ENVIRONMENTAL PRODUCT DECLARATION

acc. to *ISO 14025* and *EN 15804+A2*

Declaration owner	Bette GmbH & Co. KG
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-BET-20250404-CBC1-DE
Issue date	09/12/2025
Date of expiry	08/12/2030

Baths, Shower trays, Shower areas and Washbasins

Bette

Institut Bauen und Umwelt e.V.

ECO PLATFORM EPD VERIFIED

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General information

Bette

Programme holder

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

Declaration number

EPD-BET-20250404-CBC1-DE

This declaration is based on the following product category rules:

Sanitary products made from composite materials,
01/08/2021 (PCR tested and approved by the Independent Board of Experts (SVR))

Issue date

09/12/2025

Date of expiry

08/12/2030

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Baths, Shower trays, Shower areas and Washbasins

Declaration owner

Bette GmbH & Co. KG
Heinrich-Bette-Straße 1
D-33129
Delbrück
Germany

Declared product/Declared unit

The environmental product declaration refers to the declared unit of 1 m² of enamelled surface (with a surface weight of 19.8 kg) of an average product consisting of steel enamel baths, shower trays and washbasins.

Scope:

The life cycle assessment is based on the consideration of the output from the German plant of Bette GmbH & CO. KG in Delbrück and the 2023 database.
The declaration owner is liable for the underlying data and supporting documents; the IBU shall not be held liable under any circumstances with regard to the manufacturer's information, life cycle assessment data, and supporting documents.

This EPD was drawn up as prescribed in EN 15804+A2. The standard will be referred to as *EN 15804* from here on for simplicity.

Verification

The European standard EN 15804 serves as the core PCR
Independent verification of the declaration and information as per ISO 14025:2011
☐ internal ☒ external

Erik Poppe,
(Independent Verifier)

Product

Product description/Product definition

The bathroom fixtures from Bette considered here – baths, shower trays, shower areas, and washbasins – are made of glazed titanium steel. The deep-drawn base body is coated all around with base enamel, and the visible surfaces are additionally coated with top enamel. The production data for the entire plant was collected and declared as an average product, i.e. from all baths, shower trays, shower areas and washbasins produced at the site. The average was calculated based on output. Regulation (EU) no. 305/2011(CPR) applies for placing the product on the market in the EU/EFTA (with the exception of Switzerland).
The product requires a declaration of performance in accordance with /DIN EN 14516/ Baths for domestic purposes, /DIN EN 14527/ shower trays for domestic purposes, /DIN EN 14688/ Sanitary appliances - Washbasins - Functional requirements and test methods, /DIN EN 14296/ Sanitary appliances and the CE labelling.
The respective national regulations apply to its use.

Application

The baths, shower trays, shower areas and washbasins are used in sanitary rooms in the bath, shower and washing areas.

Technical specification

The following table lists examples of data for specific products from the categories baths, shower trays, shower areas and washbasins.

Item number	Name of model	Dimensions (LxWxH) [mm]	Total area [m^2]
5920	BetteSupra shower tray	900x900x65	0.98
5900	BetteQuinta shower tray	900x900x150	1.15
5931	BetteFloor	900x900	0.94
5930	BetteUltra shower tray	900x900x25	0.94
4011	BetteUltra Space shower tray	900x900x15	0.93
A242	BetteLiv shell washbasin	320x320x100	0.16
2949	BetteForm bath	1750x750x420	2.42
2950	BetteForm bath	1800x800x420	2.64

Constructional data

Name	Value	Unit
Dimensions width x length	-	mm
Sound insulation class	Subject to installation system and installation situation	-
Temperature change resistance according to DIN EN 14516/EN 14527 (for baths and shower trays)	No testing required. Refer to EN 14516 item 5.3.4. and/or EN 14527, item 5.3.4	-
Chemical resistance according to DIN EN 14516/14527 (for baths and shower trays)	AA minimum A+	-
Anti-slip class according to DIN 51097 (for baths and shower trays)	B for anti-slip pro, C for anti-slip sense	-

The product's performance values in accordance with the declaration of performance in relation to its essential characteristics as per /DIN EN 14516/ Baths for domestic purposes, /DIN EN 14527/ shower trays for domestic purposes, /DIN EN 14688/ Sanitary appliances - Washbasins - Functional requirements and test methods, /DIN EN 14296/ Sanitary appliances.

