ENGINEERING TOMORROW

Danfoss

Environmental **Product Declaration**

ABQM DN 40 -100 with AME 435 actuator

EPD issued	11.10.2023
EPD expires	11.10.2028
EPD author	Danfoss Climate Solutions
EPD type	Cradle-to-grave
Declared unit	One product over its Reference Service Life
Products included	ABQM DN 40, 50, 65, 80 & 100 pressure independent valve with AME 435 actuator
Manufacturing Location	Ljubljana, Slovenia
Use Location	European Union
Application	Multiple indoor floor constructions and pipe tracing applications
Mass	6,678 – 58,38 kg without packaging (range of products) 6,678 kg without packaging (reference product DN40) 8,370 – 63,68 kg with packaging (range of products) 8,370 kg with packaging (reference product DN40)
Dimensions (H×W×D)	454x110x180 (reference product DN40)
Verification	[ ] External [X] Internal [ ] None
Produced to	Danfoss Product Category Rules (2022-09)
Internal independent verifier	Danfoss Power Electronics & Drives A/S

DISCLAIMER

This EPD was prepared to the best of knowledge of Danfoss A/S. The life cycle assessment calculations were performed in accordance with ISO 14040 & 14044 and EN15804+A2.

All results were internally reviewed by independent experts. While this declaration has followed the guidance of ISO 14025, it has not been externally verified or registered by an EPD programme and therefore does not fully comply with the ISO 14025 standard.

This EPD has been published by Danfoss A/S on Danfoss Product Store and Danfoss Website. For questions, feedback or requests please contact your Danfoss sales representative.

Introduction

This Environmental Product Declaration (EPD) follows the Danfoss Product Category Rules (PCR) (2022-09-20). These rules provide a consistent framework for calculating and reporting the environmental performance of Danfoss' products and is aligned with relevant international standards, particularly ISO 14025:2006 and EN 15804+A2:2019.

This document has been produced by Danfoss A/S following an internal verification process, but it is not a third-party verified document.

What is an EPD?

An EPD is a document used to communicate transparently, the quantified environmental impacts of a product over its lifecycle stages. This quantification is done by performing a Life Cycle Assessment (LCA) in line with a consistent set of rules known as a PCR (Product Category Rules).

An EPD provides:

- A product's carbon footprint together with other relevant environmental indicators, including air pollution, water use, energy consumption and waste, over its own life cycle (Modules A-C), as well as the expected benefits of reuse and recycling in reducing the impact of future products (Module D). See Table 1 for module descriptions.
- Environmental data allowing customers to calculate LCAs and produce EPDs for their own products.

Type of EPD

This EPD is of the type 'cradle-to-grave' and includes all relevant modules: production (A1-A3), shipping (A4) and installation (A5); operational energy use (B6); deconstruction (C1), waste collection and transport (C2), treatment (C3) and disposal (C4). It also includes potential net benefits to future products from recycling or reusing post-consumer waste (D). The codes in brackets are the module labels from EN 15804+A2. Modules concerning use, maintenance, repair, replacement, refurbishment (B1-B5) and operational water use (B7) are excluded, following the cut-off rules from EN 15804.

Table 1: Modules of the product's life cycle included in the EPD

Product stage			Installation		Use stage							End-of-life stage				Benefits
Raw materials	Transport	Manufacture	Transport	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-install.	Transport	Waste processing	Disposal	Benefits and loads outside system boundaries
A1	**A2**	**A3**	**A4**	**A5**	B1	B2	B3	B4	B5	B6	B7	**C1**	**C2**	**C3**	**C4**	**D**
X	**X**	**X**	**X**	X	MNR	MNR	MNR	MNR	MNR	**X**	MNR	**X**	**X**	**X**	**X**	**X**

(X = declared module; MNR = module not relevant)

Introduction

Product Description

AB-QM DN40-DN100 valve: The Danfoss AB-QM is a Pressure Independent Control Valve (PICV) that combines high accuracy and durability with market leading user-friendliness. Pressure independent valves are control valves with a dynamic balancing function. An in-built pressure controller keeps a constant differential pressure over the control valve, ensuring full authority and automatic flow limitation. By combining two functions in one, control and dynamic hydronic balance, Danfoss AB-QM provide a cost-efficient solution for the challenges faced by forward-looking designers of HVAC systems.

