ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A2*

Owner of the Declaration	FAAC
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-FAA-20220003-CBB1-EN
Issue date	12/04/2022
Valid to	11/04/2027

FAAC A952 Drive for swing doors

FAAC

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General Information

FAAC	FAAC A952 Drive for swing doors
Programme holder IBU – Institut Bauen und Umwelt e.V. Panoramastr. 1 10178 Berlin Germany	**Owner of the declaration** FAAC Via Calari, 10 40069 Zola Predosa (BO) Italy
Declaration number EPD-FAA-20220003-CBB1-EN	**Declared product / declared unit** FAAC A952 Drive for swing doors
This declaration is based on the product category rules: Drive systems for automatic doors and gates, 11.2017 (PCR checked and approved by the SVR)	**Scope:** This declaration and its LCA study are related to one (1) FAAC A952 Drive for swing doors. The final assembly and production stage occur in Zola Predosa, Bologna (Italy). Components are sourced from international tier-one suppliers. The FAAC A952 Drive for swing doors is composed of operator unit, arms and, in some exceptional cases, the customer buys an optional external battery back-up unit. The battery back-up, having the same design and colour, is mounted as an extension of the main body of the drive. This declaration only refers to the product without the back-up battery unit (results with battery are visible in the project report).
Issue date 12/04/2022	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*.
Valid to 11/04/2027	**Verification** The standard *EN 15804* serves as the core PCR Independent verification of the declaration and data according to *ISO 14025:2010* ☐ internally ☒ externally
 Dipl. Ing. Hans Peters (chairman of Institut Bauen und Umwelt e.V.)	 Dr. Matthew Fishwick (Independent verifier)
 Dr. Alexander Röder (Managing Director Institut Bauen und Umwelt e.V.))	

Product

Product description/Product definition
The **A952** is an automated swing door drive. Its technology is electromechanical. An electrical motor opens the door and a spring closes it. During the closing phase, the motor controls the speed. Through a programmed configuration, the opening and closing speeds are selected in order to match the weight of the door. The architecture of the product consists of an electronic board acting as a control unit, the power supply, while the mechanical part is integrated into a unique block containing the motor, the reduction gear box and the spring.
The drive can be connected to the door leaf using an arm that the customer can choose, depending on its application, between different options.
The patented technology used in the reduction gear box, grants smooth and quietly open and close movements. The operator moves, with a 100% duty cycle, a door with a 130 kg/m2 as a moment of inertia. **A952** conforms to EN16005, meeting all requirements for escape routes regulations EN13489-1.

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:
Directive:
2006/42/CE - *DIRECTIVE 2006/42/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast) (Text with EEA relevance)*
2014/30/UE - *DIRECTIVE 2014/30/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on the harmonisation of the laws*

of the Member States relating to electromagnetic compatibility (recast) (Text with EEA relevance)
2011/65/UE - *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 (recast) (Text with EEA relevance)*

EN standards:
UNI EN ISO 12100:2010, Safety of machinery — General principles for design — Risk assessment and risk reduction
EN 60335-1:2012 + A11:2014 + A13:2017, Household and similar electrical appliances - Safety - Part 1: General requirements
EN 60335-1:2013, , Household and similar electrical appliances - Safety - Part 1: General requirements
EN ISO 13849-1:2015 Cat 2PL c, 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 60335-2-103:2015, Household and similar electrical appliances – Safety – Part 2: particular requirements for drives for gates, doors and windows
EN 16005:2012, Power operated pedestrian doorsets – Safety in use – Requirements and test methods
EN IEC 63000:2018, Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
EN 61000-6-2:2005, Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments
EN 61000-6-3:2007 + A1:2011, Electromagnetic compatibility (EMC) – Part 6-3: Generic standards – emission standard for residential, commercial and light-industrial environments
The CE-marking takes into account the proof of conformity with the respective harmonized standards based on the legal provisions above. For the application and use the respective national provisions apply.

Application
The FAAC A952 electromechanical operator is designed to operate pedestrian swing doors with horizontal movement. The A952 is designed to motorise standard entrances, escape routes, smoke and/or fire doors. The A952 is suitable for indoor installation or outdoor installation if protected from the elements. One operator must be installed on each leaf.