Base materials/Auxiliary materials

The following table shows the average composition of a steel/enamel product. On average, the proportions for all enamelled products fall within these percentage ranges.

Base materials	Percent by weight [%]
Steel	91.6
Enamel glass (frit)	7.5
Quartz	0.7
Titanium oxide	0.1
Urea	0.1

The product/at least one partial product contains materials included in the ECHA List of Candidate Substances of Very High Concern (SVHC) (dated 05/11/2025) at a mass % of more than 0.1: no.

Reference service life

Glazed titanium steel products and their accessories are durable products. When used and maintained properly, their average service life spans several generations. The specialist craftsman's guarantee specifies a reference service life of 30 years, although a significantly longer service life is of course possible. The service phase is not covered by the EPD. No reference service life according to ISO 15686 is declared.

LCA: Calculation rules

Declared unit

The environmental product declaration refers to the declared unit of 1 m^2 of enamelled surface (with a surface weight of 19.8 kg) of an average product consisting of steel-enamel baths, shower trays and washbasins.

The steel used in the average product has an average layer thickness of 2.36 mm and is coated with an enamel layer approx. 300 µm thick, resulting in a bulk density of approximately 7.75 g/cm3 for the product.
Due to the identical manufacturing process for baths, shower trays, shower areas and washbasins, an average product was calculated based on the output of the entire Delbrück plant.

Declared unit

Name	Value	Unit
Declared unit enamel surface	1	m^2
Layer thickness enamel surface	2.66	mm
Layer thickness steel base body	2.36	mm
Mass steel base body	18.4	kg
Declared unit enamelled product	19.8	kg/m^2

For this average EPD, the robustness of the life cycle assessment values was assessed as high. The reasons for this are as follows:

Consistent production process: Enamelled steel is manufactured exclusively at a single production site so that no geographical differences in production conditions need to be considered.
Homogeneous product composition: The composition of 1 m² of enamelled steel is identical across all products considered. There are no significant variations in the materials used or their proportions.
Low process variability: Due to standardised and continuously monitored production processes, in-production variability is minimal.
Influence of background data: The environmental impact is largely determined by the actual production process. The influence of background data and preliminary products is relatively minor and well documented.

System boundary

EPD type: cradle to gate with options, modules C1-C4 and module D (A1-A3, C, D and additional modules A4 and A5).

modules A1 to A3:
The manufacturing phase includes the provision of all materials, products and energy, as well as waste treatment until the end of waste status or the disposal of waste during this phase. The electricity mix consists of the German residual electricity mix, electricity from natural gas and purchased electricity from a wind turbine (0.78 kg CO2 eq./kWh).

Module A4:
This module takes into account truck transport over 100 km to the installation site (diesel truck, Euro 6 A-C, 34-40 t total weight/27 t payload capacity, 61% utilisation). The transport distance can be adjusted on a project-specific basis using linear scaling as necessary.

Module A5:
This module covers the treatment and disposal of packaging materials (plastic packaging, wood components, and cardboard packaging). Any burdens and credits for potential avoided impacts through energy substitution in electricity and heat generation are declared in module D and solely relate to the proportion of primary materials used (no secondary materials).

Modules C1 to C4:
Dismantling and demolition (C1) are done manually and without burdens in accordance with the DE scenario. Transport (C2) takes place over a distance of 50 km with a diesel truck, also in accordance with the DE scenario.
Module C3 looks at the separation and sorting of recyclable waste and the recycling of steel, with credits and burdens resulting from the recycling potential being fully declared in module D. It is assumed that the product reaches 'end-of-waste' status after sorting at the waste treatment plant in C3.
Specifically, the following process was included in product stage C4 for baths, shower trays, shower areas and washbasins:
- Landfilling of non-recycled products and enamel (7% in total).

In accordance with the DIN EN 15804 standard, all declared credits and burdens from the net flows exiting the product system must be assigned to module D, provided they reach the end of their waste status.
Module D:
The following processes were taken into account in product stage D for baths, shower trays, shower areas and washbasins:
- Steel recycling potential of normal-alloyed steel
- Credit for energetic utilisation of plastic packaging
- Credit for energetic utilisation of wood pallets, paper and cardboard (packaging)

Remelting losses during recycling are taken into account in the calculation of the credit for steel.

