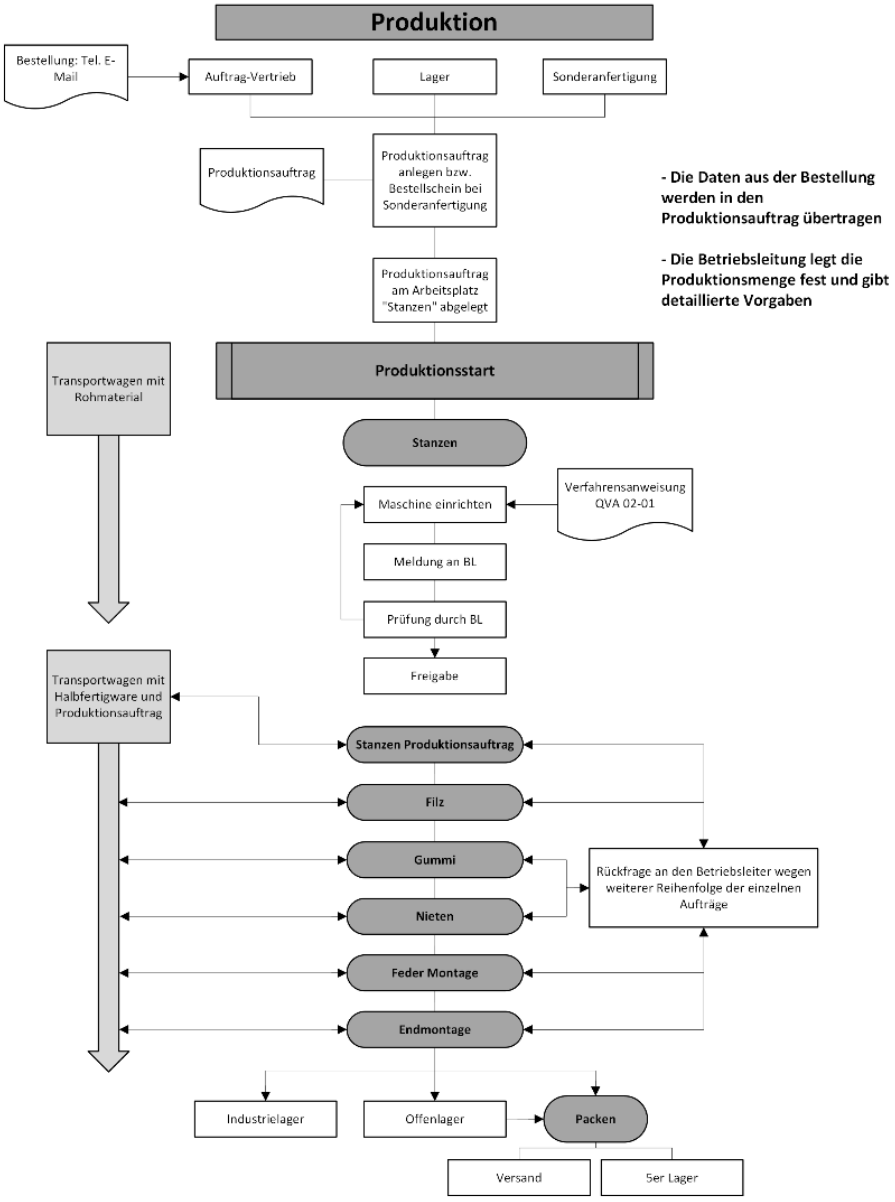
Product group 1 includes Planet drop-down seals from the 8 mm line with minimal environmental impact and resource consumption.

Planet drop-down seals from the 13 and 20 mm line for swing doors, Planet SN for sliding doors and Planet base plates for surface mounting can be found in **product group 2**.

Planet drop-down seals in **product group 3** are suitable for use on glass doors, exterior doors, doors with air circulation, radiation protection doors and other special applications.

For a detailed product description, please refer to the manufacturer's information at www.planet.ag or the product descriptions for the respective offer.

Product manufacture



Scope

(Planet drop-down seals are suitable for a wide range of interior and exterior doors, whether single or double. Thanks to their quick and easy installation, they are equally popular with carpenters, door manufacturers and project planners. They offer reliable protection against air, water, light and sound and can be used for almost any type of door – whether made of wood, metal or PVC. Planet drop seals are also suitable for fire and smoke protection doors thanks to their self-extinguishing silicone.

The wide range of models and numerous design options enable a tailor-made solution for a wide variety of applications. Planet drop-down seals are triggered on one side. Functions such as automatic angle compensation for uneven floors, easy lift adjustment and parallel lowering ensure optimum sealing of the floor joint with minimal sliding travel. Special slanted lips are available for particularly uneven floors. For double-leaf doors, holes for drive rods can also be integrated. The seal is attached to the door either by side brackets, from below or by sliding it in from the side. All standard seals can be shortened to the next smaller bearing length and are therefore flexible in use.

In addition to standard applications, special models expand the range of uses:

- With the Planet X3, house and balcony doors can be equipped to be rainproof and barrier-free.
- The Planet MinE was designed for rooms with ventilation or air conditioning systems. It has an integrated overflow channel that ensures air circulation while providing light and sound insulation.
- The Planet SN enables simple and reliable sealing of sliding doors – without any door locking thanks to zero-force release.
- For pivot doors, the Planet Pivot module with a special release unit provides effective sealing of the door gap.
- For glass doors, Planet offers well-designed solutions that can be easily installed on, under or around the door – suitable for almost any door and glass thickness.

Verifications

Further and current certification (including other national approvals) can be found at www.planet.ag.

Quality assurance

The following quality assurances are available:
External monitoring in accordance with the provisions of general building approval no. Z-6.100-2528 (‘Ü mark’) by ift Rosenheim.

Management systems

The following management systems are in place:

- Quality management system in accordance with DIN EN ISO 9001:2015
- Energy management system in accordance with DIN EN ISO 50001:2018
- Occupational health and safety management system in accordance with SN EN ISO 45001:2018

Additional information

The additional proof of usability or conformity, if applicable, can be found on the CE marking and in the accompanying documents.

Drop-down seals for doors meet the following properties:

- UL fire protection certificate according to BS EN 476
- UL fire protection certificate according to ANSI/UL 10B+C and CAN/ULC-S104
- abZ general building approval according to EN 1634

2 Materials used

Primary materials

The primary materials used are specified in Section 6.2 (Inputs).

Declarable substances

The product contains no substances from the REACH candidate list (declaration dated 26th June 2025).

All relevant safety data sheets are available from ASSA ABLOY (Schweiz) AG

3 Construction process stage

Processing recommendations, installation

Observe the instructions for mounting/installation, operation, maintenance and disassembly, provided by the manufacturer. See www.planet.ag

4 Use stage

Emissions to the environment

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

Reference service life (RSL)

The RSL information was provided by the manufacturer. The RSL shall be specified under defined reference in-use conditions and shall refer to the declared technical and functional performance of the product within the building. It shall be established in accordance with any specific rules given in European product standards, or, if not available, in accordance with a c-PCR. It shall also take into account ISO 15686-1, -2, -7 and -8. Where European product standards or a c-PCR provide guidance on deriving the RSL, such guidance shall have priority.
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 EPD the following applies:
For a “Cradle to gate with options” EPD with the modules C1-C4 and module D (A1-A3 + C + D and one or more additional modules from A4 to B7), the reference service life (RSL) can only be stated if the reference in-use conditions are specified.

