Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

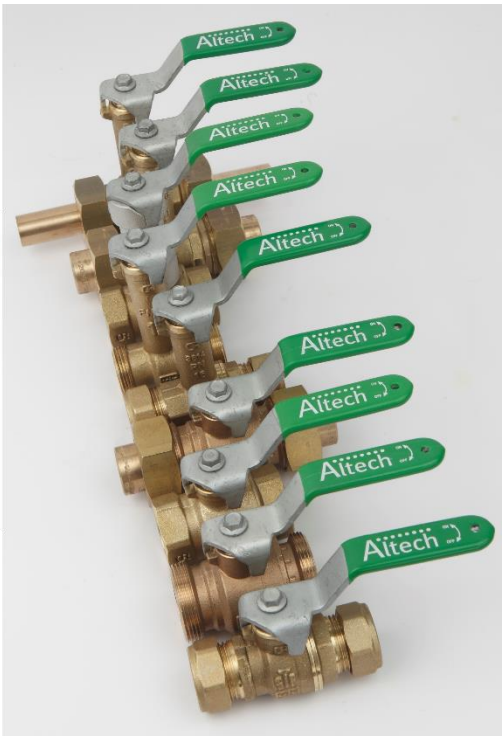
Altech ball valves/Altech Kulventiler

from

Saint-Gobain Building Distribution (SGDS)

Program:	The International EPD® System, www.environdec.com
Program operator:	EPD International AB
EPD registration number:	S-P-13289
Publication date:	2024-06-27
Valid until:	2029-06-26

This EPD covers multiple products and is based on the average results of the product group. An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com



General information

Program information

Program:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)

Product category rules (PCR): PCR 2019:14 Construction products (EN 15804: A2) (1.3.3)

PCR review was conducted by: *The Technical Committee of the International EPD® System. Contact via info@environdec.com*

Independent third-party verification of the declaration and data, according to ISO 14025:2006:
☐ EPD process certification ☒ EPD verification

Third-party verifier: Sigita Židonienė
vesta Consulting, UAB

The procedure for follow-up of data during EPD validity involves third-party verifier:

☐ Yes ☒ No

The EPD owner has sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same version number up to the first two digits) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/declared units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison.

EPDs of construction products may not be comparable if they do not comply with EN 15804. EPDs made according to EN15804+A1, and EN15804+A2 are not comparable, especially since a majority of the environmental indicators are based on different versions. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD	Saint-Gobain Distribution Sweden
Contact	Beriar Maroof (beriar.maroof@sgdsgruppen.se)
Description of the organisation	SGDS Gruppen - specialists in collaboration for more efficient business in construction and installation. SGDS Gruppen AB is the head company of some of Sweden's leading trading companies in construction, sheet metal, tiles, and installation. All the companies have long and solid industry experience and provide most of Sweden's craftsmen with materials for various projects. Customers in different companies can also buy support items from the sister companies in the group. In selected cases, we take joint projects to facilitate the logistics of the supply of goods, which is then often critical for a smooth construction project. • Optimera - construction trade for professional carpenters • Dahl – heat, plumbing, and sanitary specialist • Bevego - building sheet metal, ventilation, and technical insulation • Kakelspecialisten and Konradsson's Tiles - tiles, tiling, and bathroom fittings The company focuses on sales and services, with direct contact with about 150,000 customers regularly. Saint-Gobain Distribution Sweden group (SGDS) is owned by Saint-Gobain with a presence in 64 countries and over 190 000 employees worldwide.
Location of production site	Italy