AME 435 QM actuator: AME 435 QM actuator for modulating control is used with pressure independent balancing and control valve type AB-QM from DN 40 to DN 100. This enables accurate pressure .independent HVAC control performance, offering designers, system integrators and building owners many features and benefits.

See more information about ABQM valves on Danfoss product store and AME actuator on Danfoss product store.

Figure 1: ABQM DN 40 & AME 435.

Reference Service Life

For the purpose of this EPD the reference service life (RSL) of the product is considered to be 10 years. However, with the correct maintenance, the lifetime of the product can reach over 15 years.

Intended market.

The intended market of this study is European Union, and the baseline scenario involves the distribution, installation, and end-of-life in European Union.

Product Description

Table 2: Product composition

Object description	Net weight	Unit	%
Metals	5,4954	kg	82,28%
Aluminum	0,0110	kg	0,17%
Brass	1,5375	kg	23,02%
Iron	3,5200	kg	52,71%
Steel	0,0160	kg	0,24%
Stainless steel	0,4092	kg	6,13%
Copper	0,0017	kg	0,03%
Plastics	0,5186	kg	7,76%
ABS	0,0060	kg	0,09%
PET	0,0004	kg	0,01%
PA66 GF	0,0481	kg	0,72%
PBT GF	0,2292	kg	3,43%
PC	0,0783	kg	1,17%
POM	0,0735	kg	1,10%
PP	0,0011	kg	0,02%
PS	0,0819	kg	1,23%
Other	0,0310	kg	0,46%
Paper	0,0144	kg	0,22%
NBR	0,0005	kg	0,01%
EPDM	0,0131	kg	0,20%
Oil	0,0030	kg	0,04%
Electrical	0,0420	kg	0,63%
Electronics	0,0147	kg	0,22%
Motor	0,0273	kg	0,41%
Total product	6,6786	kg	100,00%
Cardboard	1,6914	kg	100,00%
Total packaging	1,6914	kg	100,00%
Total product & packaging	8,3700	kg	

The EPD values were calculated for this composition (ABQM DN 40 with NovoconM). For other valve dimensions a factor was applied, based on the results from LCA calculations for each valve dimension. The factor represents a multiplier of difference between the environmental indicators for this composition (valve & actuator) and the environmental indicators for other dimension (valve & actuator). All sales codes covered by this EPD are shown in table 13.

The declared unit is One product over its Reference Service Life (10 years), with the mass of 8,37 kg.

