

Environmental Product Declaration



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

Brass basin and bidet mixers

EPD OF MULTIPLE PRODUCTS, based on a representative product Spillo F3031HXSCR.
Includes the taps of these product families: Snap, Spillo, Spillo Tech, Zeta, So, Elizabeth, Fit, Flo, Herend, Mast, Nomos, Parklane, Serie4, Serie22, Loto

from

FIMA CARLO FRATTINI SpA



Programme:	The International EPD System, www.environdec.com
Programme operator:	EPD International AB
Type of EPD:	EPD of multiple products from a company
EPD registration number:	EPD-IES-0031780
Version date:	2026-05-06
Validity date:	2031-05-06

An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see www.environdec.com



GENERAL INFORMATION

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

Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): <i>Construction Products, PCR 2019:14, version 2.0.1</i>
PCR review was conducted by: <i>Rob Rouwette (chair), Noa Meron (co-chair), The Technical committee of International EPD System. The review panel may be contacted via support@environdec.com.</i>

Third-party Verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:
☒ EPD process certification* without a pre-verified LCA/EPD tool Third-party verifier: <i>Bureau Veritas Italia S.p.A</i> Accredited by: Accredia - accreditation number: V/V 00031
*EPD process certification involves an accredited certification body certifying and periodically auditing the EPD process and conducting external and independent verification of EPDs that are regularly published. More information can be found in the General Programme Instructions on www.envrondec.com .
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No

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

EPDs within the same product category but published 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 first-digit version number) or be based on fully aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

INFORMATION ABOUT EPD OWNER

Owner of the EPD: FIMA CARLO FRATTINI COMPANY

Address: Via Borgomanero, 105 (Zona Industriale)

28010 - Briga Novarese (NO), Italy

Tel. +39 0322 95 49

Fax. +39 0322 956149

E-mail: info@fimacf.com

Address and contact information of the LCA practitioner commissioned by the EPD owner, if applicable: Aequilibria S.r.l.-SB

Address: Piazzale della Stazione, 8, 35131 - Padova (PD), Italy, P.IVA: 04536980271

Tel. +39 049 7309527

E-mail: info@aequilibria.com

Description of the organisation:

FIMA Carlo Frattini S.p.A. is an Italian manufacturer specialized in the design and production of bathroom and kitchen fittings. The company operates in the sanitaryware sector, focusing on the development of high-quality water control solutions for residential and commercial applications.

The product range considered in this study includes single-hole basin mixers and bidet mixers, which are part of the company's bathroom fittings portfolio. These products are designed for installation on bidets and are used to control and mix hot and cold water for personal hygiene purposes.

FIMA Carlo Frattini emphasizes product innovation, aesthetic design, and manufacturing quality, offering a wide variety of models that differ in style and finish while maintaining similar technical and functional characteristics. The production processes are standardized across product lines, allowing for consistency in performance and quality.

The company operates within the framework of international standards for quality and environmental management, supporting the development of Environmental Product Declarations (EPDs) for its product ranges.



Product-related or management system-related certifications:

FIMA is an ISO 9001-certified company and is currently in the process of obtaining ISO 14001 and 45000 certifications. The products listed in this EPD comply with most of the relevant European standards (ACS, WRAS, DVGW, SVGW, SASO, WATERMARKJSWC, PUB-Singapore's national water agency, BWGL). Some products also carry the WEL label for SASO and the WELS label for the Australian market.

PRODUCT INFORMATION

Product name: Brass basin and bidet mixers. The representative product is the SPILLO F3031/HXSCR.

Product identification of included taps: Snap, Spillo, Spillo Tech, Zeta, So, Elizabeth, Fit, Flo, Herend, Mast, Nomos, Parklane, Serie4, Serie22, Loto.

