

# ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration	FAAC S.p.A. Soc. Unipersonale
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-FAA-20260112-IBA1-EN
Issue date	28/04/2026
Valid to	27/04/2031

## Automatic Sliding Door AS3020 with TK35 frame system FAAC S.p.A. Soc. Unipersonale

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**EPD**  
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# 1. General Information

## FAAC S.p.A. Soc. Unipersonale

**Programme holder**

IBU – Institut Bauen und Umwelt e.V.  
 Hegelplatz 1  
 10117 Berlin  
 Germany

**Declaration number**

EPD-FAA-20260112-IBA1-EN

**This declaration is based on the product category rules:**

Automatic doors, automatic gates, and revolving door systems,  
 01/08/2021  
 (PCR checked and approved by the SVR)

**Issue date**

28/04/2026

**Valid to**

27/04/2031

Dipl.-Ing. Hans Peters  
 (Chairman of Institut Bauen und Umwelt e.V.)

Dr. Martina Bender  
 (Managing Director Institut Bauen und Umwelt e.V.)

## Automatic Sliding Door AS3020 with TK35 frame system

**Owner of the declaration**

FAAC S.p.A. Soc. Unipersonale  
 Via Calari 10  
 40069 Bologna  
 Italy

**Declared product / declared unit**

1 unit.

**Scope:**

This declaration outlines the LCA environmental results for one automatic sliding door system with TK35 profile and AS3020 sliding door automation. The sizes of the Automatic Sliding Door System vary according to project requirements; a door system with 2 active door leaves with a frame height of 2.2 m ,a frame width of 1.8 m and with 24 mm laminated glass is used in this declaration.

The product is designed, assembled and tested by FAAC at the Zola Predosa plant in Italy in Via Calari 10, 40069, Zola Predosa (BO).

Primary data cover the year 2024.  
 The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as *EN 15804*.

**Verification**

The standard EN 15804 serves as the core PCR	
Independent verification of the declaration and data according to ISO 14025:2011	
<input type="checkbox"/>	internally
<input checked="" type="checkbox"/>	externally

Sr Lucas Berman,  
 (Independent verifier)

## 2. Product

### 2.1 Product description/Product definition

FAAC TK35 series features 35 mm aluminium alloy profiles (EN AW-6060) and fitted with special seals for 10mm single or 24mm double-glazing panels made of laminated glass designed for use in automatic sliding doors, both standard and telescopic. The TK35 is typically used in automatic pedestrian sliding doors in settings such as shops, hospitals, offices, airports, and shopping centers, in both standard and telescopic sliding door configurations and is compatible with various FAAC automation systems such as AS3000, A1400, Airslide.

The assessed product represents a **complete assembled sliding door, constituted by the frame and an automation system**, which in this study is taken as the AS3020. The item code of the frame TK35 is **1050031** and of the AS3020 is **1053020**.

For the placing on the market in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) the following legal provisions apply:

- EN ISO 12100:2010
- EN 60335-1:2012 + A11:2014+A13:2017+A15:2021- EN 60335-2-103:2015
- EN ISO 13849-1:2015 Cat 2 PL c
- EN ISO 13849-2:2012
- EN 16005:2023+A1:2024
- 2006/42/EC Machinery Directive (MD)

- 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment with the applicable amendments (RoHS).

- Disposal of the product is subject to the Waste from Electrical and Electronic Equipment (WEEE) Directive within Europe, Directive 2012/19/EU together with the RoHS Directive 2011/65/EU and its amending Directive 2015/863.

For the application and use the respective national provisions apply.

### 2.2 Application

The sliding door is intended for application in automatic pedestrian sliding doors in settings such as shops, hospitals, offices, airports, and shopping centers. It is a simple and innovative solution, designed to make the management and installation of the leaves easier for automatic entrances.

### 2.3 Technical Data

#### Constructional data

- Clear opening: Bi-parting 800-3000mm
- Clear opening: Single Slide 700-3000mm
- Suitable for doors up 50mm thickness
- Profile finish: anodized aluminium, colour on request / painted in colour according to RAL card

Name	Value	Unit
Heat transfer coefficient glass acc. to EN 674 / EN 675	2.8	W/(m <sup>2</sup> K)
Heat transfer coefficient frame acc. to UNI EN ISO 10077-1:2018 and UNI EN ISO 10077-2:2018	5.8 - 6.3	W/(m <sup>2</sup> K)
Heat transfer coefficient of the entire door or gate system	3.9	W/(m <sup>2</sup> K)
Power input "Operation"	36	W
Power input "Standby"	2.96	W
Power input "Idle"	0.67	W

The technical characteristics of the assessed TK35 frame are:

Technical characteristics	Value
Coated aluminium profiles section [mm]	35
Laminated glass thickness [mm]	24 (33.1+12+33.1)
Total passage opening width [m]	1.8
Total passage opening height [m]	2.2
Total area of 1 leaf [m <sup>2</sup> ]	1.82
Total area of 2 leaves [m <sup>2</sup> ]	3.63

Performance data of the product according to the harmonised standards, based on provisions for harmonization.