Geographic representativeness

Land or region where the declared product is manufactured, used (if applicable), and treated at the end of its life cycle:
Germany

Comparability

Comparing or assessing EPD data is generally only possible if all datasets to be compared were generated as prescribed in EN 15804 and the building context and/or product-specific performance characteristics are accounted for.
The software Sphera LCA for Experts Version 10.9 (formerly GaBi Software System) was used in combination with the associated databases Managed LCA Content (MLC CUP). The background data comes from the Sphera MLC database CUP 2024.2.

LCA: Scenarios and other technical information

Characteristic product properties biogenic carbon

Information describing the biogenic carbon content at the factory gate

Name	Value	Unit
Biogenic carbon contained in product	-	kg C
Biogenic carbon contained in the packaging	0.22	kg C

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

The following technical information forms the basis for the declared modules.

Packaging materials
Average packaging material used per m2 of product (including waste generated during the packaging process):

Corrugated cardboard: 370 g
EPS foam: 15 g
Nylon felts: 3.4 g
HDPE film: 10.4 g
Wood: 122 g

Installation in building (A5)

Name	Value	Unit
Waste for utilisation (packaging materials)	0.78	kg

End of life (C3-C4) of 1 m² of surface of an average product baths, shower trays, shower areas and washbasins.
Dismantling of the product is done manually (C1).
The transport distance to waste processing is 50 km (C2).

A collection rate of approx. 95% for the enamelled steel surfaces was assumed. The non-recycled products and enamel (7% in total) are sent to landfill (C3 and C4).

Name	Value	Unit
Waste type collected separately	19.81	kg
To recycling (steel)	18.44	kg
To landfilling (losses, enamel)	1.37	kg

Reuse, recovery and recycling potential (D), relevant scenario details
Module D contains the credits for steel products as well as for electricity and thermal energy resulting from the thermal utilisation of the packaging materials.
The avoided burdens result from the steel content of the product plus excess steel in the production residues.
Production residues from A1-A3 are recycled in module D (i.e. net flow consideration).
The remelting rate for steel was assumed to be in line with the industry average /worldsteel/

Name	Value	Unit
burdens avoided (steel)	15.71	kg
burdens avoided (electricity)	2.03	MJ
burdens avoided (heat)	4.69	MJ

LCA: Results

The following is a presentation of the environmental impacts according to EN 15804+A2 (EF 3.1) for 1 m² of surface area of an average product consisting of baths, shower trays and washbasins made of steel enamel manufactured by Bette in Germany. The following tables show the results of the impact assessment indicators, resource use, waste and other output streams in relation to the declared unit.

SPECIFICATION OF SYSTEM BOUNDARIES (X = INCLUDED IN LIFE CYCLE ASSESSMENT; MND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)

Production stage			Building construction stage		Use stage							Disposal stage				Credits and burdens beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport from manufacturer to site of utilisation	Installation	Use/Application	Maintenance	Repair	Replacement	Refurbishment	Building operational energy use	Building operational water use	Dismantling/Demolition	Transport	Waste processing	Disposal	Reuse, recovery or recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	MND	MND	MNR	MNR	MNR	MND	MND	X	X	X	X	X

LIFE CYCLE ASSESSMENT RESULTS – ENVIRONMENTAL IMPACTS acc. to EN 15804+A2: 1 m² surface of the average product (bath, shower tray and washbasins)