Product Description

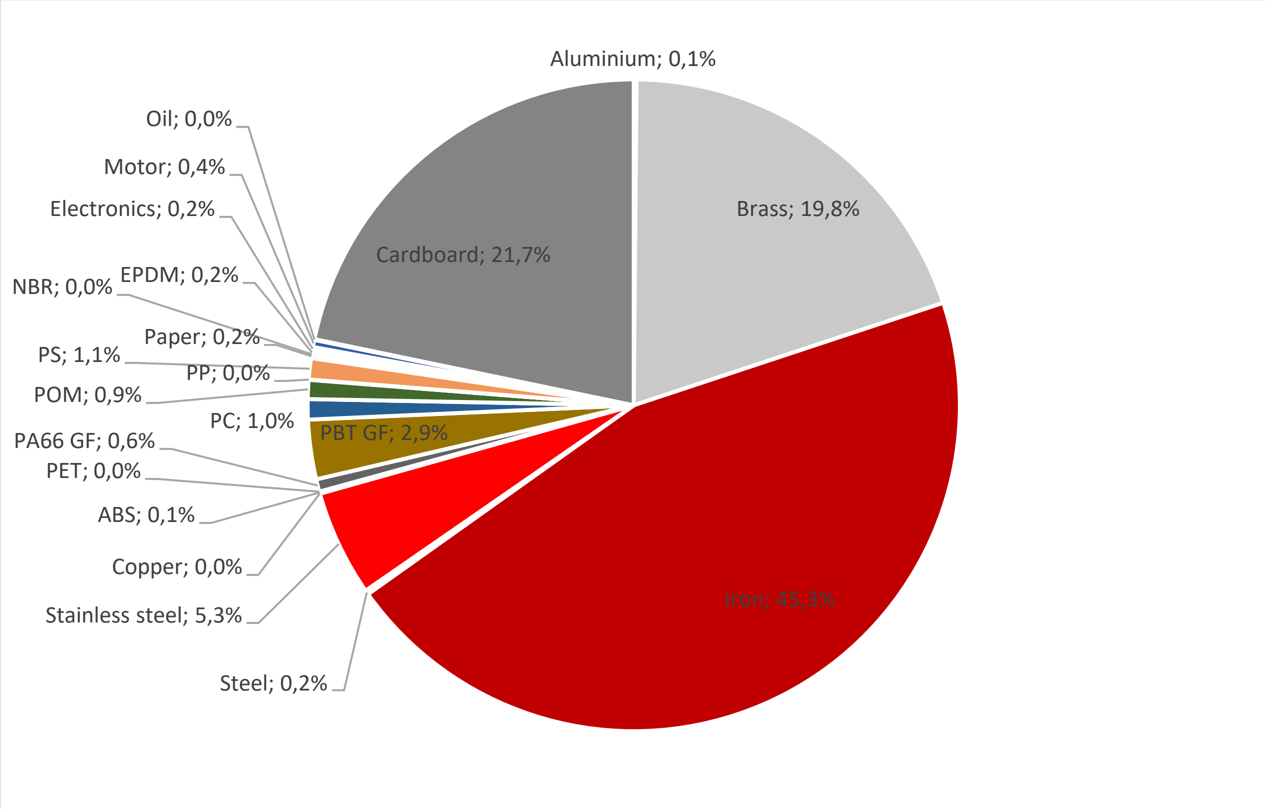

Figure 2: Material Composition Overview

Overview of LCA study

Data quality

Data quality of the selected datasets is generally assessed as good and very good in terms of geographical, time and technology representativeness and applicability. Background data is from LCA software LCA for Experts (Sphera) database version 2023.1.

Allocation and cut-off criteria

The allocation is made in accordance with the provisions of EN 15804+A2. All major raw materials and all the essential energy are included. All hazardous materials and substances are considered in the inventory. Data sets within the system boundary are complete and fulfil the criteria for the exclusion of inputs and output criteria. No known material or energy flows were ignored, including those which fell below the limit of 1%. Accordingly, the total sum of input flows ignored is certainly less than 5% of the energy and mass applied.

Due to its low mass PTFE, TPC & polyester are excluded from the study. Brass was used to represent a bronze part in the LCA study.

Accordingly, the total sum of input flows ignored is certainly less than 5% of the energy and mass applied.

System boundaries

The results in this EPD are split into life cycle modules following EN 15804 (Figure 1): production (A1-A3), distribution (A4), (A5) installation, use (B6) and the end of the product's life (C1-C4). Module D represents environmental benefits and loads that occur beyond the system boundary (i.e., in future products).

