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-20260113-IBA1-EN
Issue date	28/04/2026
Valid to	27/04/2031

Automatic Sliding Door AS3020 with TK35 frame system and Airslide

FAAC S.p.A. Soc. Unipersonale

Institut Bauen und Umwelt e.V.

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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-20260113-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)

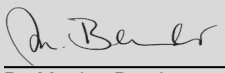
Issue date

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 and Airslide

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 represents 1 Automatic Sliding Door AS3020 with TK35 frame system and Airslide.

The System could vary according to project requirements: for this study, 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 24mm double-glazing panels made of laminated glass was considered.

The sliding door 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
☐ internally ☒ externally

Sr Lucas Berman,
(Independent verifier)

2. Product

2.1 Product description/Product definition

The Airslide system, item code 1055661, is a solution designed for automatic doors. Thanks to its integrated air curtain, it helps retain indoor air, reducing energy consumption while preventing smog, dust, and dirt from entering from outside. The system is capable of decreasing thermal dispersion by 62%, reducing the ingress of dust by 62%, and improving overall air quality.

The Airslide system is suitable to improve energy performance in terms of maintaining indoor temperatures of public spaces such as shops, supermarkets, offices, banks, hospitals, airports, and railway stations. The system must always be used in combination with a FAAC automation unit.

This report examines the Airslide system integrated into a complete entrance system equipped with Automatic Sliding Door AS3020 (1053020) with TK35 frame system (1050031). 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 ISO 13849-1:2015* Cat 2 PL c
- *EN ISO 13849-2:2012*
- *EN 60335-2-103:2015*
- *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/E*U 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 Airslide system integrates automatic opening and air curtain functions into a single unit, offering clear aesthetic and functional advantages. Its sleek design allows for seamless integration into any architectural context, including shops, supermarkets, offices, banks, hospitals, airports, and railway stations. The system must always be used in combination with a FAAC automation unit.

Designed specifically for FAAC automatic entrances, this solution helps retain indoor air, reducing energy consumption while limiting the entry of smog, dust, dirt, and insects from the outside environment.

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^{2}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^{2}K)
Heat transfer coefficient of the entire door or gate system	3.9	W/(m^{2}K)
Power input "Operation"	237	W
Power input "Standby"	4.96	W
Power input "Idle"	2.67	W

Technical characteristics	Value
Mains supply voltage	220–240 V - 50/60 Hz
Maximum absorbed power	160 W (single motor)
Beam dimensions (D x H)	182.1 x 252.5 mm (including grille)
Air outlet speed from grilles (0 ÷ 2.8 m)	15.3 – 3.7 (m/s)
Sound level (dB) at 5 m	49.5 – 57.5
Operating ambient temperature	–20°C / +55°C
Protection rating	IP23 (AIRSLIDE) – IP54 (E1AS control board)

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 Airslide is made of the operator, the Airslide air barrier system and the frame TK35. The operator is delivered in cardboard boxes as well as the Airslide, while the frame packaging consists of a wooden glass transport rack, plywood, cardboard and expanded polyethylene.

2.5 Base materials/Ancillary materials

Name	Value	Unit
Laminated glass	41.9	%
Wood (packaging)	23.1	%
Aluminium	15.6	%
Stainless steel	5.8	%
Galvanised steel	9.3	%
Cardboard (packaging)	3.4	%
Plastic (packaging)	1.7	%
Steel	1.3	%
Motor	1.0	%
EPDM	0.5	%
Radar	0.4	%
Zamak	0.3	%
Electronic board	0.2	%
Battery	0.2	%
Other materials (cut-off)	0.2	%
Polycarbonate	0.1	%
NBR	0.1	%
ABS	0.1	%
Chromium steel	0.1	%
PA6	0.1	%
POM	0.1	%
TPV	0.1	%
Miscellaneous	0.1	%
PP fibre	<0.1	%
Expansion board	<0.1	%
Connector	<0.1	%

The mass of the product with packaging is equal to 268.62 kg, whereas that without packaging is 192,55 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 alloys used. The concentration of lead in each individual alloy does not exceed 10.0% (by mass).