Voluntary data: performance certified according to:

- EN16005
- EN13849: PI.D Cat.2

### 2.4 Delivery status

The packaging of the TK35 consists of a wooden glass transport rack, plywood, cardboard and expanded polyethylene

### 2.5 Base materials/Ancillary materials

Name	Value	Unit
Laminated glass	52.0	%
Wood (packaging)	28.7	%
Aluminium	7.7	%
Galvanised steel	4.1	%
Plastic (packaging)	2.2	%
Cardboard (packaging)	2.0	%
EPDM	0.7	%
Steel	0.6	%
Radar	0.5	%
Battery	0.3	%
Zamak	0.2	%
Polycarbonate	0.1	%
NBR	0.1	%
ABS	0.1	%
Electronic board	0.1	%
Stainless steel	0.1	%
PA6	0.1	%
POM	0.1	%
TPV	0.1	%
Miscellaneous (cut-off)	0.1	%
PP fibre	<0.1	%
Expansion board	<0.1	%
Connector	<0.1	%
Magnet NdFeB	<0.1	%
Motor	<0.1	%
Power supply unit	<0.1	%

The mass of the product with packaging is equal to 216.48 kg, whereas that without packaging is 145.25 kg.

This product/article/at least one partial article contains substances listed in the *candidate list* (date: 21.01.2025) exceeding 0.1 percentage by mass: yes.

Lead (Pb) - CAS No. 7439921 is included in some of the alloy used. The concentration of lead in each individual alloy does not exceed 10.0% (by mass).

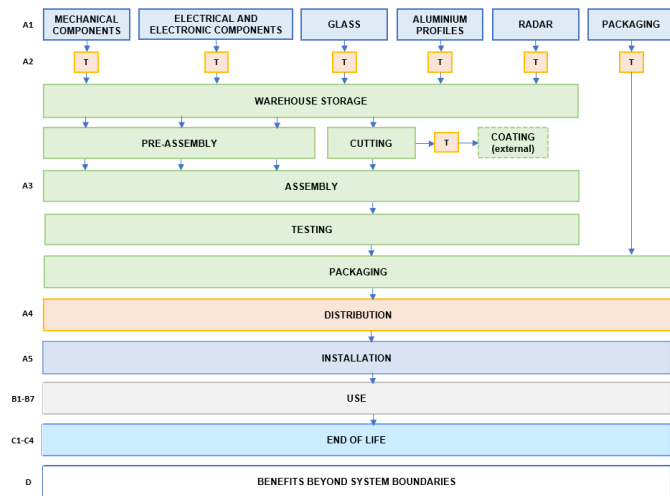
## 2.6 Manufacture

The sliding door with automation is manufactured in the FAAC plant situated in Via Monaldo Calari, 10, 40069 Zola Predosa BO (Italy).

The manufacturing process begins with the receipt of finished and semi-finished components at the Zola Predosa facility. Semi-finished parts include extruded aluminium profiles, which are cut in-house to the required dimensions. Finished components include glass, mechanical, electrical, and electronic parts.

All components are then pre-assembled and fully assembled to form the final product. Finally, the completed product is tested, then packaged and prepared for shipment.

Below is a flowchart of the production/assembly process.



## 2.7 Environment and health during manufacturing

The FAAC plant in Zola Predosa is certified to the following ISO standards:

- ISO 14001: Environmental Management System
- ISO 9001: Quality Management System
- ISO 45001: Occupational Health and Safety Management System

## 2.8 Product processing/Installation

Information on the machinery and tools needed for installation as well as the safety measures are specified in the instruction manual provided by FAAC.

## 2.9 Packaging

The packaging consists of a wooden glass transport rack (87%), plywood (1%), cardboard (6%), expanded polyethylene (6%) and a PVC label (<0%), for a total mass of 69.2 kg.