Product description:

The declared product is a range of single-lever mixers for washbasins and bidets used for controlling water flow in plumbing systems for residential and commercial applications. The product belongs to the following series: SNAP, SPILLO, SPILLO TECH, ZETA, SO, ELIZABETH, FIT, FLO, HEREND, MAST, NOMOS, PARKLANE, SERIE4, SERIE22 and LOTO. Each series includes multiple product configurations identified by specific model codes (e.g. F3111xx, F3031XSxx, F3961Nxx, F5801xx, etc.), as reported in product description sections.

UN CPC code: 42911 - sinks, wash-basins, baths, and other sanitary ware and parts thereof, made of iron, steel, copper, or aluminum .

Geographical scope: Global.

Multiple products: The declared products are brass single-lever mixers for washbasins and bidets, equipped with ceramic cartridges and aerators. The products are designed for use in residential and commercial plumbing systems for sanitary water distribution.

All products are designed to operate with a flow rate of approximately 5 L/min (1.32 GPM), with optional flow-reduction configurations available depending on the cartridge type. The products are manufactured in brass in compliance with relevant low-lead requirements and applicable material standards.

All flexible hoses and water-contact components are compliant with drinking water safety requirements and low-lead regulations. SNAP, SPILLO, MAST, FLO and LOTO ranges are also available in lead-free configurations. All surface finishes are tested in accordance with UNI EN 248 and ISO 9227 for corrosion resistance (salt spray testing). Products may be supplied with standard or water-saving cartridges.

Products list cover by this EPD are:

Series	Code	Products name
Snap	F3111xx*	LAVABO
	F3111Mxx	LAVABO MEDIO
	F3111Lxx	LAVABO BOCCA LUNGA
	F3111Hxx	LAVABO ALTO
	F3112xx	BIDET
Spillo	F3031XSxx	LAVABO
	F3031LXSxx	LAVABO BOCCA LUNGA
	F3031/HXSxx	LAVABO ALTO
	F3041Zxx	LAVABO CANNA GIREVOLE
	F3041HZxx	LAVABO ALTO CANNA GIREVOLE
	F3251	LAVABO ACQUA FREDDA
	F3032XSxx	BIDET
	F3042Zxx	BIDET CANNA GIREVOLE
Spillo tech	F3031TXSxx_G_V_X	LAVABO
	F3031TLXSxx_G_V_X	LAVABO BOCCA LUNGA
	F3031T/HXSxx_G_V_X	LAVABO ALTO
	F3032TXSxx_G_V_X	BIDET

Zeta	F3961Nxx	LAVABO
	F3961LNxx	LAVABO BOCCA LUNGA
	F3961HNxx	LAVABO ALTO
	F3962Nxx	BIDET
So	F3181xx	LAVABO
	F3181Hxx	LAVABO ALTO
	F3182xx	BIDET
Elizabeth	F5091xx	LAVABO CANNA GIREVOLE
	F5091/2xx	LAVABO
	F5092/2xx	BIDET
Fit	F3381xx	LAVABO
	F3381Lxx	LAVABO BOCCA LUNGA
	F3381Hxx	LAVABO ALTO
	F3382xx	BIDET
Flo	F3801xx	LAVABO
	F3801Lxx	LAVABO BOCCA LUNGA
	F3801Hxx	LAVABO ALTO
	F3802xx	BIDET
Herend	F5411xx	LAVABO CANNA GIREVOLE
	F5431xx	LAVABO
	F5412xx	BIDET CANNA GIREVOLE
	F5432xx	BIDET
Mast	F3131xx	LAVABO
	F3131Lxx	LAVABO BOCCA LUNGA
	F3131Hxx	LAVABO ALTO
	F3151Zxx	LAVABO CANNA GIREVOLE
	F3151FZxx	LAVABO CANNA GIREVOLE
	F3132xx	BIDET
	F3152Zxx	BIDET CANNA GIREVOLE
Nomos	F4161xx	LAVABO
	F4161Mxx	LAVABO MEDIO
	F4161Lxx	LAVABO BOCCA LUNGA
	F4161Hxx	LAVABO ALTO
	F4162xx	BIDET
Parklane	F1312xx	LAVABO
	F1312Lxx	LAVABO BOCCA LUNGA
	F1322xx	BIDET
Serie4	F3761xx	LAVABO
	F3761Lxx	LAVABO BOCCA LUNGA
	F3761Hxx	LAVABO ALTO
	F3781Zxx	LAVABO CANNA GIREVOLE
	F3781FZxx	LAVABO CANNA GIREVOLE
	F3762xx	BIDET
	F3782WZxx	BIDET CANNA GIREVOLE