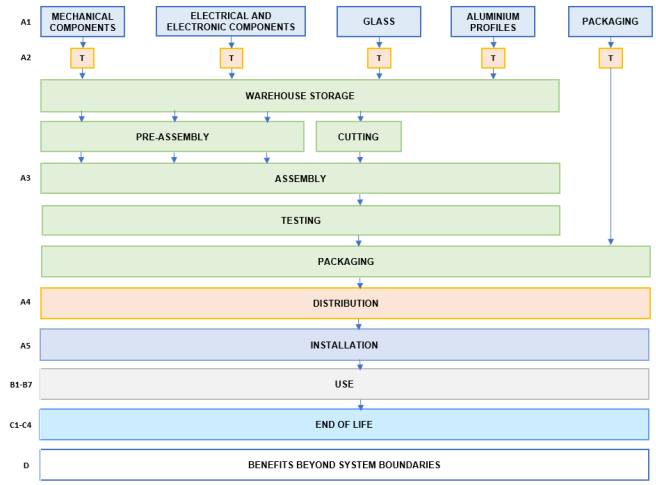
2.6 Manufacture

The Automatic Sliding Door System with Airslide, AS320 Sliding Door Automation and TK35 profile 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 before being sent to an external subcontractor for powder coating (only for TK35). Finished components include 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 of the Airslide automatic door consists of the following:

-AS3020: cardboard boxes for a total mass of 1.9 kg
-TK35: 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
-AIRSLIDE: cardboard boxes for a total mass of 4.8 kg

The total mass of packaging is 75.9 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 centers.

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 https://www.faac.it/prodotti/airslide-porta-scorrevole

3. LCA: Calculation rules

3.1 Declared Unit

This declaration refers to a single Airslide automatic sliding door. The product is assessed in a configuration equipped with FAAC AS3020 automation and a TK35 frame.

Declared unit and mass reference

Name	Value	Unit
Declared unit	1	pce.
Mass Airslide	46.9	kg
Mass AS3020	16.8	kg
Mass TK35 frame	128.4	kg
Weight of the entire system without packaging	192	kg/pce
Mass reference	192	kg/pce
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

End-of-life stage:

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

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: 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
- B2 - maintenance: as per product manual, it is suggested to replace the backup battery every four years.
- 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			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.8) (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

Cut off rules: The cut-off includes:

- the packaging of raw materials
- components making up 1.7% of the total product + packaging mass. These consist of small steel components, small paper and plastics packaging components.

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 $kgCO2_eq/kWh$.

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	34.81	kg C

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO_2.

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	1129.3	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.

Name	Value	Unit
Fir wood	61.5	kg
Plywood	0.7	kg
Expanded PE	4.3	kg
Cardboard	9.2	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

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 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 all components (AS3020, TK35 and Airslide), the ordinary maintenance is required every 6 months.
For the **AS3020 drive**, it includes the following:
-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

For the **TK35 frame**, only the replacement of the lower guide shoe is required every 2.000.000 cycles. Since the DU corresponds to 20 years and 2 million cycles, no component replacements are considered.
For the **Airslide**, a check every six months is suggested for the following:
-fastening of the Airslide system to its support
-fastening of the automation to the Airslide system
-fastening of the motor-fan assembly on the main Airslide profile
-correct opening of the draft-shield flaps during operation (located at the air-curtain outlet slots)
-cleaning of the fans and intake grilles 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
End-stop bumpers (NBR) - every 5 years	0.06	kg
Backup battery (NiMH) - every 4 years*	2.82	kg
Parachute safety cables	0.16	kg

*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	20	a

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

The sliding door under study consumes energy during use, operating in three different modes: active mode, standby mode and idle mode (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 Airslide 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 (W)	Energy consumption (Wh)	Energy consumption (kWh)
Power Mode 1: Power ON	3,8%	237,00	1.580.000	1.580
Power Mode 2: Standby	62,9%	4,96	546.261	546
Power mode 3: Idle	33,3%	2,67	155.928	156
TOTAL			**2.282.189**	**2.282**

Name	Value	Unit
Electricity consumption	2282.19	kWh

End of life (C1-C4)

Name	Value	Unit
Collected separately waste type waste type	192	kg
Recycling	71.4	kg
Energy recovery	0.8	kg
Incineration without energy recovery	<0.1	kg
Landfilling	119.9	kg

5. LCA: Results

Results for the Airslide automatic sliding door.