The end-of-life phase for packaging during installation was modelled according to Eurostat 2025 data on recycling rates for packaging waste, indicating the following rates:

- cardboard**: 86.6% recycling and 13.4% incineration with energy recovery
- wood and plywood**: 36.6% recycling and 63.3% incineration with energy recovery
- expanded polyethylene**: 41.5% recycling and 58.5%

incineration with energy recovery

**-PVC label**: 100% incineration with energy recovery

Waste code according to *European Waste Catalogue and Hazardous Waste List (EWC)* - Valid from 1 January 2002:

- EWC 15 01 01 paper and cardboard packaging
- EWC 15 01 02 plastic packaging
- EWC 15 01 03 wooden packaging

## 2.10 Condition of use

No significant changes in material composition or environmentally relevant material properties are expected over the service life of the product. However, safety information related to transport, installation, use, maintenance, and end-of-life management is provided together with the product documentation. Data about maintenance operations is provided in paragraph 4.

## 2.11 Environment and health during use

The product does not release harmful substances or emissions into the environment.

## 2.12 Reference service life

The reference service life is established at 20 years, both according to the BBSR publication '*Nutzungsdauern von Bauteilen für Lebenszyklusanalysen nach Bewertungssystem Nachhaltiges Bauen (BNB)*' (2017), which indicates 20 years for automatic doors (Automatiktüren) and in line with internal expert assessments and product testing results.

## 2.13 Extraordinary effects

### Fire

Not applicable.

### Water

Not applicable.

## Mechanical destruction

No hazards are anticipated during mechanical destruction.

## 2.14 Re-use phase

Construction components and materials, including batteries and electronic parts, must not be disposed of with household waste. They should be taken to authorised collection and recycling centres.

## 2.15 Disposal

After having dismantled the product, disposal in compliance with the current waste disposal regulations is assumed to occur.

A European end-of-life scenario is applied based on the destinations defined in A4. Accordingly, recycling, incineration with/without energy recovery, and landfill rates were taken from IEC TR 62635, in particular, tables D.3.3, D.6, D.7 and D.8.

Waste codes according to the *European Waste Catalogue and Hazardous Waste List (EWC)* - Valid from 1 January 2002:

- EWC 17 04 07 - mixed metals
- EWC 20 01 36 - discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35
- EWC 17 04 11 - cables other than those mentioned in 17 04 10
- EWC 07 02 13 - waste plastic

## 2.16 Further information

Additional information on the product is available on FAAC's website.

## 3. LCA: Calculation rules

### 3.1 Declared Unit

The declaration refers to 1 sliding door TK35 equipped with the AS3020 operator.

#### Declared unit and mass reference

Name	Value	Unit
Grammage of the components	36.6	kg/m <sup>2</sup>
Declared unit	1	pce.
Mass reference	145.1	kg/pce
Mass of the entire system without packaging	145.1	kg
Mass of the frame without the operator	128.4	kg
Layer thickness	0.035	m
Clear opening width	1.8	m
Clear opening height	2.2	m

### 3.2 System boundary

The system boundary is cradle to grave and module D (A+B+C +D). The following life cycle stages were considered:

Production stage:

- A1 – Raw material extraction and processing
- A2 – Transport to the manufacturer and
- A3 – Manufacturing

Distribution and installation stages:

- A4 – Transport to the construction site
- A5 – Installation in the building

Use stage related to the operation of the building includes:

- B1 - Use
- B2 - Maintenance
- B3 - Repair
- B4 - Replacement
- B5 - Refurbishment
- B6 - Operational energy use
- B7 - Operational water use

End-of-life stage:

- C1 - Deinstallation
- C2 – Transport to waste processing
- C3 – Waste processing for recycling and incineration with energy recovery
- C4 – Disposal (landfill, waste for incineration)

This includes provision of all materials, products and energy, packaging processing and their transport, as well as waste processing up to the end-of-waste state or disposal of final residues.

Module D:

- Declaration of benefits and loads beyond the system boundaries

### 3.3 Estimates and assumptions

The following assumptions were made:

**A1 - extraction and processing of raw materials:** due to the lack of specific datasets, in terms of modelling, TPV and TPE were assumed as generic elastomers; PC-ABS alloy as generic PC; the radar as an active electronic component (20%) and PC (80%)

**B2 - maintenance:** as per product manual, it is suggested to replace the backup battery every 3-5 years. A 4-year replacement has been considered.

**B6 - use:** for the use phase a European scenario was

considered **C2 - transport:** a distance of 100 km was considered for the transport of the materials to the disposal/recovery/recycling site

**C3-C4 EoL:** end-of-life rates were considered in accordance with IEC TR 62635:2012. As for the glass, it is assumed to be disposed of in landfill, as its recycling is not yet common practice in standard end-of-life operations.