The reference service life (RSL) of Drop-down seals for doors made by ASSA ABLOY (Schweiz) AG is not specified.

5 End-of-life stage

Possible end-of-life stages

The Drop-down seals for doors are shipped to central collection points. There the products are generally shredded and sorted into their original 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.

This EPD shows the end-of-life modules on the basis of EN 17213.
Metals are recycled to a certain extent. Plastics are sent for thermal recycling. Residual fractions are landfilled or, in some cases, 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.

Such life cycle assessments were developed for Drop-down seals for doors, serving as the basis. The 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 and EN ISO 14025 as well as based on ISO 21930.

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

6.1 Definition of goal and scope

Goal

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. Apart from these, no other environmental impacts are specified.

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

The specific data comes exclusively from the 2024 financial year. It was recorded at the plant in Richterswil (Switzerland) and comes partly from business records and partly from directly read measurements. Primary data for energy, water and packaging consumption as well as for auxiliary materials and waste/offcuts was collected from the company's own data management system and through specific measurements. At the time of the plausibility check, data for energy, water, packaging, auxiliary materials, waste/offcuts and emissions were available in full and were checked for validity.

Generic data comes from the Professional Database and Building Materials Database of the ‘LCA for Experts 10’ software. Both databases were last updated in 2025. Older data also comes from this database and is no more than two years old. No other generic data was used for the calculation.

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

Data gaps have been replaced with comparable data or conservative assumptions, or truncated in accordance with the 1% rule.

The software system for holistic life cycle assessment ‘LCA for Experts’ version 10.9.1.17 with database version 2025.1 was used to model the life cycle. The LCA was evaluated using the EF3.1 impact assessment method.
The data quality complies with the requirements of EN15941:2024.

Scope / system boundaries

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

Cut-off criteria

All data from the operational data collection was taken into account, i.e. all input and output materials used, the thermal energy used and the electricity consumption.

However, the boundaries are limited to production-related data. Building or plant components that are not relevant to product manufacturing were excluded.

The transport route of raw materials, auxiliary materials and packaging was taken into account. Distances are available for 100% of the intermediate products (based on mass), which is why the transport routes can be calculated. Transport was mapped using the following standard scenario:

Means of transport, capacity utilisation, transport distances
Transport to the factory with 34-40 t truck (Euro 0-6 mix), diesel, 27 t payload, 61% (according to standard data set) utilisation, distance according to manufacturer's specifications (1)

In addition to transport routes for preliminary products, transport routes for waste were also taken into account. The transport of waste generated in A3 was mapped using the following standard scenario:

Means of transport, capacity utilisation, transport distances
Transport to collection point with 34-40 t truck (Euro 0-6 mix), diesel, 27 t payload, 50% capacity utilisation, distance according to manufacturer's specifications (1)

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. All in all, 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

Goal

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

Life cycle stages

The Annex shows the entire life cycle of Drop-down seals for doors. The “Product stage” (A1 - A3), “Construction process stage” (A4 - A5), “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 in accordance with DIN EN 15804:

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

Allocation of co-products

No allocations occur during production. Allocations may have been made in the background data sets used in the ‘LCA for Experts’ database, which are provided in the corresponding individual documentation.

Allocations for reuse, recycling and recovery

If the products are recycled and recovered during the product stage (rejects) the components are shredded/broken if necessary and then sorted into their single 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 state.

Allocations beyond life cycle boundaries

The current market situation was taken into account when using recycled materials in production. At the same time, recycling potential was considered, reflecting the economic value of the product after processing (recyclate).

Secondary material

The use of secondary material by ASSA ABLOY (Schweiz) AG was considered in module A3. Secondary material was not used.

Inputs

The LCA includes the following production-relevant inputs per 1 running metre of drop-down door seal:

Energy
For the input material pellets, the data set ‘RER: Wood pellets (6.2% moisture; 5.8% H2O content) (EN15804 B6) Sphera’ is assumed. For the electricity mix in the plant, the data set ‘CH: Electricity grid mix Sphera’ is used.

Water
No water consumed by the individual process steps for the production.
The consumption of freshwater 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 %.