Technical Data
FAAC A952 electromechanical operator complies with the requirements of EN 60335-2-103:2015 on “Household and similar electrical appliances – Safety – Part 2: particular requirements for drives for gates, doors and windows” and is tested according to the testing procedure described in EN 16005:2012. The technical sheet contains detailed information concerning quality features and product characteristics.

The product is not harmonised in accordance with the PCR but in accordance with other provisions for harmonisation of the EU:

UNI EN ISO 12100:2010
EN 60335-1:2012 + A11:2014 + A13:2017
EN 60335-1:2013
EN ISO 13849-1:2015
EN ISO 13849-2:2012
EN 60335-2-103:2015
EN 16005:2012
EN IEC 63000:2018
EN 61000-6-2:2005
EN 61000-6-3:2007 + A1:2011

Technical data & Performances

Name	Value	Unit
Height	74	mm
Installation depth	150	mm
Length	715	mm
Profile finish	Anodized alluminium	/
Weight (packaging excluded)	13.65	kg
Mains power supply	100-240 Vac, 50-60Hz	/
Maximum power consumption	350	W
Auxiliary voltage	24Vcc, 1A	/
Opening time (adjustable)	4-10	s
Closing time (adjustable)	4-10	s
Hold open time	0-30	s
Ambient temperature	-20 / +45	°C
Impact forces	Low Energy, Full Energy with security sensors	/

Base materials/Ancillary materials

The average composition of FAAC A952 Drive for swing doors is as follows:

Name	Value	Unit
Steel	38.8	%
Zama	18.1	%
Aluminium	16.9	%
Electric and electro mechanic	16.7	%
Brass	5.4	%
Electronics	2.0	%
Plastics	0.1	%
Other	1.9	%

This product does not contain substances listed in the candidate list (date: 01.12.2021) exceeding 0.1 percentage by mass.

Reference service life

The product has a reference service life of more than 1.000.000 cycles and 10 years of standard daily use (with the recommended maintenance and service program). For this EPD a lifetime of 10 years is considered.

LCA: Calculation rules

Declared Unit
The declaration refers to 1 FAAC A952 Drive for swing doors as specified in IBU Part B.

Declared unit

Name	Value	Unit
Declared unit	1	pce.

System boundary
Cradle to gate with options.
The following life cycle stages were considered:

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

Construction stage:
- A4 - Transport from the gate to the site
- A5 – Packaging waste processing

Use stage related to the operation of the building includes:
- B6 – Operational energy use

End-of-life stage:
- C2 – Transport to waste processing
- C3 – Waste processing for recycling
- C4 – Disposal (landfill, waste for incineration).

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

Module D:
- Declaration of all benefits and loads

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.

GaBi 10 background database was mainly used for the calculation.

Production process
The primary manufacturing processes are made by tier one suppliers and the final manufacturing processes for operator units occur in factory in Zola Predosa, Italy. The profiles are machined, and surface treated as anodized (externally). Other parts, such as electronics, arrive from tier one suppliers in Ireland, and the motor comes from China. The drive system is finally assembled in Zola Predosa. The only machines used on the assembly line are two presses and a screwdriver; the remaining assembly is done manually by the operators. The operators are packed in cardboard boxes and forwarded to the installer who will then provide the installation on-site to the end customer. The certified quality management system, EN ISO 9001:2015, ensures high standards to all process. Offcuts and scraps during the manufacturing process are directed to a recycling unit.

Assumptions
The following assumptions were made:
- labels were all considered to be made of paper;
- density of the lubricant considered is 0.90 g/cm3;
- a pressure of 10 bar was considered for the use of compressed air;
- the magnet was considered to be 50% cobalt based and 50% samarium;
- a distance of 100 km was considered for the transport of the material to the disposal/recovery/recycling site (C2);
- for the use phase and end of life an European scenarios was considered;
- for the end-of-life percentages of the product the following directive: “Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE)” requires that at least 80% shall be prepared for re-use and re-cycled. However, European statistics on recovery rates suggest 47% recycling percentage is more likely for WEEE, and was used for this study (EUROSTAT STATISTICS ON WEEE PRODUCTS, 2018).