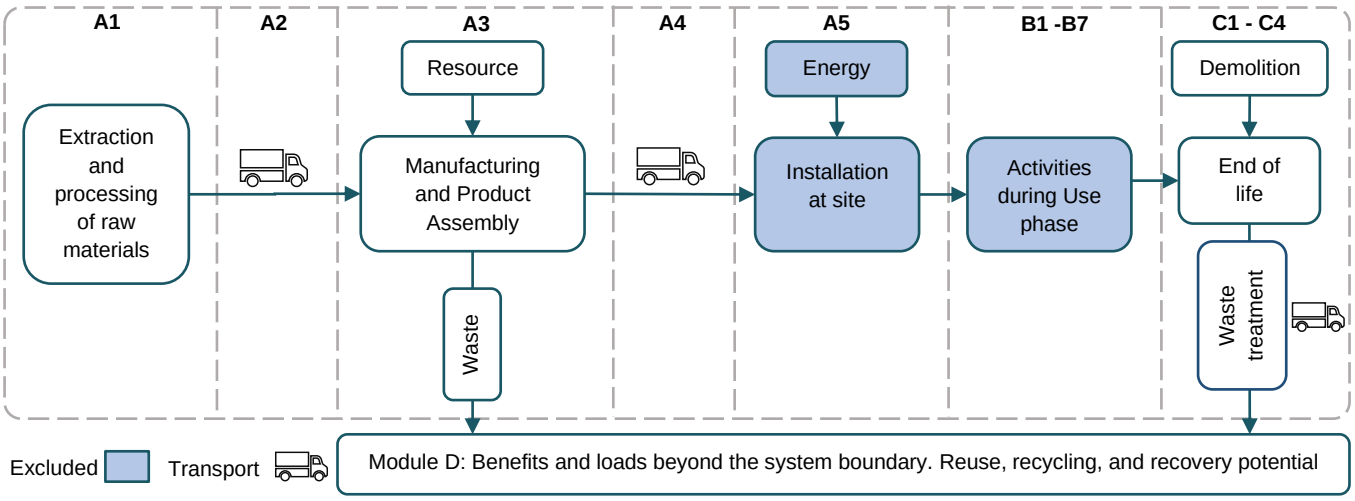
Product information

Product name	Altech Ball Valves/Altech Kulventiler by SGDS Gruppen
Product Identification	Altech Ball Valves/Altech Kulventiler
Product Description	The products are made from red brass. The process begins with the manufacturing of raw brass pieces for valves by casting and hot-moulding manufacturing processes, then the metal components are assembled and finished with non-metal valve components like handles, gaskets, balls, fittings, etc. Every product family consists of full-bore ball valves, gate valves, and fixed-orifice balancing values with different dimensions and weights.
UN CPC code	415 - Semi-finished products of copper, nickel, aluminium, lead, zinc, and tin or their alloys
Geographical Scope	Europe
Use	Brass valves to regulate flows in hydronic systems

LCA information

Functional/Declared unit	1 kg of Product
Reference service life	10 years
LCA software and Database(s)	LCA for Experts (fka GaBi) with MLC Professional Database 2023.1 with an integrated Ecoinvent database 3.9.1
System boundaries	Cradle to Gate with options (A1-A3, A4, C1-C4, D)

System Diagram:



The manufacturer procures raw materials and produces finished products. The finished products are then transported and distributed locally to customers across Sweden. Environmental impact data for the product stage, A1-A3 modules are adopted from the specific data provided by the manufacturer, and the transport associated with A4 from the factory gate to local distribution was assumed. The end-of-life reflects the Swedish market, for the credit for recovered material due to the avoided production, EU or GLO datasets were used.

Modules Declared

	Product stage			Assembly stage		Use stage							End-of-life stage				BSB
	Raw materials	Transport	Manufacturing	Transport	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
Declared	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	EU	EU	EU	EU	-	-	-	-	-	-	-	-	EU	EU	EU	EU	EU
Specific data used			> 60 %**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation-Products	<10 %			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation-Sites	0 %			-	-	-	-	-	-	-	-	-	-	-	-	-	-

BSB-Benefits & loads beyond system boundary

ND – Not Declared; X – Declared

*Reading example: 9,0E-03 = 9,0*10^3 = 0,009*

** Module A5 is only partially declared, GWP biogenic arising due to packaging material in A1-A3 stages are balanced in A5 where it exits the product system boundary.*

***The percentage of specific data is assumed to be larger than 60%, but it cannot be proved since the EPD that are used as data sources lack information on the percentage of specific data used.*

Note: EPD of raw material can be provided by the EPD owner on request.

Content Declaration

Product Components	Weight Percentage	Post-consumer materials weight %	Biogenic materials weight % and kg C / DU
Brass	0,8373	0	0
Steel	0,0992	0	0
Aluminium	0,0162	0	0
ABS	0,0284	0	0
PTFE	0,0094	0	0
Polypropylene	0,0031	0	0
Polyoxymethylene	0,0024	0	0
EPDM rubber	0,0024	0	0
NBR rubber	0,0008	0	0
Synthetic rubber	0,0008	0	0
Total Product weight	**1,0000**	**0**	**0**
Packaging Materials	**Weight (kg/DU)**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C / DU**
Wood	0,0055	0,55	0,0084
Paper and cardboard	0,0594	5,94	0,0968
Polyethylene	0,0006	0,06	0
Plastic film	0,0099	0,99	0
Total Packaging weight	**0,0753**	**7,53**	**0,1051**

DU – Declared unit; For confidentiality reasons, the precise specification is not given here but was used in the calculations. This is the average material composition of the product group considered.

This product contains substances listed in the candidate list (date: 14.06.2023) exceeding 0.1 % by mass:

Dangerous substances from the candidate list of SVHC for Authorisation	EC / List No.	CAS No.	Weight-% / DU
Lead (Pb)	231-100-4	7439-92-1	1.6% - 2.8%

Information on the biogenic carbon content

Biogenic carbon content	Unit per DU	Amount
Biogenic carbon content in the product	kg C	0,00E+00
Biogenic carbon content in packaging	kg C	1,05E-01

1 kg of biogenic carbon is equivalent to 44/12 kg of CO2.