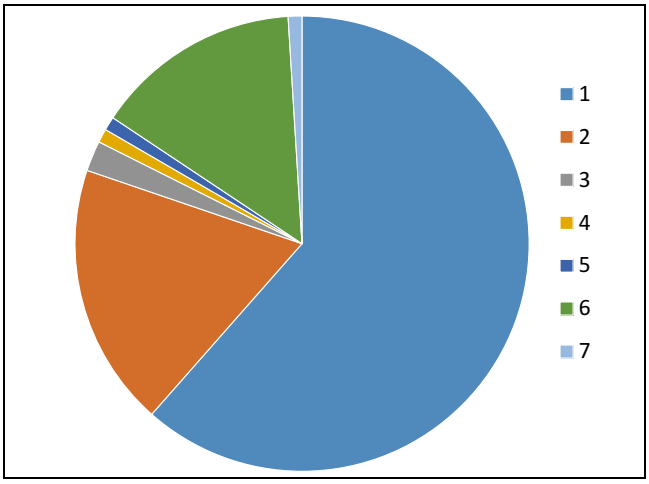


Figure 1: Percentage of individual materials, Product group 1

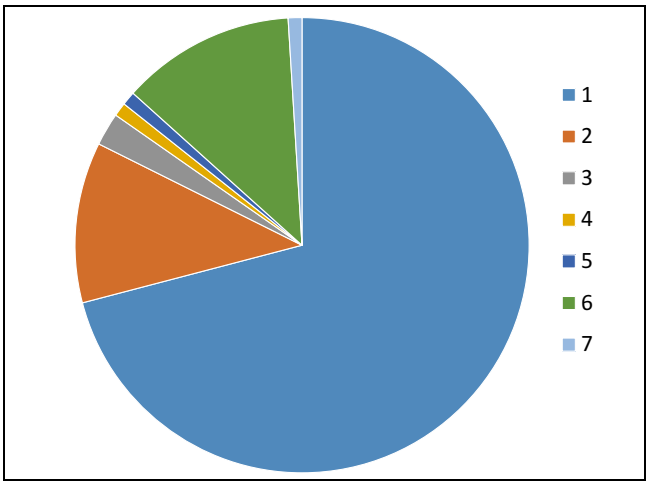


Figure 2: Percentage of individual materials, Product group 2

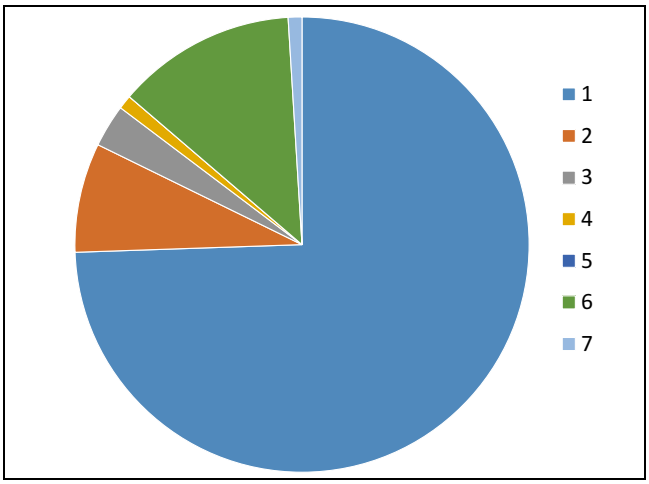


Figure 3: Percentage of individual materials, Product group 3

Nr.	Material	Mass in %		
		PG 1	PG 2	PG 3
1	Aluminium	62.8	72.7	75.8
2	Steel	19.1	11.7	7.9
3	Stainless steel	2.2	2.4	3.1
4	Polyamide	< 1	< 1	< 1
5	brass	< 1	< 1	--
6	Silicon	15.0	12.7	13.0
7	other	< 1	< 1	< 1

Table 2: Percentage of individual materials

Ancillary materials and consumables
Around 8,1E-05 kg of ancillary materials and consumables are used.

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

No.	Material	Mass in g
1	Foil and protective covers	1.6
2	Cardboard	11.5
3	Strapex plastic strapping	40.3
4	Adhesive tape	1.7

Table 3: Weight in g of packaging per declared unit

Biogenic carbon content
Only the biogenic carbon content of the associated packaging is specified, as the total mass of the substances containing biogenic carbon accounts for less than 5% of the total mass of the product and its packaging. In accordance with EN 16449, the following quantities of biogenic carbon are generated for the packaging:

Nr.	component	Content in kg C per m		
		PG 1	PG 2	PG 3
1	packaging	3.45E-02	3.45E-02	3.45E-02

Table 4: Biogenic carbon content of the packaging at gate

GWP values resulting from the binding and release of biogenic carbon were calculated specifically for each life cycle module and are listed in Table 5. The overall results table presented in this document, issued by ‘LCA for Experts’, has not been modified.

Binding and release of CO_2 emissions in kg CO_2 equivalent/running metre						
PG	component	A1-A3	A5	C3	C4	D
1	packaging	- 3,45E-02	+ 3,45E-02	0	0	0
2	packaging	- 3,45E-02	+ 3,45E-02	0	0	0
3	packaging	- 3,45E-02	+ 3,45E-02			

Table 5: Binding and release of biogenic CO_2 emissions in kg CO_2 eq. from product and packaging per life cycle module

Outputs

The LCA includes the following production-relevant outputs per 1 running metre of drop-down door seal:

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

Waste water
The manufacture does not produce any waste water.

6.3 Impact assessment

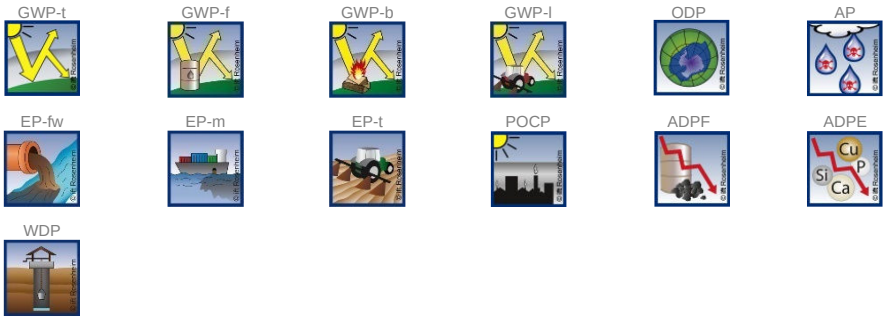
Goal

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

Core indicators

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

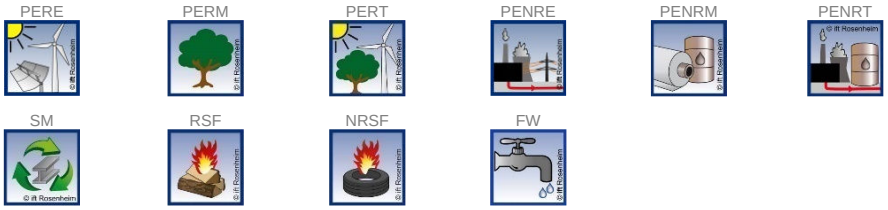
- Climate change – total (GWP-t)
- Climate change – fossil (GWP-f)
- Climate change – biogenic (GWP-b)
- Climate change - land use and land use change (GWP-l)
- Ozone depletion (ODP)
- Acidification (AP)
- Eutrophication aquatic freshwater (EP-fw)
- Eutrophication aquatic marine (EP-m)
- Eutrophication terrestrial (EP-t)
- Photochemical ozone creation (POCP)
- Depletion of abiotic resources - fossil fuels (ADPF)
- Depletion of abiotic resources - minerals and metals (ADPE)
- Water use (WDP)



Use of resources

The models for impact assessment were applied as described in DIN EN 15804-A2.
The following parameters for the use of resources are shown in the EPD:

- Renewable primary energy as energy source (PERE)
- Renewable primary energy for material use (PERM)
- Total use of renewable primary energy (PERT)
- Non-renewable primary energy as energy resource (PENRE)
- Renewable primary energy for material use (PENRM)
- Total use of non-renewable primary energy (PENRT)
- Use of secondary materials (SM)
- Use of renewable secondary fuels (RSF)
- Use of non-renewable secondary fuels (NRSF)
- Net use of freshwater resources (FW)

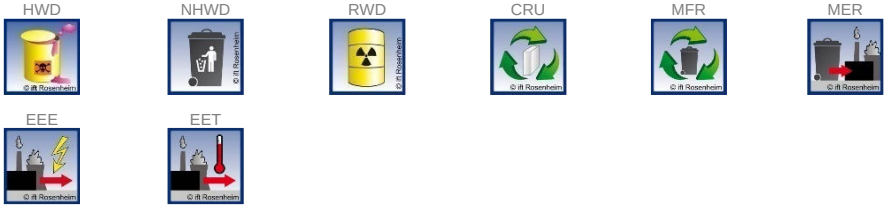


Waste

The waste generate during the production of 1 running metre of drop-down door seal 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 waste categories and indicators for output material flows presented in the EPD are as follows:

- Hazardous waste disposed (HWD)
- Non-hazardous waste disposed (NHWD)
- Radioactive waste disposed (RWD)
- Components for reuse (CRU)
- Materials for recycling (MFR)
- Materials for energy recovery (MER)
- Exported electrical energy (EEE)
- Exported thermal energy (EET)



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:

- Particulate matter emissions (PM)
- Ionising radiation, human health (IRP)
- Ecotoxicity – freshwater (ETP-fw)
- Human toxicity - cancer effect (HTP-c)
- Human toxicity - non-cancer effect (HTP-nc)
- Land use related impacts / soil quality (SQP)