Serie22	F3831xx	LAVABO
	F3831Lxx	LAVABO BOCCA LUNGA
	F3831/Hxx	LAVABO ALTO
	F3841xx	LAVABO CANNA GIREVOLE
	F3832xx	BIDET
	F3842xx	BIDET CANNA GIREVOLE
Loto	F4701xx	LAVABO
	F4701Lxx	LAVABO ALTO
	F4701Mxx	LAVABO MEDIO
	F4701Hxx	LAVABO ALTO

Product codes include a suffix (xx) that identifies different surface finishing options applied to the same product geometry. Finishing types include:

- Physical Vapour Deposition (PVD)
- Galvanic finishing (electroplating)
- Paint finishing

Name and location of production site(s): Fima Carlo Frattini S.p.A. – Via Borgomanero, 105 (Zona Industriale), 28010 - Briga Novarese (NO) - Italy

CONTENT DECLARATION

The values presented in the following tables reflect the mass (weight) of one unit of the product, as per declared unit: **1 kg**. The declared content represents the representative product content.

Product content	Mass, kg	Post-consumer recycled material, mass-% of product	Biogenic material, mass-% of product	Biogenic material, kg C/product or declared unit
Brass	0,711	0	0	0
Steel	0,072	0	0	0
Aluminium	0,002	0	0	0
Elastomer	0,099	0	0	0
Plastic (ABS, PUF)	0,116	0	0	0
TOTAL	1,0	0	0	0

Packaging materials	Mass, kg	Mass-% (versus the product)	Biogenic material, kg C/product or declared unit
Plastic	0,003	0,18%	0
Paper	0,327	23,13%	0,191
Wood	0,085	6,02%	0,059
TOTAL	0,415	29,3%	0,251

1 kg biogenic carbon in the product/packaging is equivalent to the uptake of 44/12 kg of CO₂.

The products do not contain any of the substances of very high concern (SVHC) regulated by the Regulation (EC) No 1907/2006 (REACH) or the Regulation (EC) No 1272/2008 of European parliament.

LCA INFORMATION

Declared unit: 1 kg of tap. The mass of the representative tap is 1.405 kg.

Reference service life: n.a.