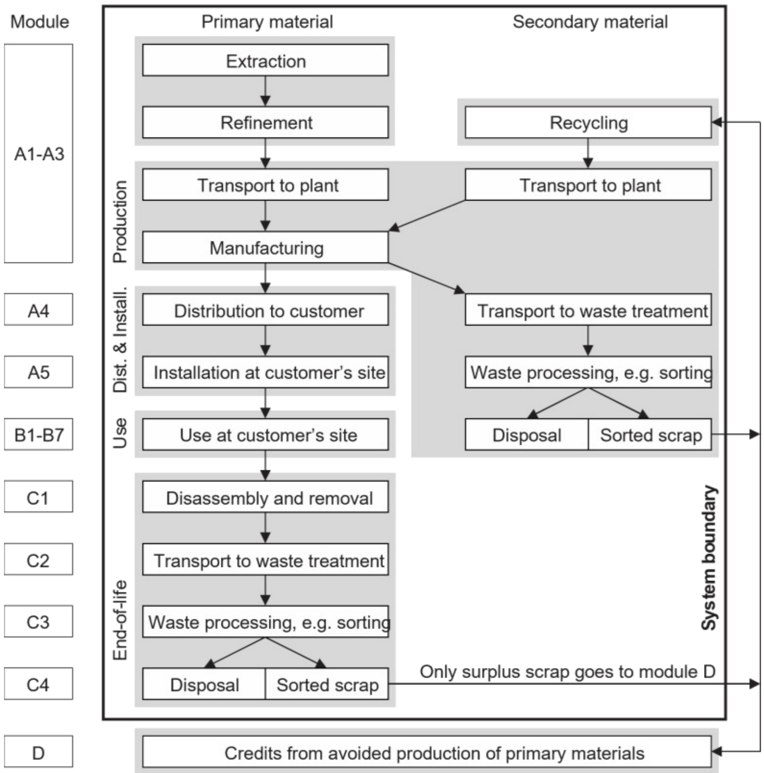

Figure 4: Modular structure used in this EPD (following EN 15804+A2)

Overview of LCA study

Product and packaging manufacture (A1-A3)

Final manufacturing occurs in the Ljubljana plant, Slovenia. The facility is certified according to IATF 16949 compliant, ISO 14001, ISO 9001, PED/PESR, UL & MID. Where waste generated on-site is recyclable, it is separated and recycled. For further information, see here. The product is shipped in the packaging as described in Table 3. All packaging materials can be safely recycled or incinerated if appropriate local facilities are available.

Table 4: Biogenic carbon content in product

	Total (excluding recycling)
Biogenic carbon content in product [kg]	0,00648
Biogenic carbon content in accompanying packaging [kg]	0,761

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

Shipping and installation (A4-A5)

The intended market for ABQM with AME435 is EU. The assembly factory is in Slovenia, so a distance of 919 km by truck, 48 km by air and 1767 km by container ship was used to represent the distance between the factory and the final customer. The average distance was calculated using sales data.

Module A5 includes disposal of packaging materials only, the benefits from e.g., energy recovered after plastic incineration are allocated to module D. The product is assumed to be installed by hand and there is no loss of product during installation. Energy use in handheld tools during installation is not included as it falls under the cut-off criteria.

Use phase (B1-B6)

The Reference Service Life (RSL) applied in this EPD is 10 years. The use electricity consumption is size independent, so the use case is representative for all 5 dimensions (DN 40, 50, 65, 80 & 100).

Table 9: Use phase data for ABQM with AME 435

Application inputs: Season duration: 0,5 year; Actuator operation time per day: 10 hours			
Aspect	Value	Unit	Comment / Source
Power consumption "in operation"	4,5	W	Danfoss AME 435 QM datasheet
Power consumption "on standby"	1,5	W	Danfoss AME 435 QM datasheet
% of time actuator is working (moving)	6	%	Danfoss team
% of time actuator is in standby	94%	%	Danfoss team
Yearly total time "in operation"	1825	h/year	Calculated
Yearly total time "working"	110	h/year	Calculated
Yearly total time "on standby"	1716	h/year	Calculated

The scope of this study is targeted for the European Union market; therefore, the product under study is sold and used in European Union. Sales also occur outside of European Union, which is important to note considering the impact the electricity grid mix can have on the emissions in the use phase. To represent the EU market for the purpose of this assessment, an average EU-27 CO_2 factor from LCA for Experts database (2023.1) is applied.

For this reason, 2 alternative scenarios were made to represent the use phase for the USA and China market.

Table 10: CO2 emissions per use phase location for ABQM with AME 435

Location of use	Use phase, kgCO2eq (GWPF)
European Union (Baseline scenario)	9,61E00
China	2,50E01
USA	1,47E01

The major limitation of the impact calculations for the use phase is that the electricity grid mix in use is assumed to remain at the same carbon intensity over time. Following the plans for the decarbonization of the grid across EU, USA and China, the environmental impacts are expected to decrease over time within the course of the next 10 years. However, as decarbonization will occur in the future and as the pace of decarbonization is uncertain, the use of the emission intensity of today's grid should prove to be a "worst-case", conservative assumption.