Results per 1 running metre of drop-down door seal, Product group 1

	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Core indicators																
GWP-t	kg CO_2 eq.	4.53	4.20E-02	6.03E-02	ND	ND	ND	ND	ND	ND	ND	0.00	3.85E-03	0.16	2.99E-04	-2.01
GWP-f	kg CO_2 eq.	4.54	3.99E-02	2.26E-02	ND	ND	ND	ND	ND	ND	ND	0.00	3.66E-03	0.16	3.00E-04	-2.00
GWP-b	kg CO_2 eq.	-3.37E-02	1.64E-03	3.77E-02	ND	ND	ND	ND	ND	ND	ND	0.00	1.50E-04	1.79E-04	-2.06E-06	-4.59E-03
GWP-l	kg CO_2 eq.	2.42E-02	4.07E-04	2.84E-06	ND	ND	ND	ND	ND	ND	ND	0.00	3.74E-05	5.74E-05	1.80E-06	-4.91E-04
ODP	kg CFC-11 eq.	5.10E-11	7.68E-15	1.00E-14	ND	ND	ND	ND	ND	ND	ND	0.00	7.04E-16	4.03E-13	8.16E-16	-1.30E-11
AP	mol H^+ eq.	1.81E-02	5.75E-05	1.37E-05	ND	ND	ND	ND	ND	ND	ND	0.00	5.28E-06	8.55E-05	2.13E-06	-7.52E-03
EP-fw	kg P eq.	5.59E-06	1.07E-07	1.68E-09	ND	ND	ND	ND	ND	ND	ND	0.00	9.82E-09	4.16E-08	6.83E-10	-2.53E-06
EP-m	kg N eq.	4.13E-03	2.40E-05	4.76E-06	ND	ND	ND	ND	ND	ND	ND	0.00	2.20E-06	2.59E-05	5.48E-07	-1.74E-03
EP-t	mol N eq.	4.07E-02	2.45E-04	6.25E-05	ND	ND	ND	ND	ND	ND	ND	0.00	2.25E-05	3.41E-04	6.03E-06	-1.89E-02
POCP	kg NMVOC eq.	1.09E-02	5.24E-05	1.27E-05	ND	ND	ND	ND	ND	ND	ND	0.00	4.81E-06	6.62E-05	1.68E-06	-4.98E-03
ADPF*²	MJ	64.14	0.51	2.18E-02	ND	ND	ND	ND	ND	ND	ND	0.00	4.70E-02	0.38	3.95E-03	-24.20
ADPE*²	kg Sb eq.	9.98E-06	2.65E-09	1.13E-10	ND	ND	ND	ND	ND	ND	ND	0.00	2.43E-10	3.67E-09	1.94E-11	-9.29E-07
WDP*²	m^3 world eq. deprived	0.92	1.98E-04	6.85E-03	ND	ND	ND	ND	ND	ND	ND	0.00	1.82E-05	1.84E-02	3.42E-05	-0.31
Use of resources																
PERE	MJ	33.09	3.88E-02	0.42	ND	ND	ND	ND	ND	ND	ND	0.00	3.56E-03	0.24	6.91E-04	-13.50
PERM	MJ	0.41	0.00	-0.41	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.00	0.00	0.00
PERT	MJ	33.50	3.88E-02	5.46E-03	ND	ND	ND	ND	ND	ND	ND	0.00	3.56E-03	0.24	6.91E-04	-13.50
PENRE	MJ	62.48	0.51	0.33	ND	ND	ND	ND	ND	ND	ND	0.00	4.70E-02	1.66	3.95E-03	-24.20
PENRM	MJ	1.66	0.00	-0.31	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	-1.28	0.00	0.00
PENRT	MJ	64.14	0.51	2.18E-02	ND	ND	ND	ND	ND	ND	ND	0.00	4.70E-02	0.38	3.95E-03	-24.20
SM	kg	0.00	0.00	0.00	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.00	0.00	0.00
RSF	MJ	0.00	0.00	0.00	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.00	0.00	0.00
NRSF	MJ	0.00	0.00	0.00	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.00	0.00	0.00
FW	m^3	0.15	1.99E-05	1.62E-04	ND	ND	ND	ND	ND	ND	ND	0.00	1.82E-06	5.14E-04	1.04E-06	-9.50E-03
Waste categories																
HWD	kg	4.10E-08	2.16E-11	1.10E-11	ND	ND	ND	ND	ND	ND	ND	0.00	1.99E-12	4.71E-10	9.91E-13	-1.49E-08
NHWD	kg	0.97	7.27E-05	3.18E-03	ND	ND	ND	ND	ND	ND	ND	0.00	6.67E-06	3.14E-03	2.00E-02	-0.79
RWD	kg	2.67E-03	1.01E-06	9.34E-07	ND	ND	ND	ND	ND	ND	ND	0.00	9.22E-08	5.47E-05	4.09E-08	-1.42E-03
Output material flows																
CRU	kg	0.00	0.00	0.00	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.00	0.00	0.00
MFR	kg	1.11E-02	0.00	0.00	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.32	0.00	0.00
MER	kg	0.00	0.00	0.00	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.00	0.00	0.00
EEE	MJ	9.79E-03	0.00	9.79E-02	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.23	0.00	0.00
EET	MJ	1.77E-02	0.00	0.18	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.53	0.00	0.00

Key:
GWP-t – climate change - total **GWP-f** – climate change - fossil **GWP-b** – climate change - biogenic **GWP-l** – climate change - land use and land use change **ODP** – ozone depletion **AP** - acidification **EP-fw** - eutrophication - aquatic freshwater **EP-m** - eutrophication - aquatic marine **EP-t** - eutrophication - terrestrial **POCP** - photochemical ozone formation **ADPF*²** - depletion of abiotic resources – fossil fuels **ADPE*²** - depletion of abiotic resources – minerals and metals **WDP*²** – water use **PERE** - use of renewable primary energy **PERM** - use of renewable primary energy resources used as raw materials **PERT** - total use of renewable primary energy **PENRE** - use of non-renewable primary energy **PENRM** - use of non-renewable primary energy resources used as raw materials **PENRT** - total use of non-renewable primary energy **SM** - use of secondary materials **RSF** - use of renewable secondary fuels **NRSF** - use of non-renewable secondary fuels **FW** - net use of freshwater **HWD** - hazardous waste disposed **NHWD** - non-hazardous waste disposed **RWD** - radioactive waste disposed **CRU** - components for reuse **MFR** - materials for recycling **MER** - materials for energy recovery **EEE** - exported electrical energy **EET** - exported thermal energy
ND – Not declared