Time representativeness: 2024

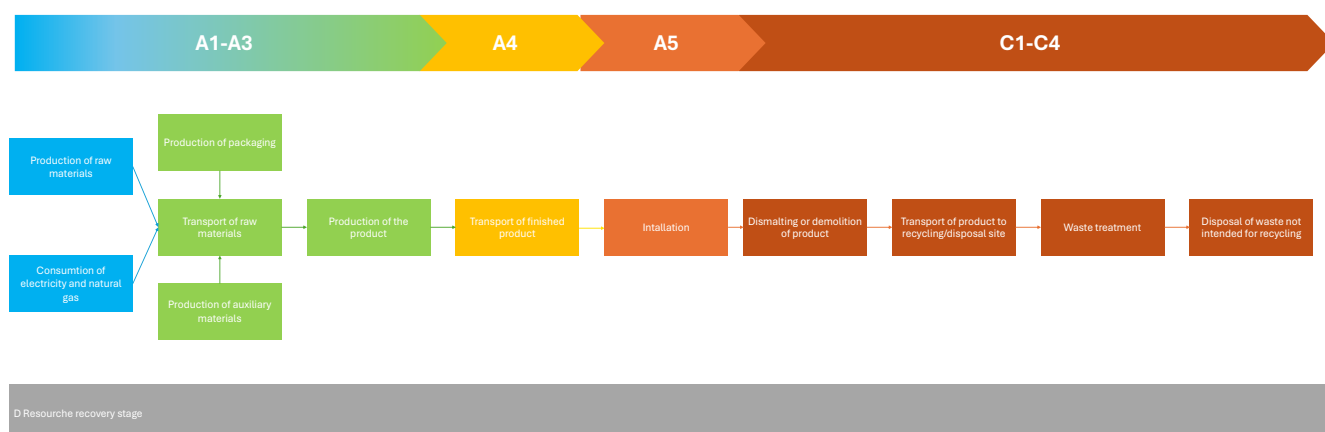
Geographical scope: Global

Database(s) and LCA software used: Ecoinvent 3.11 and SimaPro Developer 10.2.0.3

Description of system boundaries: Cradle-to-gate + options with modules C1-C4 and module D.

Process flow diagram:

Process flow diagram of the product system, divided into the life-cycle stages and modules, showing the main processes included and the system boundary of the LCA. The diagram shall make it clear when the end-of-waste state is reached for main input flows of reused/recycled materials and recovered energy, and for output flows of reused/recycled materials and recovered energy exiting the end-of-life stage.



Production stages (Modules A1 to A3):

These modules include the procurement of raw materials, their transport from the supplier to the production plant, energy and water consumption, and the treatment of plant waste.

In addition to all raw materials used to produce the taps, raw materials also include materials for packaging the finished product and auxiliary materials.

Specifically, these modules include the production of taps at the Fima Carlo Frattini S.p.A. factory in Briga Novarese (NO).

This EPD considers a mix of electricity derived from the share of supply for the plant from the grid and electricity from photovoltaics. The resulting in a GWP-GHG value of 0,366 kgCO₂eq/kWh.

Distribution stage (Module A4):

This module calculates the impact of transporting the finished product to the customer (i.e., to the installation site).

For this module, all the shipments made in 2024 were taken into account. Distances to the various installation sites were calculated using EcoTransit (applying the Suez Canal blockage function). It was assumed that shipments to continental European destinations were carried out entirely by road. For non-European destinations, distances were calculated for both sea and air freight (including necessary inland legs); subsequently, a transport mix of 50% sea and 50% air was applied for these non-European destinations. A weighted average of all journeys was calculated, considering the quantity of shipment and all types of transport involved.

Installation (Module A5):

This module calculates the impact of End-of-Life of packaging of the finished product upon arrival at the installation site.

End-of-Life (Module C1-C4):

These modules consider the dismantling of the finished product, transport for end-of-life treatment, waste treatment for recovery or recycling, and disposal.

The PCR default data were used for the modelling of these modules.

Module	Process	Quantity	u.m.
C1	Demolition/deconstruction of steel, wood, and other materials	0,0011	kWh/kg
C2	Transport (for products/materials not to be incinerated) - 16-32 tonne lorry (EURO 5)	80	km
C3	Loading and unloading at sorting facility	0,0018	kWh/kg
	Mechanical sorting	0,0022	kWh/kg
	Treatment of other materials	0,0008	kWh/kg
C4	Compacting of inert construction waste for landfills (including backfilling)	0,0016	kWh/kg

Benefits and loads stages (Module D):

This module covers treatment, net benefits, and recycling potential for net scrap.

The benefits calculated in this module derive from 85% of the steel, 90% of the brass, 68% of the cardboard, 9% of the plastic in the finished product which, based on end-of-life scenarios, are sent for recycling; and from the 68% of the cardboard, 9% of the plastic, and 17% of the wood in the packaging which are sent for recycling. Moreover, also the energy recovery scenario was considered, calculating the benefits that could derive from the end-of-life incineration of the packaging.