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

Parameter	Unit	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq	1.27E+03	2.12E+00	-7.93E+01	4.58E+01	1.22E+02	0	1.8E+02	0	0	0	9.99E+02	0	0	9.74E-01	5.72E+00	1.51E+00	-5.56E+02
GWP-fossil	kg CO_2 eq	1.26E+03	2.11E+00	3.15E+01	4.57E+01	1.06E+01	0	1.82E+02	0	0	0	9.65E+02	0	0	9.73E-01	5.7E+00	1.5E+00	-6E+02
GWP-biogenic	kg CO_2 eq	5.04E+00	1.25E-03	-1.11E+02	2.83E-02	1.11E+02	0	-2.47E+00	0	0	0	3.12E+01	0	0	6.03E-04	1.28E-02	1.25E-02	4.54E+01
GWP-luluc	kg CO_2 eq	2.6E+00	7.51E-04	2.19E-01	1.59E-02	1.09E-03	0	3.81E-01	0	0	0	2.85E+00	0	0	3.38E-04	9.62E-04	3.06E-04	-1.68E+00
ODP	kg CFC11 eq	5.62E-05	4.58E-08	1.41E-06	1E-06	4.26E-08	0	1.03E-04	0	0	0	1.81E-05	0	0	2.14E-08	1.19E-08	2.75E-08	-3.79E-06
AP	mol H^+ eq	9.19E+00	1.18E-02	1.51E-01	2.1E-01	1.48E-02	0	2.43E+00	0	0	0	5.54E+00	0	0	4.48E-03	4.23E-03	6.16E-03	-4.21E+00
EP-freshwater	kg P eq	8.44E-01	1.47E-04	1.26E-02	3.23E-03	4.82E-04	0	5.5E-02	0	0	0	9.26E-01	0	0	6.88E-05	2.88E-04	2.61E-04	-2.22E-01
EP-marine	kg N eq	1.96E+00	4.27E-03	5.04E-02	8.24E-02	6.7E-03	0	1.61E+00	0	0	0	8.84E-01	0	0	1.75E-03	2.25E-03	6.04E-03	-6.76E-01
EP-terrestrial	mol N eq	1.69E+01	4.67E-02	4.8E-01	8.99E-01	6.76E-02	0	1.94E+00	0	0	0	7.83E+00	0	0	1.91E-02	1.26E-02	2.64E-02	-7.15E+00
POCP	kg NMVOC eq	4.93E+00	1.59E-02	2.57E-01	3.16E-01	1.97E-02	0	8.48E-01	0	0	0	2.5E+00	0	0	6.72E-03	4.31E-03	9.46E-03	-2.25E+00
ADPE	kg Sb eq	1.51E-01	6.73E-06	1.46E-04	1.5E-04	6.36E-06	0	4.61E-03	0	0	0	1.28E-02	0	0	3.18E-06	4.29E-06	1.68E-06	-4.7E-03
ADPF	MJ	1.56E+04	3.03E+01	6.75E+02	6.6E+02	2.94E+01	0	2.33E+03	0	0	0	2.21E+04	0	0	1.4E+01	1.08E+01	2.13E+01	-6.23E+03
WDP	m^3 world eq deprived	2.88E+02	1.24E-01	1.64E+01	2.74E+00	2.27E-01	0	1.25E+02	0	0	0	2.33E+02	0	0	5.82E-02	1.05E-01	8.46E-02	-8.48E+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

Parameter	Unit	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	2.1E+03	4.81E-01	2.11E+03	1.06E+01	1.42E+00	0	4.05E+02	0	0	0	5.76E+03	0	0	2.26E-01	1.54E+00	6.03E-01	-7.99E+02
PERM	MJ	0	0	1.02E+03	0	-1.02E+03	0	0	0	0	0	0	0	0	0	0	0	0
PERT	MJ	2.1E+03	4.81E-01	3.13E+03	1.06E+01	-1.02E+03	0	4.05E+02	0	0	0	5.76E+03	0	0	2.26E-01	1.54E+00	6.03E-01	-7.99E+02
PENRE	MJ	1.55E+04	3.03E+01	6.76E+02	6.6E+02	2.94E+01	0	2.33E+03	0	0	0	2.21E+04	0	0	1.4E+01	1.08E+01	2.13E+01	-6.23E+03
PENRM	MJ	1.07E+02	0	1.92E+02	0	-1.92E+02	0	3.49E+01	0	0	0	0	0	0	0	-2.55E+01	-8.13E+01	0
PENRT	MJ	1.56E+04	3.03E+01	8.67E+02	6.6E+02	-1.62E+02	0	2.36E+03	0	0	0	2.21E+04	0	0	1.4E+01	-1.48E+01	-6E+01	-6.23E+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^3	1.07E+01	3.94E-03	3.62E-01	8.71E-02	3.61E-02	0	3.2E+00	0	0	0	1.41E+01	0	0	1.85E-03	8.31E-03	8.44E-03	-3.61E+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