Results per 1 running metre of drop-down door seal, Product group 1															
	Unit	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Additional environmental impact indicators																
PM	Disease incidence	2.46E-07	5.23E-10	9.38E-11	ND	ND	ND	ND	ND	ND	ND	0.00	4.80E-11	5.42E-10	2.67E-11	-1.42E-07
IRP*[1]	kBq U235 eq.	0.31	1.43E-04	1.39E-04	ND	ND	ND	ND	ND	ND	ND	0.00	1.31E-05	8.98E-03	4.65E-06	-0.15
ETP-fw*[2]	CTUe	20.36	0.66	1.14E-02	ND	ND	ND	ND	ND	ND	ND	0.00	6.06E-02	7.09E-02	2.28E-03	-7.07
HTP-c*[2]	CTUh	2.84E-09	8.92E-12	5.98E-13	ND	ND	ND	ND	ND	ND	ND	0.00	8.19E-13	6.86E-12	5.38E-14	-1.45E-09
HTP-nc*[2]	CTUh	2.32E-08	4.99E-10	2.91E-11	ND	ND	ND	ND	ND	ND	ND	0.00	4.58E-11	1.79E-10	2.08E-12	-1.66E-08
SQP*[2]	Dimensionless.	30.34	0.22	5.75E-03	ND	ND	ND	ND	ND	ND	ND	0.00	2.06E-02	0.15	1.13E-03	-4.41

Key:
PM – particulate matter emissions **IRP*[1]** – ionising radiation – human health **ETP-fw*[2]** - ecotoxicity – aquatic freshwater **HTP-c*[2]** - human toxicity potential – cancer effect **HTP-nc*[2]** - human toxicity potential – non-cancer effect **SQP*[2]** – land use related impacts / soil quality
ND – Not declared

Disclaimers

*1 This impact category deals mainly with the eventual impact of low-dose ionising 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 ionising radiation from the soil, from radon and from some building 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 running metre of drop-down door seal, Product group 2															
	Unit	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Core indicators																
GWP-t	kg CO_2 eq.	8.03	6.59E-02	6.03E-02	ND	ND	ND	ND	ND	ND	ND	0.00	6.25E-03	0.22	4.86E-04	-3.69
GWP-f	kg CO_2 eq.	8.00	6.27E-02	2.26E-02	ND	ND	ND	ND	ND	ND	ND	0.00	5.94E-03	0.21	4.86E-04	-3.68
GWP-b	kg CO_2 eq.	-1.53E-02	2.57E-03	3.77E-02	ND	ND	ND	ND	ND	ND	ND	0.00	2.43E-04	2.89E-04	-3.34E-06	-8.43E-03
GWP-l	kg CO_2 eq.	4.35E-02	6.39E-04	2.84E-06	ND	ND	ND	ND	ND	ND	ND	0.00	6.06E-05	9.24E-05	2.91E-06	-8.43E-04
ODP	kg CFC-11 eq.	8.93E-11	1.21E-14	1.00E-14	ND	ND	ND	ND	ND	ND	ND	0.00	1.14E-15	6.48E-13	1.32E-15	-2.41E-11
AP	mol H^+ eq.	3.23E-02	9.04E-05	1.37E-05	ND	ND	ND	ND	ND	ND	ND	0.00	8.56E-06	1.22E-04	3.45E-06	-1.40E-02
EP-fw	kg P eq.	9.37E-06	1.68E-07	1.68E-09	ND	ND	ND	ND	ND	ND	ND	0.00	1.59E-08	6.59E-08	1.11E-09	-4.71E-06
EP-m	kg N eq.	7.40E-03	3.76E-05	4.76E-06	ND	ND	ND	ND	ND	ND	ND	0.00	3.57E-06	3.57E-05	8.88E-07	-3.24E-03
EP-t	mol N eq.	7.27E-02	3.85E-04	6.25E-05	ND	ND	ND	ND	ND	ND	ND	0.00	3.64E-05	4.69E-04	9.78E-06	-3.52E-02
POCP	kg NMVOC eq.	1.94E-02	8.22E-05	1.27E-05	ND	ND	ND	ND	ND	ND	ND	0.00	7.79E-06	9.11E-05	2.72E-06	-9.26E-03
ADPF*²	MJ	111.84	0.80	2.18E-02	ND	ND	ND	ND	ND	ND	ND	0.00	7.62E-02	0.60	6.40E-03	-44.30
ADPE*²	kg Sb eq.	1.41E-05	4.15E-09	1.13E-10	ND	ND	ND	ND	ND	ND	ND	0.00	3.94E-10	5.90E-09	3.15E-11	-1.54E-06
WDP*²	m^3 world eq. deprived	1.59	3.11E-04	6.85E-03	ND	ND	ND	ND	ND	ND	ND	0.00	2.95E-05	2.59E-02	5.54E-05	-0.57
Use of resources																
PERE	MJ	57.80	6.09E-02	0.42	ND	ND	ND	ND	ND	ND	ND	0.00	5.77E-03	0.39	1.12E-03	-25.20
PERM	MJ	0.41	0.00	-0.41	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.00	0.00	0.00
PERT	MJ	58.21	6.09E-02	5.46E-03	ND	ND	ND	ND	ND	ND	ND	0.00	5.77E-03	0.39	1.12E-03	-25.20
PENRE	MJ	109.71	0.80	0.33	ND	ND	ND	ND	ND	ND	ND	0.00	7.62E-02	2.32	6.40E-03	-44.30
PENRM	MJ	2.12	0.00	-0.31	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	-1.72	0.00	0.00
PENRT	MJ	111.84	0.80	2.18E-02	ND	ND	ND	ND	ND	ND	ND	0.00	7.62E-02	0.60	6.40E-03	-44.30
SM	kg	0.00	0.00	0.00	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.00	0.00	0.00
RSF	MJ	0.00	0.00	0.00	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.00	0.00	0.00
NRSF	MJ	0.00	0.00	0.00	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.00	0.00	0.00
FW	m^3	0.18	3.12E-05	1.62E-04	ND	ND	ND	ND	ND	ND	ND	0.00	2.96E-06	7.43E-04	1.69E-06	-1.76E-02
Waste categories																
HWD	kg	7.19E-08	3.40E-11	1.10E-11	ND	ND	ND	ND	ND	ND	ND	0.00	3.22E-12	7.56E-10	1.61E-12	-2.76E-08
NHWD	kg	1.78	1.14E-04	3.18E-03	ND	ND	ND	ND	ND	ND	ND	0.00	1.08E-05	4.33E-03	3.25E-02	-1.48
RWD	kg	4.57E-03	1.58E-06	9.34E-07	ND	ND	ND	ND	ND	ND	ND	0.00	1.50E-07	8.85E-05	6.63E-08	-2.60E-03
Output material flows																
CRU	kg	0.00	0.00	0.00	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.00	0.00	0.00
MFR	kg	1.11E-02	0.00	0.00	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.54	0.00	0.00
MER	kg	0.00	0.00	0.00	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.00	0.00	0.00
EEE	MJ	9.79E-03	0.00	9.79E-02	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.32	0.00	0.00
EET	MJ	1.77E-02	0.00	0.18	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.72	0.00	0.00