End-of-life (C1-C4)

The following end-of-life procedure has been applied:

- Manual dismantling is used to separate recyclable bulk materials, e.g. bulk metals and plastics.
- Shredding is used for the remaining parts, such as printed circuit board assemblies.
- Ferrous metals, non-ferrous metals and bulk plastics are recovered through recycling.
- The remaining materials go to either energy recovery or landfill.

In line with EN 15804+A2, only the 'net scrap' (i.e., the leftover recyclable materials remaining after inputs of recycled content required in the manufacturing phase are first satisfied) is used to calculate the benefits and loads beyond the system boundary (Module D).

For this EPD an average scenario with 50% of the product sent to recycling % 50% of the product sent to landfill (C3, C4, D) was used.

This scenario is designed to represent an average end-of-life scenario.

For the EPD this average scenario was chosen as it is assumed that it represents the majority of cases on average.

1. Recycling scenario with 100% of the product sent to recycling at the end-of-life, excluding fractions that cannot be recycled or incinerated (e.g., glass reinforcing in glass-filled plastics) and are sent to landfill.

This scenario illustrates best case performance. It assumes a 100% collection rate and best available recycling technologies. Under this scenario electrical cables, and all metals, flat glass and unreinforced plastics found within the body and chassis of the product are recycled. Printed circuit board assemblies are incinerated, and the copper and precious metals (gold, silver, palladium, and platinum) are recycled.

2. Landfill scenario with 100% of the product sent to landfill.

This scenario assumes that the whole product, including its packaging, is landfilled. It is designed to represent a poor end of-life-route where valuable resources are lost.

Benefits and loads beyond the system boundary (D)

Module D considers the net benefit of recycling (including energy recovery) of materials in the product and packaging, taking account of losses in the recycling process and the recycled material used in the production of the product. Module D covers the two end-of-life scenarios, as described above.

Environmental performance

This section presents the environmental performance of one-unit ABQM valve (DN 40) with AME 435 actuator. Figure 5 presents the environmental impact of one-unit ABQM valve (DN 40) with AME 435 across a number of environmental impact categories (following EN 15804+A2:2019) per life cycle stage, over its full life cycle, including Global Warming Potential.