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq.	6.77E+01	1.6E-01	1.39E+00	0	7.67E-02	2.4E-02	2.06E-02	-3.16E+01
GWP-fossil	kg CO_2 eq.	6.81E+01	1.56E-01	6.78E-01	0	7.49E-02	2.38E-02	2.05E-02	-3.17E+01
GWP-biogenic	kg CO_2 eq.	-5.53E-01	8.9E-04	7.16E-01	0	4.28E-04	1.13E-04	1.87E-10	4.64E-02
GWP-luluc	kg CO_2 eq.	1.34E-01	2.99E-03	2.13E-05	0	1.44E-03	5.29E-05	1.23E-04	-1.53E-02
ODP	kg CFC11 eq.	4.75E-11	4.91E-14	2.67E-13	0	2.36E-14	4.71E-13	5.52E-14	9.09E-11
AP	mol H^+ eq.	1.27E-01	2.05E-04	3.99E-04	0	9.88E-05	5.49E-05	1.45E-04	-7.18E-02
EP-freshwater	kg P eq.	6.83E-05	4.24E-07	6.74E-08	0	2.04E-07	9.88E-08	4.65E-08	-4.43E-06
EP-marine	kg N eq.	3.51E-02	7.28E-05	1.27E-04	0	3.5E-05	1.7E-05	3.74E-05	-1.75E-02
EP-terrestrial	mol N eq.	3.85E-01	8.84E-04	1.88E-03	0	4.25E-04	1.82E-04	4.12E-04	-1.9E-01
POCP	kg NMVOC eq.	1.15E-01	1.99E-04	3.31E-04	0	9.59E-05	4.62E-05	1.14E-04	-5.8E-02
ADPE	kg Sb eq.	6.31E-06	2.65E-08	2.3E-09	0	1.27E-08	4.14E-09	1.33E-09	-4.01E-07
ADPF	MJ	7.49E+02	2.04E+00	3.88E-01	0	9.83E-01	4.75E-01	2.7E-01	-2.45E+02
WDP	m3 world eq. deprived	1.86E+00	1.12E-03	1.53E-01	0	5.37E-04	5.79E-03	2.34E-03	-2.67E-01

GWP = global warming potential; ODP = depletion potential of the stratospheric ozone layer; AP = acidification potential of the soil and water; EP = eutrophication potential; POCP = photochemical ozone creation potential; ADPE = abiotic resource depletion potential for non-fossil resources (ADP – substances); ADPF = abiotic resource depletion potential for fossil fuels (ADP – fossil energy carriers); WDP = water deprivation potential (user)

LIFE CYCLE ASSESSMENT RESULTS – INDICATORS DESCRIBING RESOURCE UTILISATION acc. to EN 15804+A2: 1 m² surface of the average product (bath, shower tray and washbasins)

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	4.03E+01	2.26E-01	8.04E+00	0	1.09E-01	3.18E-01	4.71E-02	3.78E+01
PERM	MJ	7.91E+00	0	-7.91E+00	0	0	0	0	0
PERT	MJ	4.82E+01	2.26E-01	1.3E-01	0	1.09E-01	3.18E-01	4.71E-02	3.78E+01
PENRE	MJ	7.37E+02	2.04E+00	1.27E+01	0	9.83E-01	4.75E-01	2.7E-01	-2.45E+02
PENRM	MJ	1.23E+01	0	-1.23E+01	0	0	0	0	0
PENRT	MJ	7.49E+02	2.04E+00	3.88E-01	0	9.83E-01	4.75E-01	2.7E-01	-2.45E+02
SM	kg	3.71E+00	0	0	0	0	0	0	1.57E+01
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	5.11E-02	2.11E-04	3.61E-03	0	1.02E-04	2.45E-04	7.15E-05	-2.2E-02

PERE = use of renewable primary energy as energy carrier; PERM = use of renewable energy for material utilisation; PERT = renewable primary energy. total use; PENRE = use of non-renewable primary energy as energy carrier; PENRM = use of non-renewable primary energy for material utilisation; PENRT = non-renewable primary energy. total use; SM = use of secondary materials; RSF = use of renewable secondary fuels; NRSF = use of non-renewable secondary fuels; FW = use of net freshwater

LIFE CYCLE ASSESSMENT RESULTS – WASTE CATEGORIES AND OUTPUT FLOWS acc. to EN 15804+A2: 1 m² surface of the average product (bath, shower tray and washbasins)

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	1.06E-04	9.95E-11	2.99E-10	0	4.79E-11	6.31E-10	6.72E-11	9.73E-08
NHWD	kg	1.93E+00	3.45E-04	2.66E-02	0	1.66E-04	3.65E-04	1.37E+00	-4.72E-01

RWD	kg	6.99E-03	3.25E-06	1.15E-05	0	1.56E-06	6.97E-05	2.83E-06	3.43E-03
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	9.79E-01	0	0	0	0	1.84E+01	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	2.03E+00	0	0	0	0	0
EET	MJ	0	0	4.69E+00	0	0	0	0	0