Key:
GWP-t – climate change - total **GWP-f** – climate change - fossil **GWP-b** – climate change - biogenic **GWP-l** – climate change - land use and land use change **ODP** – ozone depletion **AP** - acidification **EP-fw** - eutrophication - aquatic freshwater **EP-m** - eutrophication - aquatic marine **EP-t** - eutrophication - terrestrial **POCP** - photochemical ozone formation **ADPF*²** - depletion of abiotic resources – fossil fuels **ADPE*²** - depletion of abiotic resources – minerals and metals **WDP*²** – water use **PERE** - use of renewable primary energy **PERM** - use of renewable primary energy resources used as raw materials **PERT** - total use of renewable primary energy **PENRE** - use of non-renewable primary energy **PENRM** - use of non-renewable primary energy resources used as raw materials **PENRT** - total use of non-renewable primary energy **SM** - use of secondary materials **RSF** - use of renewable secondary fuels **NRSF** - use of non-renewable secondary fuels **FW** - net use of freshwater **HWD** - hazardous waste disposed **NHWD** - non-hazardous waste disposed **RWD** - radioactive waste disposed **CRU** - components for reuse **MFR** - materials for recycling **MER** - materials for energy recovery **EEE** - exported electrical energy **EET** - exported thermal energy
ND – Not declared

Results per 1 running metre of drop-down door seal, Product group 2															
	Unit	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Additional environmental impact indicators																
PM	Disease incidence	4.32E-07	8.21E-10	9.38E-11	ND	ND	ND	ND	ND	ND	ND	0.00	7.78E-11	8.08E-10	4.33E-11	-2.65E-07
IRP*[1]	kBq U235 eq.	0.52	2.24E-04	1.39E-04	ND	ND	ND	ND	ND	ND	ND	0.00	2.12E-05	1.45E-02	7.55E-06	-0.27
ETP-fw*[2]	CTUe	35.69	1.04	1.14E-02	ND	ND	ND	ND	ND	ND	ND	0.00	9.83E-02	0.11	3.69E-03	-13.20
HTP-c*[2]	CTUh	5.17E-09	1.40E-11	5.98E-13	ND	ND	ND	ND	ND	ND	ND	0.00	1.33E-12	1.07E-11	8.72E-14	-2.67E-09
HTP-nc*[2]	CTUh	4.08E-08	7.84E-10	2.91E-11	ND	ND	ND	ND	ND	ND	ND	0.00	7.43E-11	2.73E-10	3.37E-12	-3.11E-08
SQP*[2]	Dimensionless.	43.48	0.35	5.75E-03	ND	ND	ND	ND	ND	ND	ND	0.00	3.34E-02	0.24	1.82E-03	-8.14

Key:
PM – particulate matter emissions **IRP*[1]** – ionising radiation – human health **ETP-fw*[2]** - ecotoxicity – aquatic freshwater **HTP-c*[2]** - human toxicity potential – cancer effect **HTP-nc*[2]** - human toxicity potential – non-cancer effect **SQP*[2]** – land use related impacts / soil quality
ND – Not declared

Disclaimers

*1 This impact category deals mainly with the eventual impact of low-dose ionising 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 ionising radiation from the soil, from radon and from some building 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 running metre of drop-down door seal, Product group 3

	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Core indicators																
GWP-t	kg CO_2 eq.	12.61	9.87E-02	6.03E-02	ND	ND	ND	ND	ND	ND	ND	0.00	9.52E-03	0.33	7.40E-04	-5.85
GWP-f	kg CO_2 eq.	12.47	9.39E-02	2.26E-02	ND	ND	ND	ND	ND	ND	ND	0.00	9.06E-03	0.33	7.41E-04	-5.83
GWP-b	kg CO_2 eq.	1.05E-02	3.84E-03	3.77E-02	ND	ND	ND	ND	ND	ND	ND	0.00	3.71E-04	4.40E-04	-5.09E-06	-1.32E-02
GWP-l	kg CO_2 eq.	6.83E-02	9.57E-04	2.84E-06	ND	ND	ND	ND	ND	ND	ND	0.00	9.23E-05	1.41E-04	4.44E-06	-1.34E-03
ODP	kg CFC-11 eq.	1.40E-10	1.80E-14	1.00E-14	ND	ND	ND	ND	ND	ND	ND	0.00	1.74E-15	9.87E-13	2.02E-15	-3.82E-11
AP	mol H^+ eq.	5.08E-02	1.35E-04	1.37E-05	ND	ND	ND	ND	ND	ND	ND	0.00	1.30E-05	1.79E-04	5.26E-06	-2.23E-02
EP-fw	kg P eq.	1.43E-05	2.52E-07	1.68E-09	ND	ND	ND	ND	ND	ND	ND	0.00	2.43E-08	1.00E-07	1.69E-09	-7.49E-06
EP-m	kg N eq.	1.16E-02	5.63E-05	4.76E-06	ND	ND	ND	ND	ND	ND	ND	0.00	5.43E-06	5.03E-05	1.35E-06	-5.14E-03
EP-t	mol N eq.	0.11	5.75E-04	6.25E-05	ND	ND	ND	ND	ND	ND	ND	0.00	5.55E-05	6.72E-04	1.49E-05	-5.60E-02
POCP	kg NMVOC eq.	3.03E-02	1.23E-04	1.27E-05	ND	ND	ND	ND	ND	ND	ND	0.00	1.19E-05	1.28E-04	4.14E-06	-1.47E-02
ADPF*[2]	MJ	174.01	1.20	2.18E-02	ND	ND	ND	ND	ND	ND	ND	0.00	0.12	0.92	9.76E-03	-70.10
ADPE*[2]	kg Sb eq.	2.22E-05	6.22E-09	1.13E-10	ND	ND	ND	ND	ND	ND	ND	0.00	6.00E-10	8.99E-09	4.81E-11	-2.56E-06
WDP*[2]	m^3 world eq. deprived	2.47	4.66E-04	6.85E-03	ND	ND	ND	ND	ND	ND	ND	0.00	4.50E-05	3.95E-02	8.45E-05	-0.91
Use of resources																
PERE	MJ	90.01	9.11E-02	0.42	ND	ND	ND	ND	ND	ND	ND	0.00	8.79E-03	0.60	1.71E-03	-40.00
PERM	MJ	0.41	0.00	-0.41	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.00	0.00	0.00
PERT	MJ	90.42	9.11E-02	5.46E-03	ND	ND	ND	ND	ND	ND	ND	0.00	8.79E-03	0.60	1.71E-03	-40.00
PENRE	MJ	170.94	1.20	0.33	ND	ND	ND	ND	ND	ND	ND	0.00	0.12	3.53	9.76E-03	-70.10
PENRM	MJ	3.06	0.00	-0.31	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	-2.61	0.00	0.00
PENRT	MJ	174.01	1.20	2.18E-02	ND	ND	ND	ND	ND	ND	ND	0.00	0.12	0.92	9.76E-03	-70.10
SM	kg	0.00	0.00	0.00	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.00	0.00	0.00
RSF	MJ	0.00	0.00	0.00	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.00	0.00	0.00
NRSF	MJ	0.00	0.00	0.00	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.00	0.00	0.00
FW	m^3	0.22	4.67E-05	1.62E-04	ND	ND	ND	ND	ND	ND	ND	0.00	4.51E-06	1.13E-03	2.58E-06	-2.81E-02
Waste categories																
HWD	kg	1.11E-07	5.08E-11	1.10E-11	ND	ND	ND	ND	ND	ND	ND	0.00	4.91E-12	1.15E-09	2.45E-12	-4.38E-08
NHWD	kg	2.82	1.71E-04	3.18E-03	ND	ND	ND	ND	ND	ND	ND	0.00	1.65E-05	6.70E-03	4.95E-02	-2.36
RWD	kg	7.03E-03	2.36E-06	9.34E-07	ND	ND	ND	ND	ND	ND	ND	0.00	2.28E-07	1.35E-04	1.01E-07	-4.12E-03
Output material flows																
CRU	kg	0.00	0.00	0.00	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.00	0.00	0.00
MFR	kg	1.11E-02	0.00	0.00	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.82	0.00	0.00
MER	kg	0.00	0.00	0.00	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.00	0.00	0.00
EEE	MJ	9.79E-03	0.00	9.79E-02	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	0.48	0.00	0.00
EET	MJ	1.77E-02	0.00	0.18	ND	ND	ND	ND	ND	ND	ND	0.00	0.00	1.10	0.00	0.00