Information on energy content

Energy content	Unit per DU	Amount
Energy content in the product	MJ	1,01E+01

Transportation to the building site (A4)

Scenario information	Unit per DU
Fuel type and consumption of vehicle or vehicle type	Truck-trailer, Euro 0 - 6 mix, < 40t gross weight
Distance [km]	400
Fuel/Energy consumption value [l/tkm]	2,10E-02
Capacity Utilisation (including empty returns) [%]	85
Bulk density of transported products [Kg/m3]	8 460
Volume capacity	1

End-of-life scenario

Processes	Unit per DU
Collection Efficiency* [%]	96
Recycling Efficiency* [%]	95
Reuse [%]	0
Recycling [%]	89
Incineration [%]	2
Landfill [%]	9
Transportation to the waste processing (C2)	100 km, Truck-trailer, Euro 0 - 6 mix, < 40t gross weight

*Assumed values
Note: End-of-life scenarios represent the entire product

Data

This declaration, including data collection and the modelled foreground system including results, represents the production of brass valves in Italy. Data for LCA is based on the annual average production values from the manufacturers collected in the year 2021.

Data quality

All datasets used came from reputable databases Sphera MLC professional database 2023.1, and Ecoinvent 3.9.1 database, with good technological representativeness and which represents Global, Sweden, or EU28 average for all the life cycle stages. As the specific data is less than 4 years old, the data quality can be considered good.

Time representativeness

The primary data (foreground data) used for the product manufacturing corresponds to the period from 1st January 2021 to 31st December 2021. The datasets from generic data are not older than 2022.

Allocation

No co-product allocation has been applied since no co-products are generated, and therefore allocation was not relevant.

Cut-off Criteria

The general rules for the exclusion of inputs and outputs follow the requirements in EN 15804+A2.

Environmental Information

Potential environmental impact – indicators according to EN 15804+A2, EF 3,1

	Results per declared unit: 1 kg of Product								
Indicator	**Unit**	**A1–A3**	**A4**	**A5***	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	kg CO2 eq.	9,79E+00	2,18E-02	1,05E-01	0,00E+00	5,09E-04	1,30E-02	1,16E-01	-4,98E+00
GWP-fossil	kg CO2 eq.	9,69E+00	2,18E-02	ND	0,00E+00	5,09E-04	1,29E-02	6,20E-02	-4,95E+00
GWP-biogenic	kg CO2 eq.	8,20E-02	2,68E-08	1,05E-01	0,00E+00	5,48E-08	4,95E-05	5,41E-02	-1,72E-02
GWP-LULUC	kg CO2 eq.	2,29E-02	5,66E-09	ND	0,00E+00	7,09E-09	5,24E-06	3,96E-06	-1,21E-02
ODP	kg CFC-11 eq.	3,34E-05	2,90E-16	ND	0,00E+00	3,14E-16	1,47E-10	3,12E-11	-5,98E-06
AP	mole H+ eq.	3,80E-01	4,02E-05	ND	0,00E+00	1,94E-06	4,99E-05	6,36E-05	-3,03E-01
EP-freshwater**	kg P eq.	3,03E-02	1,87E-09	ND	0,00E+00	2,70E-10	1,50E-06	1,41E-06	-2,41E-02
EP-marine	kg N eq.	2,28E-02	1,43E-05	ND	0,00E+00	5,73E-07	2,00E-05	1,80E-04	-1,64E-02
EP-terrestrial	mole N eq.	2,92E-01	1,58E-04	ND	0,00E+00	6,27E-06	1,78E-04	2,88E-04	-2,20E-01
POCP	kg NMVOC eq.	8,51E-02	2,96E-05	ND	0,00E+00	1,39E-06	5,40E-05	8,57E-05	-6,28E-02
ADP-minerals & metals***	kg Sb eq.	5,07E-03	7,61E-12	ND	0,00E+00	8,85E-12	6,62E-08	5,71E-09	-4,14E-03
ADP-fossil***	MJ	1,16E+02	9,48E-04	ND	0,00E+00	1,37E-03	1,70E-01	7,44E-02	-7,08E+01
WDP***	m3	6,63E+00	8,11E-05	ND	0,00E+00	1,21E-05	2,02E-03	1,70E-02	-5,55E+00
Acronyms	GWP-total: Global Warming Potential; GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals & metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption								

** A5 is only partially declared where only biogenic emission from the packaging was presented.*

***Results in kg PO4 eq. can be obtained by multiplying the results in kg P eq. by a factor of 3,07.*

****Results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.*

Additional Mandatory indicator

Results per declared unit: 1 kg of Product								
Indicator	**Unit**	**A1–A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG	kg CO2 eq.	9,75E+00	2,18E-02	0,00E+00	5,09E-04	1,29E-02	1,16E-01	-4,95E+00

GWP-GHG indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO2 is set to zero. This means that the uptake and emissions of biogenic CO2 are "balanced out" already in modules A1-A3, instead of in modules A1-A5 (for packaging) or modules A-C (for product).