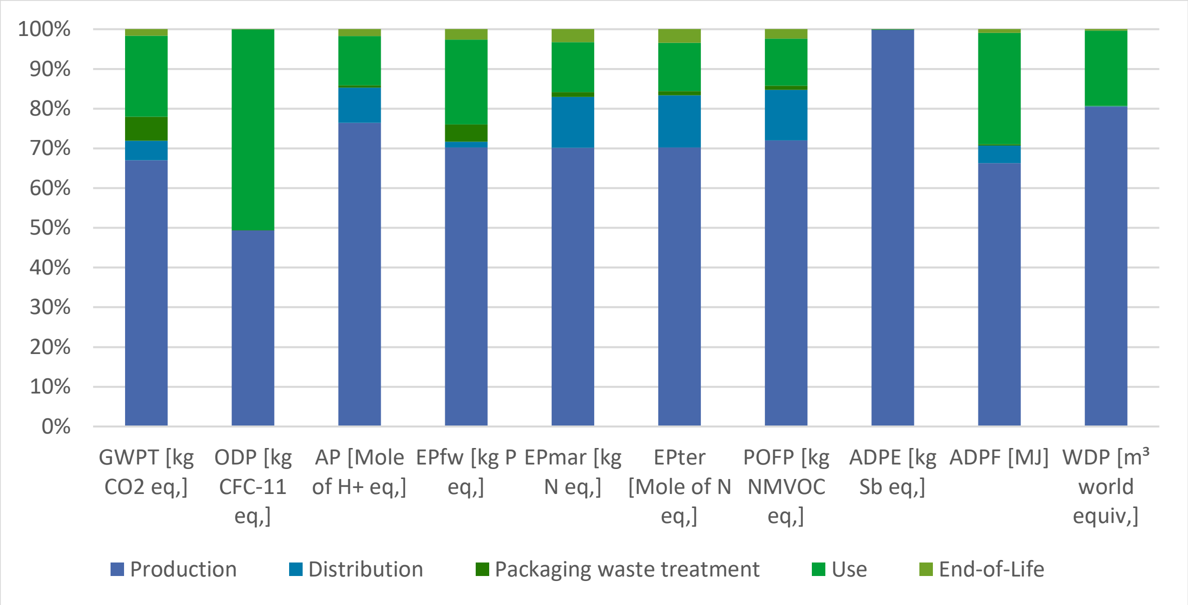

Figure 5: Breakdown of environmental impacts by life cycle stages (see Table 7 for descriptions of environmental impact indicators).

Table 5: Environmental impact indicators

	Production	Distribution	Packaging waste treatment	Use	End-of-Life				(not included in Figure 5)
Life cycle stages based on EN 15804+A2	**A1-A3**	**A4**	**A5**	**B6**	**C1**	**C2**	**C3**	**C4**	**D**
Description / **Environmental Impact Indicators**	Manufacture of the product from 'cradle-to-gate'	Transport of the product to the customer	Installation of the product and disposal of used packaging	Use of the product over its lifetime e.g., 10 years	Deinstallation of the product from the site	Transport of the product to waste treatment	Processing waste for recycling	Disposal of waste that cannot be recycled (through landfill and incineration)	Potential benefits and loads beyond the system boundary due to reuse, recycling, and energy recovery
GWPT [kg CO2 eq.]	3,16E+01	2,34E+00	2,85E+00	9,61E+00	0,00E00	6,21E-02	3,35E-01	3,89E-01	-4,31E+00
GWPF [kg CO2 eq.]	3,43E+01	2,33E+00	1,63E-01	9,61E+00	0,00E00	6,21E-02	3,32E-01	3,89E-01	-4,31E+00
GWPB [kg CO2 eq.]	-2,69E+00	0,00E+00	2,69E+00	0,00E+00	0,00E00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWPLULUC [kg CO2 eq.]	2,11E-02	5,38E-03	1,65E-04	1,04E-03	0,00E00	1,50E-06	3,02E-03	1,46E-04	-4,41E-03
ODP [kg CFC-11 eq.]	1,71E-10	1,72E-13	1,08E-13	1,75E-10	0,00E00	7,26E-18	8,30E-14	1,58E-13	5,05E-12
AP [Mole of H+ eq.]	1,24E-01	1,44E-02	8,71E-04	2,02E-02	0,00E00	8,52E-05	2,06E-03	6,61E-04	-1,48E-02
EPfw [kg P eq.]	1,17E-04	2,41E-06	7,26E-06	3,56E-05	0,00E00	1,35E-08	1,20E-06	3,14E-06	-2,51E-06
EPmar [kg N eq.]	2,72E-02	4,97E-03	4,70E-04	4,85E-03	0,00E00	3,39E-05	1,01E-03	2,39E-04	-2,71E-03
EPter [Mole of N eq.]	2,92E-01	5,47E-02	4,28E-03	5,07E-02	0,00E00	3,73E-04	1,12E-02	2,67E-03	-2,94E-02
POFP [kg NMVOC eq.]	7,84E-02	1,38E-02	1,18E-03	1,29E-02	0,00E00	8,07E-05	1,91E-03	5,87E-04	-8,90E-03
ADPE [kg Sb eq.]	1,08E-03	5,53E-08	8,36E-09	1,47E-06	0,00E00	2,21E-09	2,18E-08	3,82E-09	-6,55E-05
ADPF [MJ]	4,71E+02	3,12E+01	2,21E+00	1,99E+02	0,00E00	8,96E-01	4,49E+00	1,38E+00	-5,25E+01
WDP [m^3 world equiv.]	8,86E+00	9,49E-03	1,00E-02	2,09E+00	0,00E00	1,05E-04	4,43E-03	3,21E-02	-5,75E-01