Key:
GWP-t – climate change - total **GWP-f** – climate change - fossil **GWP-b** – climate change - biogenic **GWP-l** – climate change - land use and land use change **ODP** – ozone depletion **AP** - acidification **EP-fw** - eutrophication - aquatic freshwater **EP-m** - eutrophication - aquatic marine **EP-t** - eutrophication - terrestrial **POCP** - photochemical ozone formation **ADPF*[2]** - depletion of abiotic resources – fossil fuels **ADPE*[2]** - depletion of abiotic resources – minerals and metals **WDP*[2]** – water use **PERE** - use of renewable primary energy **PERM** - use of renewable primary energy resources used as raw materials **PERT** - total use of renewable primary energy **PENRE** - use of non-renewable primary energy **PENRM** - use of non-renewable primary energy resources used as raw materials **PENRT** - total use of non-renewable primary energy **SM** - use of secondary materials **RSF** - use of renewable secondary fuels **NRSF** - use of non-renewable secondary fuels **FW** - net use of freshwater **HWD** - hazardous waste disposed **NHWD** - non-hazardous waste disposed **RWD** - radioactive waste disposed **CRU** - components for reuse **MFR** - materials for recycling **MER** - materials for energy recovery **EEE** - exported electrical energy **EET** - exported thermal energy
ND – Not declared

Results per 1 running metre of drop-down door seal, Product group 3															
	Unit	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Additional environmental impact indicators																
PM	Disease incidence	6.75E-07	1.23E-09	9.38E-11	ND	ND	ND	ND	ND	ND	ND	0.00	1.19E-10	1.22E-09	6.59E-11	-4.22E-07
IRP*[1]	kBq U235 eq.	0.79	3.35E-04	1.39E-04	ND	ND	ND	ND	ND	ND	ND	0.00	3.23E-05	2.21E-02	1.15E-05	-0.43
ETP-fw*[2]	CTUe	55.61	1.55	1.14E-02	ND	ND	ND	ND	ND	ND	ND	0.00	0.15	0.17	5.62E-03	-21.00
HTP-c*[2]	CTUh	8.17E-09	2.10E-11	5.98E-13	ND	ND	ND	ND	ND	ND	ND	0.00	2.02E-12	1.64E-11	1.33E-13	-4.25E-09
HTP-nc*[2]	CTUh	6.39E-08	1.17E-09	2.91E-11	ND	ND	ND	ND	ND	ND	ND	0.00	1.13E-10	4.19E-10	5.13E-12	-4.94E-08
SQP*[2]	Dimensionless.	64.55	0.53	5.75E-03	ND	ND	ND	ND	ND	ND	ND	0.00	5.09E-02	0.36	2.78E-03	-12.90

Key:
PM – particulate matter emissions **IRP*[1]** – ionising radiation – human health **ETP-fw*[2]** - ecotoxicity – aquatic freshwater **HTP-c*[2]** - human toxicity potential – cancer effect **HTP-nc*[2]** - human toxicity potential – non-cancer effect **SQP*[2]** – land use related impacts / soil quality
ND – Not declared

Disclaimers

*1 This impact category deals mainly with the eventual impact of low-dose ionising 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 ionising radiation from the soil, from radon and from some building 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 the drop-down seals vary greatly between the product groups formed. The differences lie mainly in the mass of the respective precursors and raw materials used. This was to be expected, particularly given the significant differences in aluminium use.

In the manufacturing stage, the environmental impacts of all products arise mainly from the use of aluminium and the associated anodising process or its upstream processes. Furthermore, the use of spring steel has a moderate impact on most of the environmental impacts considered. Silicone from R08 and within the adhesive tape modelled under V04 also have a moderate impact.

In scenario C4, only marginal expenditure is expected for physical pretreatment and landfill operation. Allocation to individual products is difficult in the case of landfill.

When recycling PLANET drop-down seals, the following proportions of the core indicator environmental impacts occurring during the life cycle (excluding WDP, as not supported by the software) can be credited in scenario D for aluminium, steel, stainless steel and brass in accordance with their masses used. Only aluminium results in significant credits. Other metals are insignificant, with a consistently low share of less than 2%.

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

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

Chart

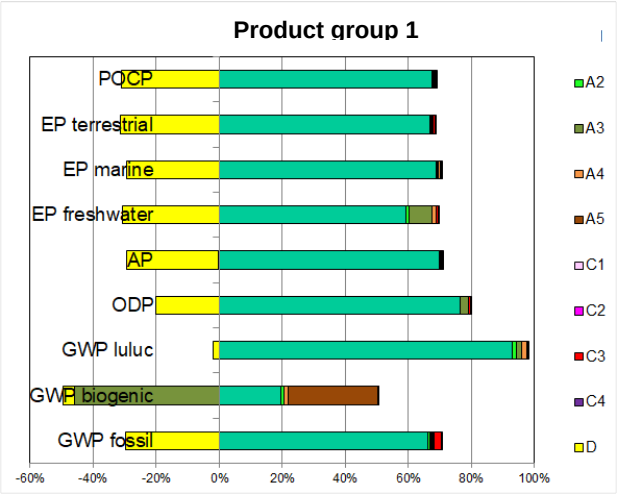


figure 4: Percentage of the modules in selected environmental impact categories, Product group 1

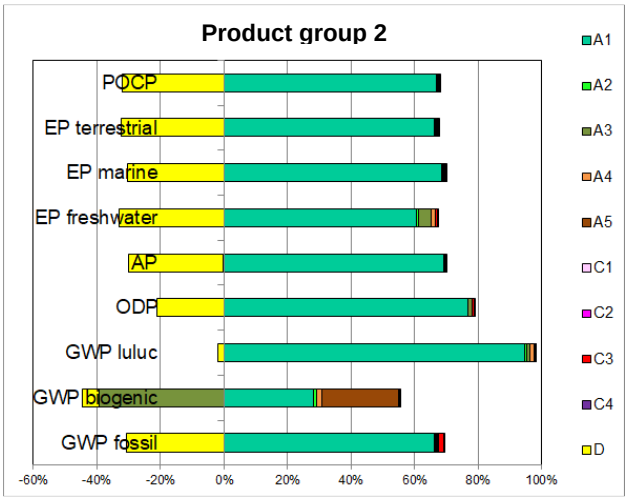


figure 5: Percentage of the modules in selected environmental impact categories, Product group 2