Parameter	Unit	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	5.14E+00	7.89E-04	1.31E-01	1.75E-02	5.13E-01	0	2.53E-01	0	0	0	1.07E+00	0	0	3.73E-04	1.89E-01	5.04E-02	-5.54E-01
NHWD	kg	7.46E+01	1.82E+00	5.9E+00	4.1E+01	7.61E+01	0	6.24E+01	0	0	0	8.37E+01	0	0	8.73E-01	7.17E+01	1.2E+02	-2.28E+01
RWD	kg	4.51E-02	9.08E-06	1.32E-03	2.01E-04	3.65E-05	0	5.61E-02	0	0	0	1.58E-01	0	0	4.28E-06	3.49E-05	1.02E-05	-3.35E-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	3.25E+01	0	0	0	0	0	0	0	0	0	7.14E+01	0	0
MER	kg	0	0	0	0	4.35E+01	0	0	0	0	0	0	0	0	0	7.74E-01	0	0
EEE	MJ	0	0	0	0	2.95E+00	0	0	0	0	0	0	0	0	0	3.33E+00	3.13E-02	0
EET	MJ	0	0	0	0	5.92E+00	0	0	0	0	0	0	0	0	0	6.59E+00	6.07E-02	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

Parameter	Unit	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PM	Disease incidence	9.24E-05	2.03E-07	3.35E-06	4.51E-06	2.14E-07	0	1.17E-05	0	0	0	1.96E-05	0	0	9.6E-08	5.66E-08	1.27E-07	-5.3E-05
IR	kBq U235 eq	1.26E+02	3.68E-02	5.14E+00	8.16E-01	1.44E-01	0	3.75E+01	0	0	0	6.14E+02	0	0	1.74E-02	1.37E-01	4.21E-02	-1.35E+01
ETP-fw	CTUe	1.72E+04	3.92E+00	1.37E+02	8.67E+01	5.15E+01	0	6.9E+03	0	0	0	3.16E+03	0	0	1.84E+00	2.47E+01	2.07E+02	-2.26E+03
HTP-c	CTUh	8.55E-07	5.36E-10	1.66E-08	1.17E-08	1.73E-09	0	1.39E-07	0	0	0	2.66E-07	0	0	2.49E-10	2.34E-09	2.51E-10	-3.79E-07
HTP-nc	CTUh	2.39E-05	2.06E-08	3.3E-07	4.59E-07	9.06E-08	0	2.53E-06	0	0	0	1.49E-05	0	0	9.77E-09	7.36E-08	1.09E-08	-7.26E-06
SQP	SQP	4.81E+03	2.19E+01	1.27E+04	4.92E+02	1.71E+01	0	2.17E+03	0	0	0	4.3E+03	0	0	1.05E+01	3.08E+00	3.97E+01	-2.24E+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

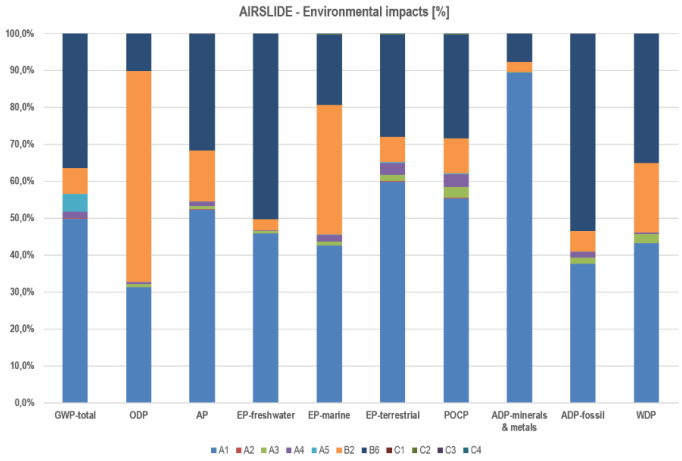
As shown in the Figure below, the main contributions to all impact categories originate from raw material extraction and processing (phase A1), the electricity consumption during use (phase B6) and the production of substituted components during product maintenance (phase B2).

With regards to the GWP-total impact category, the largest contribution arises from the extraction and processing of components (50%), followed by electricity consumption during use (39%) and maintenance (7%).

For the ozone depletion impact category, phase B2 accounts for 57% 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 52% of total impacts, followed by the electricity consumption during the product use (32%).

For the freshwater, marine, and terrestrial eutrophication impact categories, phase B6 represents the main contributor to the total impacts, followed by phase A1.



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.

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