How to read scientific numbers:

e.g. 2,05E02 = $2,05 \times 10^2$ = 205

2,04E-01 = $2,04 \times 10^{-1}$ = 0,204

Table 6: Environmental impact indicator descriptions

Acronym	Unit	Indicator
GWPT	kg CO_2 eq.	Carbon footprint (Global Warming Potential) – total
GWPF	kg CO_2 eq.	Carbon footprint (Global Warming Potential) – fossil
GWPB	kg CO_2 eq.	Carbon footprint (Global Warming Potential) – biogenic
GWPLULUC	kg CO_2 eq.	Carbon footprint (Global Warming Potential) – land use and land use change
ODP	kg CFC-11 eq.	Depletion potential of the stratospheric ozone layer
AP	Mole H+ eq.	Acidification potential
EPfw	kg P eq.	Eutrophication potential – aquatic freshwater
EPmar	kg N eq.	Eutrophication potential – aquatic marine
EPter	Mole of N eq.	Eutrophication potential – terrestrial
POFP	kg NMVOC eq.	Summer smog (photochemical ozone formation potential)
ADPE*	kg Sb eq.	Depletion of abiotic resources – minerals and metals
ADPF*	MJ	Depletion of abiotic resources – fossil fuels
WDP*	m^3 world eq.	Water deprivation potential (deprivation-weighted water consumption)

Results for module A1-A3 are specific to the product. All results from module A4 onwards should be considered as scenarios that represent one possible outcome. The true environmental performance of the product will depend on actual use.

The results in this section are relative expressions only and do not predict actual impacts, the exceeding of thresholds, safety margins, or risks. EPDs from others may not be comparable.

Carbon footprint

The total carbon footprint (GWPT), cradle-to-grave, of the product is 4,72E01 kg CO2-eq (A1-C4). The carbon footprint (GWPT) of production of this product, cradle-to-gate, is 3,16E01 kg CO2-eq (A1-A3).

Table 7: Resource use

	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
PERE [MJ]	1,68E+02	6,51E-01	1,35E-01	1,19E+02	0,00E00	2,95E-03	3,51E-01	1,30E-01	-9,20E-01
PERM [MJ]	2,16E-01	0,00E+00	0,00E+00	0,00E+00	0,00E00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT [MJ]	1,69E+02	6,51E-01	1,35E-01	1,19E+02	0,00E00	2,95E-03	3,51E-01	1,30E-01	-9,20E-01
PENRE [MJ]	4,65E+02	3,13E+01	2,31E+00	1,99E+02	0,00E00	8,97E-01	4,51E+00	1,38E+00	-5,30E+01
PENRM [MJ]	7,40E+00	0,00E+00	0,00E+00	0,00E+00	0,00E00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT [MJ]	4,72E+02	3,13E+01	2,31E+00	1,99E+02	0,00E00	8,97E-01	4,51E+00	1,38E+00	-5,30E+01
SM [kg]	1,81E+00	0,00E+00	0,00E+00	0,00E+00	0,00E00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW [m3]	2,56E-01	7,37E-04	3,19E-04	9,60E-02	0,00E00	4,75E-06	3,76E-04	7,98E-04	-2,41E-02

Table 8: Resource use indicator descriptions

Acronym	Unit	Indicator
PERE	MJ	Use of renewable primary energy excluding renewable primary energy resources used as raw materials
PERM	MJ	Use of renewable primary energy resources used as raw materials
PERT	MJ	Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)
PENRE	MJ	Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials
PENRM	MJ	Use of non-renewable primary energy resources used as raw materials
PENRT	MJ	Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)
SM	kg	Use of secondary material
RSF	MJ	Use of renewable secondary fuels
NRSF	MJ	Use of non-renewable secondary fuels
FW	m^3	Net use of fresh water