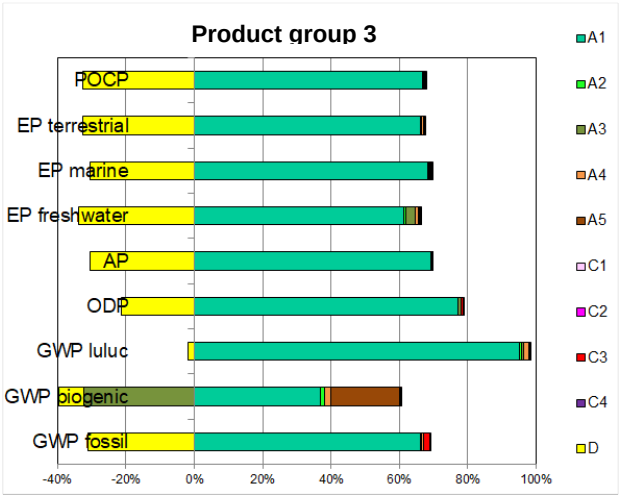


figure 6: Percentage of the modules in selected environmental impact categories, Product group 3

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 not addressed to third parties for reasons of confidentiality. It is deposited with the 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 the report took place in the course of verification of the EPD and was carried out by Susanne Volz., an external verifier.

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 reference products reported in the balance sheet were identified using the worst-case approach and deemed representative of the product group. The results of individual products within the product group differ from the results of the reference products. The determination of the product groups and the resulting variants 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.

The Declaration is based on the PCR documents “PCR Part A” PCR-A-1.0:2023 and " Accessories for windows and doors” PCR-ZFT-1.3:2025.

The European standard EN 15804 serves as the core PCR [a)]
Independent external verification of the Declaration and statement according to EN ISO 14025:2010
Independent third party verifier: [b)] Dipl.-Wi.Jur. (FH), M. Sc. Susanne Volz
[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:	Practitioner	Verifier
1	16.07.2025	External verification	Brechleiter	Volz
2	23.07.2025	editorial change	Brechleiter	-

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9 Annex

Description of life cycle scenarios for Drop-down seals for doors

Product stage			Con-struction process stage		Use stage*							End-of-life stage				Benefits and loads from beyond the system boundaries
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Raw material supply	Transport	Manufacture	Transport	Construction/installation process	Use	Maintenance	Repair	Replacement	Modification/refurbishment	Operational energy use	Operational water use	Deconstruction/demolition	Transport	Waste processing	Disposal	Reuse Recovery Recycling potential
✓	✓	✓	✓	✓	—	—	—	—	—	—	—	✓	✓	✓	✓	✓

* For the declared B modules, the calculation of the results is based on the specified RSL related to one year.

Table 6: Overview of applied life cycle stages

Calculation of the scenarios was based on a defined RSL (see Section 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) and EN 17213.

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

No.	Scenario	Description
A4	**Distribution to wholesale Europe-wide**	**34–40 tonne truck (Euro 0–6 mix), diesel, 27 tonne payload, 50% load capacity[1], approx. 1,000 km one way (return trip empty)**

[1] capacity used: used loading capacity of truck

A4 Transport to the construction site	Transport weight [kg/m]	Density [kg/m³]	Volume capacity utilisation factor[2]
PG1	0.436	175	< 1
PG2	0.685	275	< 1
PG3	1.025	410	< 1

[2] Volume capacity utilisation factor:
= 1 product completely fills packaging (without air inclusion)
< 1 packaging contains unused volume (e.g.: air, filling material
> 1 product is packed in compressed form

Since only one scenario is used, the results are shown in the relevant summary table.

A5 Construction/installation process

No.	Scenario	Description
A5.1	**Manual**	**According to the manufacturer the products are installed without using 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 construction works level.

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

It is assumed that the packaging material is sent for waste treatment in module A5. In line with the conservative approach, waste is exclusively thermally recycled: films/protective covers, wooden pallets and cardboard in waste incineration plants. Credits from A5 are reported in module D. Credits from waste incineration plants: electricity replaces electricity mix (RER); thermal energy replaces thermal energy from natural gas (RER).

Transport to the recycling plants is not taken into account.

Since only one scenario is used, the results are shown in the relevant summary table.

C1 Deconstruction, demolition

No.	Scenario	Description
C1	Deconstruction	**Based on EN 17213 – Metal windows** • **95% dismantling of glass-free materials** • **Residual materials on landfill** **Further dismantling quotas are possible, with appropriate justification.**

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

Since only one scenario is used, the results are shown in the relevant summary table.

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

C2 Transport

No.	Scenario	Description
C2	Transport	**Transport to collection point using 40 t truck (Euro 0-6 mix), diesel, 27 t payload, 50% capacity used, 100 km** (1)

Since only one scenario is used, the results are shown in the relevant summary table.

C3 Waste management

No.	Scenario	Description
C3	Current market situation	**Proportion of materials returned (based on EN 17213)** • **Metals 100% melted down** • **Plastics 100% thermal recycling in waste incineration plants**

Electricity consumption of incineration plant 0.5 MJ/kg.

As the products are sold throughout Europe, average data sets for Europe were used as a basis for the disposal scenario. Where no European data sets were available, German data sets were used.

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

C3 Disposal	Unit	PG 1	PG 2	PG 3
Collection process, collected separately	kg	0.380	0.617	0.940
Collection process, collected as mixed construction waste	kg	2.00E-02	3.24E-02	4.94E-02
Recovery system, for reuse	kg	0.00	0.00	
Recovery system, for recycling	kg	0.320	0.536	0.815
Recovery system, for energy recovery	kg	6.055E-02	8.155E-02	0.124
Disposal	kg	2.00E-02	3.24E-02	4.94E-02

Since only one scenario is used, 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 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 only one scenario is used, the results are shown in the summary table.

D Benefits and loads from beyond the system boundaries

No.	Scenario	Description[1]
D	**Recycling potential**	**Aluminium scrap from C3 excluding the recyclate used in A3 replaces 70.2% of aluminium; Steel scrap from C3 excluding the scrap used in A3 replaces 70.2% of steel; Stainless Steel scrap from C3 excluding the scrap used in A3 replaces 70.2% of stainless steel; Benefits from waste incineration: electricity replaces electricity mix (RER); thermal energy replaces thermal energy from natural gas (RER).**

[1] Value correction factor 70.2% according to metal specific data set, 60% according to standard data set for other materials.

The values in module "D" result from recycling of the packaging material in module A5 and from deconstruction at the end of service life.

Since only one scenario is used, the results are shown in the summary table.

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