Cut-off criteria
The only cut-off applied in the study is the use of lubricant/grease corresponding to just a few grams during the entire product assembling and it has been excluded. All reported data were incorporated and modelled using best available LCI data**.**

Software and database
The LCA model is created using the GaBi ts Software system for life cycle engineering, developed by Sphera. The GaBi LCI database provides the life cycle inventory data for several of the raw and process materials obtained from the background system. The most recent of the database was 2021 (v2021.2).
All primary data are collected for the year 2020. All secondary data come from the GaBi 2021 databases and are representative of the years 2019-2023.

Data Quality
The data quality can be described as good. The primary data collection has been done thoroughly, all relevant flows are considered.

Allocation:
Background data allocation
Information about background data is documented in http://database-documentation.gabi-software.com/support/gabi/.

Foreground data allocation

The overall production (in terms of assembled products) of FAAC S.p.A. comprises further products beside the product considered in this study, but no allocation was needed as thermal and electrical energy refer to the declared product. In particular, electricity consumption has been metered during 1 piece of product assembling and compressed air consumption has been measured by means of the litres consumed during the assembling.

LCA: Scenarios and additional technical information

Characteristic product properties
Information on biogenic Carbon

Information on describing the biogenic Carbon Content at factory gate

Name	Value	Unit
Biogenic Carbon Content in product	0	kg C
Biogenic Carbon Content in accompanying packaging	0.411	kg C

Transport from the gate to the site (A4)

Name	Value	Unit
Truck distance	1557.41	km
Capacity utilisation Truck	53	%
Ferry distance	34.55	km
Capacity utilisation ferry	70	%

Assembly (A5)

Name	Value	Unit
Cardboard packaging	0.958	kg
PVC adhesive	0.001	kg
LDPE film	0.007	kg
Polyamide band	0.007	kg

Packaging end of life disposal routes

Name	Value	Unit
Paper/cardboard packaging to recycling	82.9	%
Paper/cardboard packaging to energy recovery	7.6	%
Paper/cardboard packaging to landfill	9.5	%
Plastic packaging to recycling	41.8	%
Plastic packaging to energy recovery	33.6	%
Plastic packaging to landfill	24.6	%

Souce: Eurostat 2018

Reference service life

Name	Value	Unit
Reference service life	10	a

Operational energy use (B6)

Name	Value	Unit
Electricity consumption	702.3	kWh

End of life (C1-C4)

Name	Value	Unit
Collected separately aluminum, steel, plastics, electronic, etc.	13.65	kg
Recycling aluminum, steel, plastics, electronic, etc.	6.42	kg
Landfilling	7.24	kg

Reuse, recovery and/or recycling potentials (D), relevant scenario information

Name	Value	Unit
Collected separately waste type (excluding packaging)	13.65	kg
Recycling aluminium	7.96	%
Recycling steel	18.26	%
Recycling brass	0.07	%
Recycling electric and electro mechanic	8.90	%
Recycling plastics	0.72	%
Recycling alloys	11.04	%

Health protection and Environmental protection during the manufacturing process
Compliant with safety law and no additional tests are required
Measures for reducing noise during the manufacturing process. The assembly lines follow the legislation on safety at work. In the case of the A952 Drive for swing doors assembly line machinery, the noise produced by the line is low to the point of not requiring hearing protectors for the operator

Indication of the product performance on unforeseen contact with water
In the event of floods or water-related environmental disasters, to date the product does not contain substances that have an impact on water. However, the operation of the product may be affected.

Indication of fire performance in the event of unforeseen fire
Not applicable.

Performance in the event of unforeseeable mechanical destruction
No hazards are anticipated during mechanical destruction.

Disposal
After having dismantled the product, disposal in compliance with the current waste disposal regulations is assumed to occur. Components and structural materials, batteries and electronic components must not be disposed of together with household waste. They must be taken to authorized disposal and recycling centers. A 80% collection rate is a target based on the WEEE directive that requires that at least 80% of product produced by specific company must be collected for recycling. Even though, EUROSTAT statistics show that an average 47% is the real collection rate that is used in the model. The product is disposed with the code EER 16.02.00

Maintenance
A952 Drive for swing doors doesn't require maintenance in the sense of replacement of parts or lubrication; however, the correct tightening of screws

must be checked annually. It is essential that maintenance is carried out on other components that are connected to it such as cables, structures, frames.