MATERIAL	RECYCLING RATE (%)	INCINERATION WITH ENERGY RECOVERY (%)	INCINERATION W/O ENERGY RECOVERY (%)	LANDFILL (%)	SOURCE OF SCENARIO
STEEL	95%	0%	0%	5%	IEC TR 62635 (table D.6)
ALUMINIUM	95%	0%	0%	5%	IEC TR 62635 (table D.6)
BATTERY	70%	0%	0%	30%	IEC TR 62635 (table D.3.3) (battery (Ni-Cd))
ZAMAK	70%	0%	0%	30%	IEC TR 62635 (table D.6) (other metal)
PC	94%	0%	0%	6%	IEC TR 62635 (table D.6)
NBR	94%	0%	0%	100%	no information available
ABS	94%	0%	0%	6%	IEC TR 62635 (table D.6)
ELECTRONIC BOARD	14%	43%	0%	43%	IEC TR 62635 (table D.3.3) (PWB - Poor)
PA6	94%	0%	0%	6%	IEC TR 62635 (table D.6)
POM	0%	5%	0%	95%	IEC TR 62635 (table D.6) (other polymers)
TPV	0%	5%	0%	95%	IEC TR 62635 (table D.6) (other polymers)
EXPANSION BOARD	14%	43%	0%	43%	IEC TR 62635 (table D.3.3) (PWB - Poor)
CONNECTOR	0%	0%	0%	100%	no information available
MAGNET	70%	0%	0%	30%	IEC TR 62635 (table D.6) (other metal)
CABLE	24%	76%	0%	0%	IEC TR 62635 (table D.3.3) (cable low current)
PC-ABS	94%	0%	0%	6%	IEC TR 62635 (table D.6)
TPE	0%	5%	0%	95%	IEC TR 62635 (table D.6) (other polymers)
PMMA	0%	0%	0%	100%	no information available
NEOPRENE	0%	0%	0%	100%	no information available
MOTOR	85%	0%	0%	15%	IEC TR 62635 (table D.7) (AC motor)
POWER SUPPLY UNIT	0%	0%	0%	100%	no information available

### 3.4 Cut-off criteria

The cut-off includes:

- the packaging of raw materials
- components making up 0.98% of the total product + packaging mass. These consist of labels, small LDPE bags and cardboard boxes

### 3.5 Background data

Specific data was used based on the production of 2024. For processes where the producer lacks influence or specific information, such as raw material extraction and end-of-life treatment, generic data from the following primary sources were considered:

- *Ecoinvent 3.11*
- *SimaPro 10.2*

The emission factor used for phase A3 is equal to 0.636 kgCO<sub>2</sub>e<sub>q</sub>/kWh.

### 3.6 Data quality

The data quality is assessed based on the requirements of the PCR Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report according to *EN 15804+A2:2019, version 1.4*.

The data used in this study cover the year 2024 and were collected to ensure temporal, geographical, and technological representativeness, using the most recent and relevant datasets available.

The data quality can be described as good.

### 3.7 Period under review

Primary data covers a period of 12 months, from January 2024 to December 2024.

### 3.8 Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product's lifespan: Europe

### 3.9 Allocation

The allocation of manufacturing inputs and outputs at the Zola Predosa plant in 2024 was carried out based on an economic parameter, namely turnover.

### 3.10 Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account. The used background database is *Ecoinvent 3.11*.

## 4. LCA: Scenarios and additional technical information

### Characteristic product properties of biogenic carbon

Biogenic carbon is present in cardboard packaging only and it was calculated by considering the biogenic carbon content associated with the *ecoinvent* dataset used to model the biomass.

### Information on describing the biogenic carbon content at factory gate

Name	Value	Unit
Biogenic carbon content in product	-	kg C
Biogenic carbon content in accompanying packaging	32.63	kg C

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO<sub>2</sub>.

The following chapters detail the information considered in each downstream phase.

### Transport to the building site (A4)

Name	Value	Unit
Litres of fuel	23.2	l/100km
Transport distance	973	km
Capacity utilisation (including empty runs)	47.3	%

### Installation into the building (A5)

The installation process only involves manual operations with the use of a drill carried out by a technician. Therefore, no specific material or energy flows were considered for this purpose.