Cut-off:

In accordance with the cut-off rule defined by PCR 2019:04 version 2.0.1, the following were excluded from the assessment:

- The construction of factories (ch. 4.3.6);
- The maintenance of machinery used for production (ch. 4.3.6);
- Business travel of personnel (ch. 4.3.5).

Furthermore, the following items related to the packaging of the finished product were also excluded: instruction and warranty sheets, label, tape, black bags.

Allocation:

Primary data was allocated using the mass allocation approach.

In accordance with PCR 2019:14, the allocation rule for calculating the inputs and outputs of some specific data was calculated on an annual basis and with respect to the quantity, specifically:

- Plant consumptions were allocated based on the quantity of product processed.
- The use of packaging materials for the final product was considered according to the specific quantity of packaging materials employed for one kg of the specific product produced.
- The waste generation was allocated based on the total production of plant.

Data quality and sources:

The inventory analysis was based on a combination of specific and generic data. The primary site-specific data were collected by Fima Carlo Frattini for the year 2024 and refers to the production site(s) located in Briga Novarese (NO) – Italy.

This data concerns the consumption of raw materials, auxiliary and packaging materials, the suppliers, the energy and water demand for the production and the related production waste. This information reflects actual operations and is deemed of high quality and representative of current production conditions.

The database (Ecoinvent 3.11) was used for the upstream production of raw materials and auxiliary materials, energy generation and distribution, transport processes, the production phase and waste treatment activities related to the production phase. For suppliers, land transport distances were provided directly by Fima Carlo Frattini (a quantity was added for considering Suez Canal blockage, when pertinent), while downstream transport was estimated using the Ecotransit online tool (including Suez Canal blockage, when relevant).

A data quality assessment was carried out following the method described in the ILCD Handbook, which is useful for assessing the quality, completeness, and consistency of the data used in the inventory analysis of an LCA study. This resulted in overall high-quality data.

Data quality					
Process	Source type	Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1-A3
Production of brass	Databases	Ecoinvent v3.11	2024	Secondary data	0,00%
Production of raw material	Databases	Ecoinvent v3.11	2024	Secondary data	0,00%
Transport of raw material to manufacturing site	Databases	Ecoinvent v3.11	2024	Primary data	1,12%
Manufacturing of product	Databases	Ecoinvent v3.11	2024	Primary data, Secondary data	9,11%
Electricity used in manufacturing of product	Databases	Ecoinvent v3.11	2024	Primary data	31,29%
TOTAL					41,53%

Modules declared, geographical scope, share of primary data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Product stage			Distribution/ installation stage		Use stage							End-of-life stage				Beyond product life cycle
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling- potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO	GLO	IT	GLO	GLO	ND	ND	ND	ND	ND	ND	ND	GLO	GLO	GLO	GLO	GLO
Share of primary data	41,53%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	<1%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

IT: Italy; GLO: Global

ENVIRONMENTAL PERFORMANCE

LCA results of the product(s) - main environmental performance results

The environmental performance of the declared unit of 1 kg of product is reported below using the parameters and units as specified in PCR 2019:14.

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.

The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3).