Table 9: Waste categories and output flows

	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
HWD [kg]	2,13E-06	7,30E-11	7,74E-11	-1,56E-08	0,00E00	6,17E-12	1,02E-11	3,95E-11	-1,32E-04
NHWD [kg]	9,24E-01	3,31E-03	6,25E-01	1,46E-01	0,00E00	8,98E-05	7,15E-04	3,06E+00	-1,05E-02
RWD [kg]	2,00E-02	3,62E-05	1,38E-05	3,17E-02	0,00E00	9,60E-07	1,57E-05	1,28E-05	5,40E-05
CRU [kg]	0,00E00	0,00E00	0,00E00	0,00E00	0,00E00	0,00E00	0,00E+00	0,00E+00	0,00E+00
MFR [kg]	0,00E00	0,00E00	0,00E00	0,00E00	0,00E00	0,00E00	0,00E+00	2,91E+00	0,00E+00
MER [kg]	0,00E00	0,00E00	0,00E00	0,00E00	0,00E00	0,00E00	0,00E+00	0,00E+00	0,00E+00
EEE [MJ]	4,73E-02	0,00E00	0,00E00	0,00E00	0,00E00	0,00E00	0,00E+00	4,93E-01	0,00E+00
EET [MJ]	0,00E00	0,00E00	0,00E00	0,00E00	0,00E00	0,00E00	0,00E+00	8,85E-01	0,00E+00

Table 10: Waste category and output flow descriptions

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

Table 11: Additional indicators*

	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
PM [Disease incidences]	1,73E-06	1,56E-07	6,45E-09	1,70E-07	0,00E00	1,18E-09	1,33E-08	5,91E-09	-2,56E-07
IRP [kBq U235 eq.]	3,13E+00	5,12E-03	1,82E-03	5,26E+00	0,00E00	1,36E-04	2,46E-03	1,72E-03	2,74E-04
ETPfw [CTUe]	1,78E+02	2,20E+01	1,92E+00	8,79E+01	0,00E00	6,50E-01	3,18E+00	3,65E+00	-2,51E+01
HTPc [CTUh]	1,00E-06	4,15E-10	5,48E-11	2,94E-09	0,00E00	1,21E-11	6,55E-11	6,76E-11	-2,17E-08
HTPnc [CTUh]	4,30E-07	2,09E-08	5,30E-09	7,22E-08	0,00E00	5,28E-10	4,08E-09	6,55E-09	-3,72E-08
SQP [Pt]	2,30E+02	3,35E+00	3,28E-01	7,86E+01	0,00E00	2,29E-03	1,88E+00	1,76E-01	-1,31E+00

Table 12: Optional indicator descriptions

Acronym	Unit	Indicator
PM	Disease incidence	Potential incidence of disease due to particulate matter emissions
IRP**	kBq U235 eq.	Potential human exposure efficiency relative to U235
ETPfw*	CTUe	Potential Comparative Toxic Unit for ecosystems (fresh water)
HTPc*	CTUh	Potential Comparative Toxic Unit for humans (cancer)
HTPnc*	CTUh	Potential Comparative Toxic Unit for humans (non-cancer)
SQP*	Dimensionless	Potential soil quality index

**Disclaimer for ADPE, ADPF, WDP, ETPfw, HTPc, HTPnc, SQP:* The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

***Disclaimer for ionizing radiation:* 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.

Annex 1: The sales codes of all products covered in this EPD

To calculate the actual GWPT of purchased product, just multiply the GWPT form this EPD with the factor of the purchased product sales code. You can use this factor to calculate other indicators as well.

Example:

Sales code: 003Z0772

Factor: 1,63

GWPT: 4,29E+01 kgCO2eq/kg (A1-D)

Greenhouse gases 1,63 x 42,9 kgCO2eq/m = 69,93 kgCO2eq

Table 13: ABQM sales codes, covered by this EPD

Sales code	Product description	Factor
003Z0770	AB-QM DN40 PN16 3TP	1,00
003Z0771	AB-QM DN50 PN16 3TP	1,09
003Z0772	AB-QM DN50 PN16 - Flange 3TP	1,63
003Z0773	AB-QM DN 65 PN 16 3TP	3,79
003Z0793	AB-QM DN65 PN16 3TP HF	3,79
003Z0774	AB-QM DN80 PN16 3TP	4,35
003Z0794	AB-QM DN80 PN16 3TP HF	4,35
003Z0775	AB-QM DN100 PN16 3TP	5,45

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