The only included process refers to the disposal of packaging waste. *Eurostat 2025* data on Recycling rates for packaging waste were used:

- cardboard: 86.6% recycling; 13.4% incineration with energy recovery)
- wood: 36.6% recycling; 63.4% incineration with energy recovery)
- expanded PE: 41.5% recycling; 58.5% incineration with energy recovery
- PVC: 100% incineration with energy recovery

Name	Value	Unit
Fir wood	61.5	kg
Plywood	0.7	kg
Expanded PE	4.3	kg
Cardboard	2.5	kg
PVC	0.3	kg

### Use or application of the installed product (B1) see section 2.12 "Use"

No inputs or outputs are considered in this phase. There are no emissions or release of substances associated with the use of the analysed product.

Name	Value	Unit
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### Maintenance (B2)

This phase includes the ordinary maintenance and periodic substitutions needed to maintain the functional and technical performance of the product as detailed in the AS3000 product

instruction manual. This means the inclusion of the production and transportation of any component used for maintenance, the transport of the technician to the installation site, the transportation of any waste arising from the maintenance activities, and the end-of-life processes of this waste.

For the TK35 frame, only the replacement of the lower guide shoe is required every 2.000.000 cycles. Since the declared RSL corresponds to 20 years and 2.000.000 cycles, no component replacements are considered in the assessment.

For the operator AS3020, the ordinary maintenance, required every 6 months, includes the following activities:

- check fastening of the automation to the wall
- check fastening of motor and return pulley
- check trolleys
- check mechanical stops
- check belt tension
- cleaning of sliding track, lower guide show, trolleys
- functional check of the system

In terms of periodic substitutions, they are shown in the following table:

Name	Value	Unit
Belt (NBR) - every 5 years	1.26	kg/RSL
End-stop bumpers (NBR) - every 5 years	0.06	kg/RSL
Backup battery (NiMH) - every 4 years*	2.82	kg/RSL

\*The replacement of the backup battery is recommended every 3-5 years; for the assessment, a four-year replacement interval has been considered.

The reference service life is established at 20 years, both according to the *BBSR* publication and in line with internal expert assessments and product testing results.

### Reference service life

Name	Value	Unit
Life Span (according to BBSR)	20	a
Life Span according to the manufacturer	-	a

### Operational energy use (B6) and Operational water use (B7)

The analysed sliding door consumes energy during its use phase, operating in three different modes: active, standby and idle (night) mode.

The data used to calculate the percentage of time in the different modes and the calculations to obtain the electricity consumption during the RSL are presented in the tables below. Power consumption data for the drive unit and accessories, including standby and idle modes, were provided by FAAC based on internal testing.

Parameters	Value	UM	%
Cycles	2.000.000	number	
Time cycle	12	s	
Seconds in 20years	630.720.000	s	
time cycle power on	10	s	
time cycle stand-by	2	s	
Time on Power ON	24.000.000	s	3,8%
Time on StandBy	396.480.000	s	62,9%
Time on idle	210.240.000	s	33,3%

	Percentage of time	Power consumption	Energy consumption (Wh)	Energy consumption (kWh)
Power Mode 1: Power ON	3,8%	0,12 kWh per cycle	240.000	240
Power Mode 2: Standby	62,9%	2,96 W	325.995	326
Power mode 3: Idle	33,3%	0,67 W	39.128	39
<b>TOTAL</b>			<b>605.123</b>	<b>605</b>

Name	Value	Unit
Electricity consumption	605.12	kWh

The European power mix is used to model electricity consumption during the use phase, which is Electricity, low voltage {Europe without Switzerland} market group for electricity, low voltage | Cut-off, U

#### End of life (C1-C4)

Name	Value	Unit
Collected separately waste type waste type	-	kg
Recycling	27.5	kg
Energy recovery	0.6	kg
Landfilling	117	kg

**5. LCA: Results**

Results for the sliding door TK35 equipped with the operator AS3020.

**DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)**

Product stage			Construction process stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

**RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 unit**

Parameter	Unit	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO <sub>2</sub> eq	7.8E+02	1.31E+00	-8.28E+01	3.18E+01	1.2E+02	0	1.8E+02	0	0	0	2.09E+02	0	0	2.67E-01	3.67E+00	1.44E+00	-2.12E+02
GWP-fossil	kg CO <sub>2</sub> eq	7.76E+02	1.31E+00	2.68E+01	3.18E+01	1.05E+01	0	1.82E+02	0	0	0	2.02E+02	0	0	2.67E-01	3.66E+00	1.43E+00	-2.55E+02
GWP-biogenic	kg CO <sub>2</sub> eq	2.56E+00	7.71E-04	-1.1E+02	1.97E-02	1.1E+02	0	-2.47E+00	0	0	0	6.53E+00	0	0	1.66E-04	6.23E-03	1.17E-02	4.35E+01
GWP-luluc	kg CO <sub>2</sub> eq	1.52E+00	4.65E-04	1.78E-01	1.1E-02	1.07E-03	0	3.79E-01	0	0	0	5.97E-01	0	0	9.28E-05	7.34E-04	2.95E-04	-6.93E-01
ODP	kg CFC11 eq	4.71E-05	2.84E-08	1.28E-06	6.98E-07	4.07E-08	0	1.03E-04	0	0	0	3.78E-06	0	0	5.87E-09	8.05E-09	2.66E-08	-1.82E-06
AP	mol H <sup>+</sup> eq	5.9E+00	7.35E-03	1.29E-01	1.46E-01	1.43E-02	0	2.43E+00	0	0	0	1.16E+00	0	0	1.23E-03	2.88E-03	5.96E-03	-1.81E+00
EP-freshwater	kg P eq	5.21E-01	9.08E-05	9.89E-03	2.25E-03	4.74E-04	0	5.48E-02	0	0	0	1.94E-01	0	0	1.89E-05	2.3E-04	2.52E-04	-9.84E-02
EP-marine	kg N eq	1.29E+00	2.66E-03	4.05E-02	5.73E-02	6.48E-03	0	1.61E+00	0	0	0	1.85E-01	0	0	4.82E-04	1.8E-03	5.38E-03	-2.86E-01
EP-terrestrial	mol N eq	1.11E+01	2.91E-02	4.04E-01	6.25E-01	6.54E-02	0	1.94E+00	0	0	0	1.64E+00	0	0	5.26E-03	8.78E-03	2.55E-02	-3.02E+00
POCP	kg NMVOC eq	3.16E+00	9.86E-03	2.37E-01	2.2E-01	1.9E-02	0	8.47E-01	0	0	0	5.25E-01	0	0	1.85E-03	3.12E-03	9.16E-03	-9.6E-01
ADPE	kg Sb eq	9.96E-02	4.16E-06	1.24E-04	1.04E-04	6.09E-06	0	4.61E-03	0	0	0	2.69E-03	0	0	8.74E-07	3.02E-06	1.6E-06	-2.51E-03
ADPF	MJ	9.57E+03	1.88E+01	6.07E+02	4.59E+02	2.82E+01	0	2.32E+03	0	0	0	4.63E+03	0	0	3.86E+00	8.46E+00	2.06E+01	-2.79E+03
WDP	m <sup>3</sup> world eq deprived	1.83E+02	7.66E-02	1.4E+01	1.9E+00	2.2E-01	0	1.25E+02	0	0	0	4.88E+01	0	0	1.6E-02	6.68E-02	9.35E-02	-3.78E+01

GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

**RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 unit**

Parameter	Unit	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	1.06E+03	2.97E-01	2.07E+03	7.39E+00	1.4E+00	0	4.05E+02	0	0	0	1.21E+03	0	0	6.21E-02	1.23E+00	5.54E-01	-4.27E+02
PERM	MJ	0	0	9.57E+02	0	-9.57E+02	0	0	0	0	0	0	0	0	0	0	0	0
PERT	MJ	1.06E+03	2.97E-01	3.03E+03	7.39E+00	-9.56E+02	0	4.05E+02	0	0	0	1.21E+03	0	0	6.21E-02	1.23E+00	5.54E-01	-4.27E+02
PENRE	MJ	9.49E+03	1.88E+01	6.07E+02	4.59E+02	2.82E+01	0	2.32E+03	0	0	0	4.63E+03	0	0	3.86E+00	8.46E+00	2.06E+01	-2.79E+03
PENRM	MJ	8.27E+01	0	1.92E+02	0	-1.92E+02	0	3.49E+01	0	0	0	0	0	0	0	-2.55E+01	-5.72E+01	0
PENRT	MJ	9.57E+03	1.88E+01	7.99E+02	4.59E+02	-1.63E+02	0	2.36E+03	0	0	0	4.63E+03	0	0	3.86E+00	-1.71E+01	-3.66E+01	-2.79E+03
SM	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FW	m <sup>3</sup>	6.39E+00	2.44E-03	2.84E-01	6.05E-02	3.52E-02	0	3.19E+00	0	0	0	2.95E+00	0	0	5.09E-04	5.27E-03	1.45E-02	-1.56E+00