HWD = disposed hazardous waste; NHWD = disposed non-hazardous waste; RWD = disposed radioactive waste; CRU = components for reuse; MFR = materials for recycling; MER = materials for energy recovery; EEE = exported electrical energy; EET = exported thermal energy

LIFE CYCLE ASSESSMENT RESULTS – additional impact categories acc. to EN 15804+A2-optional:
1 m² surface of the average product (bath, shower tray and washbasins)

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Cases of illness	1.79E-06	1.94E-09	2.21E-09	0	9.34E-10	5.1E-10	1.82E-09	-1.05E-06
IR	kBq U235 eq.	6.28E-01	3.43E-04	1.22E-03	0	1.65E-04	1.15E-02	3.27E-04	3.85E-01
ETP-fw	CTUe	1.88E+02	1.59E+00	1.49E-01	0	7.63E-01	1.55E-01	1.73E-01	-3.71E+01
HTP-c	CTUh	6.07E-08	3.16E-11	1.26E-11	0	1.52E-11	7.66E-12	3.67E-12	-4.87E-08
HTP-nc	CTUh	2.99E-07	1.33E-09	4.32E-10	0	6.41E-10	1.34E-10	1.42E-10	3.92E-08
SQP	SQP	1.43E+02	1.36E+00	1.31E-01	0	6.54E-01	2.03E-01	7.43E-02	1.94E+01

PM = potential occurrence of disease caused by particulate emissions; IR = potential impact through human exposure to U235; ETP-fw = potential toxicity reference unit for ecosystems; HTP-c = potential toxicity reference unit for humans (carcinogenic effect); HTP-nc = potential toxicity reference unit for humans (non-carcinogenic effect); SQP = potential soil quality index

Qualifier 1 – applies to indicator 'potential effect through human exposure to U235'.

This effect category mainly covers the possible effect of low-dose ionising radiation on human health in the nuclear fuel cycle. It does not take into account effects attributable to possible nuclear accidents and occupational exposure or the disposal of radioactive waste in underground facilities. This indicator also does not cover the potential ionising radiation emitted by the ground, radon, and certain construction materials.

Qualifier 2 – applies to the indicators: 'abiotic resource depletion potential – non-fossil resources', 'abiotic resource depletion potential – fossil fuels', 'water deprivation potential (user)', 'potential toxicity reference unit for ecosystems', 'potential toxicity reference unit for humans – carcinogenic effect', 'potential toxicity reference unit for humans – non-carcinogenic effect', and 'potential soil quality index'.

Diligence must be applied when using the results of the environmental impact indicator because they are fraught with high uncertainties or experience with the indicator is limited.

References

AVV 15 01 01
Waste key code AVV 15 01 01 Paper and cardboard packaging

AVV 15 01 02
Waste key code AVV 15 01 02 Plastic packaging

AVV 17 04 05
Waste key code 17 04 05 Iron and steel 170405

AVV 20 03 01
Waste key code AVV 20 03 01 Mixed municipal waste

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DIN EN ISO 14040/44
ISO 14040:2006 Environmental management – Life cycle assessment – Principles and framework & ISO 14044:2006 Environmental management – Life cycle assessment – Requirements and guidelines 2006-07

DIN EN 14296
DIN EN 14296:2015-09 Sanitary appliances – Communal washing trough; German version EN 14296:2015+A1:2018

DIN EN 14516
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DIN EN 14527
DIN EN 14527:2019-06 Shower trays for domestic purposes; German version EN 14527:2016+A1:2018

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IBU Part A
PCR – Part A: Rechenregeln für die Ökobilanz und Anforderungen an den Projektbericht nach EN EN 15804+A2:2019, version 1.4 dated 15/04/2024, Institut Bauen und Umwelt e.V., www.bau-umwelt.com, 2024

IBU Part B
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Life cycle inventory methodology report for steel products (2017)

Construction Products Regulation
Regulation (EU) No. 305/2011(CPR)

ECHA - Candidate List of Substances of Very High Concern (SVHC)

ISO 15686
ISO 15686-1:2011 Buildings and constructed assets — Service life planning

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