LCA: Results

Disclaimer: EP--freshwater: This indicator has been calculated as “kg P eq” as required in the characterization model(EUTREND model, Struijs et al., 2009b, as implemented in ReCiPe; http://eplca.jrc.ec.europa.eu/LCDN/developerEF.xhtml).

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; ND = 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	ND	ND	MNR	MNR	MNR	X	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 piece of FAAC A952 Drive for swing doors (backup battery excluded)

Core Indicator	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
GWP-total	[kg CO_2-Eq.]	6.60E+1	1.98E+0	1.84E+0	2.82E+2	0.00E+0	1.53E-1	-2.67E-1	1.34E-1	-1.92E+1
GWP-fossil	[kg CO_2-Eq.]	6.76E+1	1.96E+0	3.54E-2	2.79E+2	0.00E+0	1.51E-1	-2.70E-1	1.19E-1	-1.92E+1
GWP-biogenic	[kg CO_2-Eq.]	-1.61E+0	5.84E-3	1.80E+0	2.37E+0	0.00E+0	4.51E-4	7.62E-3	1.46E-2	-8.03E-2
GWP-luluc	[kg CO_2-Eq.]	4.79E-2	1.59E-2	9.40E-5	3.95E-1	0.00E+0	1.23E-3	-5.10E-3	2.97E-4	-8.10E-3
ODP	[kg CFC11-Eq.]	4.73E-10	3.85E-16	5.14E-17	6.68E-12	0.00E+0	2.97E-17	3.55E-13	4.24E-16	-1.09E-10
AP	[mol H^+-Eq.]	3.26E-1	7.25E-3	1.12E-4	5.81E-1	0.00E+0	5.56E-4	-3.52E-2	7.45E-4	-7.75E-2
EP-freshwater	[kg PO_4-Eq.]	1.17E-4	5.79E-6	8.56E-7	7.49E-4	0.00E+0	4.47E-7	1.54E-6	4.68E-6	-3.50E-5
EP-marine	[kg N-Eq.]	5.26E-2	3.38E-3	5.25E-5	1.38E-1	0.00E+0	2.59E-4	-1.16E-3	1.94E-4	-1.21E-2
EP-terrestrial	[mol N-Eq.]	5.68E-1	3.76E-2	5.02E-4	1.45E+0	0.00E+0	2.88E-3	-1.20E-2	2.10E-3	-1.30E-1
POCP	[kg NMVOC-Eq.]	1.62E-1	1.23E-2	2.64E-4	4.11E-1	0.00E+0	5.09E-4	-3.49E-3	2.80E-4	-6.59E-2
ADPE	[kg Sb-Eq.]	1.07E-2	1.73E-7	2.42E-9	8.21E-5	0.00E+0	1.33E-8	-1.15E-3	1.05E-8	-4.26E-3
ADPF	[MJ]	8.81E+2	2.60E+1	3.20E-1	4.97E+3	0.00E+0	2.01E+0	4.76E+0	1.59E+0	-2.40E+2
WDP	[m^3 world-Eq deprived]	9.97E+0	1.81E-2	1.50E-2	4.48E+1	0.00E+0	1.40E-3	-7.25E-1	9.91E-3	-2.77E+0

Caption	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 piece of FAAC A952 Drive for swing doors (backup battery excluded)

Indicator	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
PERE	[MJ]	2.23E+2	1.49E+0	2.83E-2	2.29E+3	0.00E+0	1.15E-1	1.40E+0	1.94E-1	-7.38E+1
PERM	[MJ]	1.63E+1	0.00E+0	-1.63E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PERT	[MJ]	2.39E+2	1.49E+0	2.83E-2	2.29E+3	0.00E+0	1.15E-1	1.40E+0	1.94E-1	-7.38E+1
PENRE	[MJ]	8.75E+2	2.61E+1	3.21E-1	4.97E+3	0.00E+0	2.01E+0	4.76E+0	1.59E+0	-2.41E+2
PENRM	[MJ]	7.51E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PENRT	[MJ]	8.83E+2	2.61E+1	3.21E-1	4.97E+3	0.00E+0	2.01E+0	4.76E+0	1.59E+0	-2.41E+2
SM	[kg]	1.39E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
RSF	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	9.73E-23	0.00E+0	-1.15E-13
NRSF	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.14E-21	0.00E+0	-1.35E-12
FW	[m^3]	5.18E-1	1.71E-3	3.65E-4	2.23E+0	0.00E+0	1.32E-4	-1.03E-2	3.14E-4	-1.83E-1