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy

excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

### RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2:

1 unit																		
Parameter	Unit	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	3.72E+00	4.88E-04	7.98E-02	1.22E-02	5.04E-01	0	2.53E-01	0	0	0	2.25E-01	0	0	1.02E-04	1.34E-01	2.13E-02	-2.38E-01
NHWD	kg	5.01E+01	1.13E+00	4.97E+00	2.85E+01	7.12E+01	0	6.24E+01	0	0	0	1.76E+01	0	0	2.4E-01	2.78E+01	1.17E+02	-9.61E+00
RWD	kg	2.79E-02	5.6E-06	1.18E-03	1.4E-04	3.6E-05	0	5.61E-02	0	0	0	3.31E-02	0	0	1.18E-06	3.14E-05	9.46E-06	-2.24E-03
CRU	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	2.84E+01	0	0	0	0	0	0	0	0	0	2.75E+01	0	0
MER	kg	0	0	0	0	4.29E+01	0	0	0	0	0	0	0	0	0	6.2E-01	0	0
EEE	MJ	0	0	0	0	1.17E+00	0	0	0	0	0	0	0	0	0	2.11E+00	0	0
EET	MJ	0	0	0	0	2.34E+00	0	0	0	0	0	0	0	0	0	4.18E+00	0	0

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 OF THE LCA – additional impact categories according to EN 15804+A2-optional:

1 unit																		
Parameter	Unit	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PM	Disease incidence	5.78E-05	1.25E-07	3.13E-06	3.13E-06	2.06E-07	0	1.16E-05	0	0	0	4.12E-06	0	0	2.64E-08	3.77E-08	1.23E-07	-2.21E-05
IR	kBq U235 eq	7.06E+01	2.27E-02	4.62E+00	5.67E-01	1.42E-01	0	3.75E+01	0	0	0	1.29E+02	0	0	4.77E-03	1.23E-01	3.88E-02	-8.87E+00
ETP-fw	CTUe	1.13E+04	2.43E+00	9.54E+01	6.02E+01	5.01E+01	0	6.9E+03	0	0	0	6.61E+02	0	0	5.07E-01	1.78E+01	1.16E+02	-1.01E+03
HTP-c	CTUh	4.6E-07	3.32E-10	1.5E-08	8.11E-09	1.68E-09	0	1.38E-07	0	0	0	5.57E-08	0	0	6.83E-11	9.73E-10	2.38E-10	-1.62E-07
HTP-nc	CTUh	1.35E-05	1.28E-08	2.57E-07	3.19E-07	8.84E-08	0	2.53E-06	0	0	0	3.13E-06	0	0	2.68E-09	5.75E-08	9.25E-09	-3.37E-06
SQP	SQP	2.96E+03	1.36E+01	1.25E+04	3.42E+02	1.63E+01	0	2.17E+03	0	0	0	9.02E+02	0	0	2.88E+00	2.53E+00	3.83E+01	-1.43E+03

PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

Disclaimer 1 – for the indicator 'Potential Human exposure efficiency relative to U235'. 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 or radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – for the indicators 'abiotic depletion potential for non-fossil resources', 'abiotic depletion potential for fossil resources', 'water (user) deprivation potential, deprivation-weighted water consumption', 'potential comparative toxic unit for ecosystems', 'potential comparative toxic unit for humans – cancerogenic', 'Potential comparative toxic unit for humans - not cancerogenic', 'potential soil quality index'. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high as there is limited experience with the indicator.

## 6. LCA: Interpretation

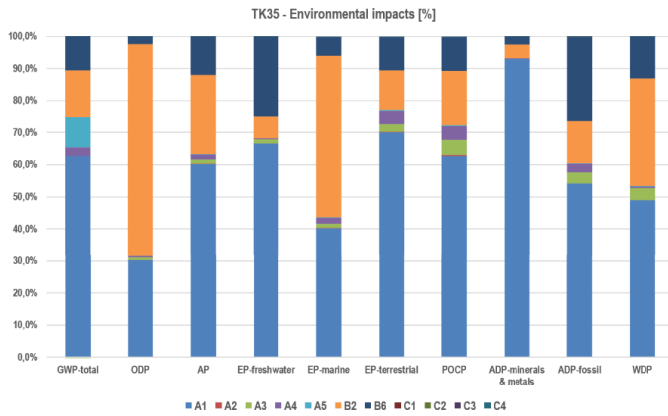
As shown in the Figure below, the main contributions to all impact categories originate from raw material extraction and processing (phase A1), the electricity consumption during use (phase B6) and the production of substituted components during product maintenance (phase B2).