Mandatory impact category indicators according to EN 15804

Results per declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ eq.	1,03E+01	2,39E-01	9,14E-03	4,15E-04	1,52E-02	1,25E-03	2,98E-04	-2,79E+00
GWP-biogenic	kg CO ₂ eq.	-5,46E-01	7,44E-04	7,16E-01	1,39E-06	1,06E-04	2,29E-05	9,97E-07	-1,43E-01
GWP-luluc	kg CO ₂ eq.	2,65E-02	4,98E-05	4,59E-06	1,10E-07	5,09E-06	1,76E-06	7,89E-08	-1,55E-02
GWP-total	kg CO ₂ eq.	9,80E+00	2,40E-01	7,26E-01	4,16E-04	1,53E-02	1,27E-03	2,99E-04	-2,47E+00
ODP	kg CFC 11 eq.	5,92E-06	9,53E-11	1,03E-11	2,72E-13	7,93E-12	8,56E-13	1,96E-13	-9,89E-09
AP	mol H ⁺ eq.	3,11E-01	1,03E-03	3,58E-05	4,97E-06	4,89E-05	9,69E-06	3,57E-06	-1,82E-01
EP-freshwater	kg P eq.	2,51E-02	9,30E-06	2,35E-06	2,37E-08	1,04E-06	3,92E-07	1,71E-08	-1,48E-02
EP-marine	kg N eq.	2,07E-02	3,74E-04	3,71E-05	2,22E-06	1,65E-05	3,42E-06	1,60E-06	-1,02E-02
EP-terrestrial	mol N eq.	2,60E-01	4,08E-03	1,21E-04	2,43E-05	1,79E-04	3,67E-05	1,75E-05	-1,35E-01
POCP	kg NMVOC eq.	7,81E-02	1,43E-03	3,76E-05	6,83E-06	7,41E-05	1,04E-05	4,91E-06	-3,80E-02
ADP-minerals&metals*	kg Sb eq.	4,08E-03	3,16E-07	5,77E-08	1,57E-09	5,13E-08	2,62E-09	1,13E-09	-2,53E-03
ADP-fossil*	MJ	1,04E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-3,18E+00
WDP*	m ³	2,74E+00	2,85E-03	1,21E-03	6,89E-06	2,19E-04	8,94E-05	4,96E-06	-1,23E+00

* Disclaimer: 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 experience with the indicator.

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.

The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3).

Additional mandatory and voluntary impact category indicators

Results per declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-GHG	kg CO ₂ eq.	1,04E+01	2,39E-01	1,43E-02	4,15E-04	1,52E-02	1,25E-03	2,99E-04	-2,82E+00

Additional voluntary indicators e.g. the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017

Resource use indicators

Results per declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	2,11E+01	2,96E-02	6,18E-03	6,06E-05	3,51E-03	1,42E-03	4,36E-05	-1,01E+01
PERM	MJ	4,20E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-5,34E+00
PERT	MJ	2,53E+01	2,96E-02	6,18E-03	6,06E-05	3,51E-03	1,42E-03	4,36E-05	-1,55E+01
PENRE	MJ	8,31E+00	1,27E-04	2,40E-05	8,12E-08	1,50E-05	1,66E-06	5,84E-08	-3,25E+00
PENRM	MJ	2,25E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-9,34E-03
PENRT	MJ	1,06E+01	1,27E-04	2,40E-05	8,12E-08	1,50E-05	1,66E-06	5,84E-08	-3,26E+00
SM	kg	3,24E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-2,20E-01
RSF	MJ	3,08E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-2,07E-02
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m ³	6,99E-02	1,23E-04	4,64E-05	2,75E-07	1,11E-05	3,15E-06	1,98E-07	-2,83E-02

Waste indicators

Results per declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1,69E+00	2,15E-03	9,11E-04	8,23E-06	2,18E-04	4,80E-05	5,92E-06	-7,88E-01
Non-hazardous waste disposed	kg	1,59E+01	2,13E-02	2,02E-01	6,25E-05	2,34E-03	1,29E-04	4,49E-05	-3,85E+00
Radioactive waste disposed	kg	1,77E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-6,03E-06

Output flow indicators

Results per declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Components for re-use	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
Material for recycling	kg	4,00E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,05E-01	0,00E+00	-2,71E-02
Materials for energy recovery	kg	1,73E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-8,77E-07
Exported energy, electricity	MJ	1,35E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-3,58E-03
Exported energy, thermal	MJ	5,03E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,26E-03