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

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 piece of FAAC A952 Drive for swing doors (backup battery excluded)

Indicator	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
HWD	[kg]	1.80E-6	1.37E-9	3.60E-11	1.31E-6	0.00E+0	1.06E-10	1.98E-8	1.94E-10	-5.84E-8
NHWD	[kg]	8.36E+0	4.09E-3	7.59E-2	3.52E+0	0.00E+0	3.16E-4	2.66E+0	6.58E+0	-3.21E+0
RWD	[kg]	4.27E-2	4.73E-5	6.14E-6	7.40E-1	0.00E+0	3.65E-6	1.51E-3	1.71E-5	-1.32E-2
CRU	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	[kg]	0.00E+0	0.00E+0	7.99E-1	0.00E+0	0.00E+0	0.00E+0	7.40E+0	0.00E+0	0.00E+0
MER	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EEE	[MJ]	0.00E+0	0.00E+0	2.17E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	4.82E-3	0.00E+0
EET	[MJ]	0.00E+0	0.00E+0	3.25E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0

Caption	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 piece of FAAC A952 Drive for swing doors (backup battery excluded)

Indicator	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
PM	[Disease Incidence]	3.76E-6	4.07E-8	7.63E-10	4.90E-6	0.00E+0	3.07E-9	-2.87E-7	9.06E-9	-7.98E-7
IRP	[kBq U235-Eq.]	6.52E+0	6.92E-3	7.24E-4	1.21E+2	0.00E+0	5.34E-4	2.38E-1	1.95E-3	-2.09E+0
ETP-fw	[CTUe]	3.59E+2	1.93E+1	2.28E-1	2.09E+3	0.00E+0	1.49E+0	-6.81E+0	5.28E+0	-9.83E+1
HTP-c	[CTUh]	6.42E-7	3.90E-10	7.54E-12	5.91E-8	0.00E+0	3.01E-11	1.56E-8	1.20E-10	-1.78E-8
HTP-nc	[CTUh]	1.12E-6	2.32E-8	6.91E-10	2.23E-6	0.00E+0	1.79E-9	1.82E-6	1.29E-8	-6.56E-7
SQP	[-]	1.53E+2	8.92E+0	6.74E-2	1.57E+3	0.00E+0	6.89E-1	-1.02E+1	2.76E-1	-2.43E+1

Caption	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 nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

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 or as there is limited experienced with the indicator.

References

2006/42/CE
DIRECTIVE 2006/42/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast) (Text with EEA relevance)

2011/65/UE
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Institut Bauen und Umwelt e.V.
Panoramastr. 1
10178 Berlin
Germany

Tel +49 (0)30 3087748- 0
Fax +49 (0)30 3087748- 29
Mail info@ibu-epd.com
Web **www.ibu-epd.com**

Programme holder
Institut Bauen und Umwelt e.V.
Panoramastr 1
10178 Berlin
Germany

Tel +49 (0)30 - 3087748- 0
Fax +49 (0)30 – 3087748 - 29
Mail info@ibu-epd.com
Web **www.ibu-epd.com**

Author of the Life Cycle Assessment
Sphera Solutions GmbH
Hauptstraße 111- 113
70771 Leinfelden-Echterdingen
Germany

Tel +49 711 341817-0
Fax +49 711 341817-25
Mail info@sphera.com
Web **www.sphera.com**

Owner of the Declaration
FAAC S.p.A. Soc. Unipersonale
Via Calari 10
40069 Zola Predosa (BO)
Italy

Tel +393516048828
Fax +390510957820
Mail alessandro.golfarelli@faacgroup.com
Web **www.faacgroup.com**