Resource use indicators

Results per declared unit: 1 kg of Product								
Indicator	**Unit**	**A1–A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1,48E+01	1,31E-03	0,00E+00	1,42E-03	6,06E-02	1,22E-02	-1,56E+01
PERM	MJ	1,01E+01	0,00E+00	0,00E+00	0,00E+00	-9,02E+00	-1,08E+00	0,00E+00
PERT	MJ	2,49E+01	1,31E-03	0,00E+00	1,42E-03	-8,95E+00	-1,07E+00	-1,56E+01
PENRE	MJ	1,15E+02	9,48E-04	0,00E+00	1,37E-03	1,70E-01	7,44E-02	-7,08E+01
PENRM	MJ	3,89E-02	0,00E+00	0,00E+00	0,00E+00	-3,47E-02	-4,18E-03	0,00E+00
PENRT	MJ	1,15E+02	9,48E-04	0,00E+00	1,37E-03	1,35E-01	7,02E-02	-7,08E+01
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,93E-01
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	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	0,00E+00	0,00E+00	0,00E+00
FW	m3	6,77E+00	3,41E-06	0,00E+00	1,91E-06	6,66E-05	3,99E-04	-1,30E-01
Acronyms	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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water							

Waste and output flow indicators

Waste flows

Results per declared unit: 1 kg of Product								
Indicator	**Unit**	**A1–A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	kg	2,90E-03	2,08E-12	0,00E+00	2,25E-12	2,88E-09	2,27E-11	-6,37E-10
NHWD	kg	2,46E+00	1,39E-06	0,00E+00	1,53E-06	2,52E-03	4,04E-03	-8,08E-03
RWD	kg	2,83E-04	3,26E-07	0,00E+00	3,51E-07	1,26E-05	1,91E-06	-2,44E-05
Acronyms	HW Hazardous waste disposed; NHW Non-hazardous waste disposed; RW Radioactive waste disposed							

Output flows

	Results per declared unit: 1 kg of Product								
Indicator	**Unit**	**A1–A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
CRU	kg	0,00E+00	0,00E+00	5,50E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	0,00E+00	0,00E+00	5,78E-03	0,00E+00	0,00E+00	8,75E-01	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	1,49E-01	0,00E+00	0,00E+00	0,00E+00	7,44E-02	0,00E+00
EET	MJ	0,00E+00	0,00E+00	2,69E-01	0,00E+00	0,00E+00	0,00E+00	1,33E-01	0,00E+00
Acronyms	CRU Components for reuse; MFR Materials for recycling; MER Materials for energy recovery; EEE Exported electric energy; ETE Exported thermal energy								

Note: It is discouraged to use the results of modules A1-A3 (A1-A5 for services) without considering the results of module C.

Disclaimer: The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins, and/or risks.

Additional Requirements

Location-based electricity mix from the use of electricity in manufacturing.

The GWP-GHG values for the manufacturing stage impacts are presented according to the national residual mix with data retrieved from the Association of Issuing Bodies (AIB, 2022).

National electricity grid	Data source	GWP excl. biogenic[kg CO2 -eq/kWh]
Italy Grid Mix	AIB (2022)	4,25E-04

Disclaimers

ILCD classification	Indicator	Disclaimer
ILCD Type 1	Global warming potential (GWP)	None
	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
ILCD Type 2	Acidification potential, Accumulated Exceedance (AP)	None
	Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater)	None
	Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)	None
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	None
	Formation potential of tropospheric ozone (POCP)	None
	Potential Human exposure efficiency relative to U235 (IRP)	1
ILCD Type 3	Abiotic depletion potential for non-fossil resources (ADP-minerals & metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	2
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2
	Potential Soil quality index (SQP)	2
Disclaimer 1 – 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 – 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

EN 15804:2012+A2	Sustainability of construction works: Environmental product declaration – Core rules for the product category of construction products
EPD International (2021)	General Programme Instructions of the International EPD® System, version 4.0
EPD International (2024)	PCR 2019:14. Construction products and construction services (EN 15804: A2) v1.3.3.
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ISO 14025:2006	International Standard ISO 14025: Environmental labels and declarations — Type III environmental declarations — Principles and procedures
ISO 14040:2006	International Standard ISO 14040: Environmental Management – Life cycle assessment – Principles and framework. Second edition 2006-07-01.
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