With regards to the **GWP-total** impact category, the largest contribution arises from the extraction and processing of components (63%), mainly driven by glass, followed by the radar and the aluminium profiles. Electricity consumption during use and maintenance accounts for 17% and 14% of the total impact, respectively.

For the **ozone depletion** impact category, phase B2 accounts for 66% of the total impact, due to the use of PTFE in the production of the positive electrode within the batteries.

For the **acidification** impact category, the production of raw materials accounts for 60% of total impacts, followed by the production of the negative electrode within batteries in the maintenance phase (25).

For the **freshwater, marine, and terrestrial eutrophication** impact categories, phase A1 represents the main contributor to the total impacts, followed by phase B2. Within phase A1, the manufacturing of electronic components accounts for the largest share, followed by glass production.



The results should be evaluated taking into account the underlying assumptions, especially those concerning the modelling of electronic components and the maintenance phase.

## 7. Requisite evidence

Not applicable in this EPD.

## 8. References

### BNB Nutzungsdauern von Bauteilen (2017)

Service lives of components for life cycle assessments according to the Sustainable Building Assessment System (BNB).

### Directive 2012/19/EU

Waste Electrical and Electronic Equipment Directive.

### EN ISO 12100:2010

Safety of machinery - General principles for design - Risk assessment and risk reduction.

### EN 60335-1:2012 + A11:2014+A13:2017+A15:2021

Household and similar electrical appliances - Safety - Part 1: General requirements.

### EN 60335-2-103:2015

Household and similar electrical appliances - Safety - Part 2-103: Particular requirements for drives for gates, doors and windows.

### EN ISO 13849-1:2015

Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design.

### EN ISO 13849-2:2012

Safety of machinery - Safety-related parts of control systems - Part 2: Validation.

### EN 16005:2023+A1:2024

EN 16005 Power operated pedestrian doorsets - Safety in use - Requirements and test methods.

### EN 674:2011

Glass in building - Determination of thermal transmittance (U value) - Guarded hot plate method.

### EN 675:2011

Glass in building - Determination of thermal transmittance (U value) - Heat flow meter method.

### European Commission

European Commission. Product Environmental Footprint Category Rules Guidance 6.3. European Commission, 2018.

### European Waste Catalogue and Hazardous Waste List

EWC codes according to Commission Decision 2000/532/EC,

valid from 1 January 2002.

### Eurostat, 2025

Recycling rates for packaging waste. Available from <https://ec.europa.eu/eurostat/databrowser/view/ten00063/default/table?ang=en>

### IEC TR 62635:2012

Guidelines for end-of-life information provided by manufacturers and recyclers and for recyclability rate calculation of electrical and electronic equipment.

### Institut Bauen und Umwelt

Institut Bauen und Umwelt e.V.: General Instructions for the EPD programme of Institut Bauen und Umwelt e.V., Version 2.1, Berlin: Institut Bauen und Umwelt e.V., 2022.

### ISO 14001:2015

Environmental management systems — Requirements with guidance for use.

### ISO 9001:2015

Quality management systems — Requirements.

### ISO 45001:2018

Occupational health and safety management systems — Requirements with guidance for use.

### ISO 14025

EN ISO 14025:2011, Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

### ISO 14040

ISO 14040:2006/Amd 1:2020 Environmental management - Life cycle assessment - Principles and framework.

### ISO 14044

ISO 14044:2006/Amd 2:2017 Environmental management - Life cycle assessment – Requirements and guidelines.

### Machinery Directive

Directive 2006/42/EC of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

### PCR Part A+A2, version 1.4

Institut Bauen und Umwelt e.V., Berlin (pub.): Product Category Rules for Construction Products from the range of Environmental Product Declarations of Institut Bauen und Umwelt (IBU), Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report according to EN 15804+A2:2019. April 2024 ([www.bau-umwelt.de](http://www.bau-umwelt.de))

**PCR Part B**

PCR Part B: Requirements on the EPD for Automatic doors, automatic gates, and revolving door systems, Version 8, 05/07/2023.

**SimaPro**

SimaPro software-system version 10.2 (PRé consultants) and Ecoinvent 3.11 database, 2024.

**SVCH list**

Candidate List of Substances of Very High Concern for Authorisation. Helsinki, ECHA.

**UNI EN ISO 10077-1:2018**

Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - Part 1: General.

**UNI EN ISO 10077-2:2018**

Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - Part 2: Numerical method for frames.

**2011/65/EU ROHS Directive**

Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

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