Additional mandatory and voluntary impact category indicators

Results per declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Particulate matter	diseade inc.	8,19E-07	9,18E-09	4,52E-10	9,29E-12	9,86E-10	4,45E-11	6,68E-12	-4,20E-07
Human toxicity, cancer ²	CTUh	3,74E-08	2,57E-11	6,06E-12	4,98E-14	2,58E-12	1,38E-13	3,58E-14	-2,13E-08
Human toxicity, non-cancer ²	CTUh	3,07E-06	2,31E-09	2,30E-10	1,52E-12	1,35E-10	6,02E-12	1,09E-12	-1,92E-06
Ionising radiation ¹	kBq U-235 eq	1,02E+00	2,16E-03	5,45E-04	2,70E-06	2,57E-04	1,09E-04	1,94E-06	-3,36E-01
Land use ²	Pt	1,30E+02	1,59E+00	8,95E-02	4,13E-04	1,27E-01	1,91E-03	2,97E-04	-9,18E+01
Ecotoxicity, freshwater ²	CTUe	8,25E+01	1,22E-01	8,55E-02	1,87E-04	1,60E-02	1,33E-03	1,34E-04	-3,81E+01

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.

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 experience with the indicator.

Alternative end of life scenarios

Additional LCA results – 100% recycling scenario

Results per declared unit									
Environmental impact									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ eq.	1,03E+01	2,39E-01	9,14E-03	4,15E-04	1,52E-02	2,47E-03	0,00E+00	-2,79E+00
GWP-biogenic	kg CO ₂ eq.	-5,46E-01	7,44E-04	7,16E-01	1,39E-06	1,06E-04	4,53E-05	0,00E+00	-1,43E-01
GWP-luluc	kg CO ₂ eq.	2,65E-02	4,98E-05	4,59E-06	1,10E-07	5,09E-06	3,49E-06	0,00E+00	-1,55E-02
GWP-total	kg CO ₂ eq.	9,80E+00	2,40E-01	7,26E-01	4,16E-04	1,53E-02	2,52E-03	0,00E+00	-2,47E+00
ODP	kg CFC 11 eq.	5,92E-06	9,53E-11	1,03E-11	2,72E-13	7,93E-12	1,69E-12	0,00E+00	-9,89E-09
AP	mol H ⁺ eq.	3,11E-01	1,03E-03	3,58E-05	4,97E-06	4,89E-05	1,92E-05	0,00E+00	-1,82E-01
EP-freshwater	kg P eq.	2,51E-02	9,30E-06	2,35E-06	2,37E-08	1,04E-06	7,75E-07	0,00E+00	-1,48E-02
EP-marine	kg N eq.	2,07E-02	3,74E-04	3,71E-05	2,22E-06	1,65E-05	6,76E-06	0,00E+00	-1,02E-02
EP-terrestrial	mol N eq.	2,60E-01	4,08E-03	1,21E-04	2,43E-05	1,79E-04	7,25E-05	0,00E+00	-1,35E-01
POCP	kg NMVOC eq.	7,81E-02	1,43E-03	3,76E-05	6,83E-06	7,41E-05	2,06E-05	0,00E+00	-3,80E-02
ADP-minerals&metals*	kg Sb eq.	4,08E-03	3,16E-07	5,77E-08	1,57E-09	5,13E-08	5,18E-09	0,00E+00	-2,53E-03
ADP-fossil*	MJ	1,04E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-3,18E+00
WDP*	m ³	2,74E+00	2,85E-03	1,21E-03	6,89E-06	2,19E-04	1,77E-04	0,00E+00	-1,23E+00
Additional environmental									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-GHG	kg CO ₂ eq.	1,04E+01	2,39E-01	1,43E-02	4,15E-04	1,52E-02	2,48E-03	0,00E+00	-2,82E+00
Resource use									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	2,11E+01	2,96E-02	6,18E-03	6,06E-05	3,51E-03	2,81E-03	0,00E+00	-1,01E+01
PERM	MJ	4,20E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-5,34E+00
PERT	MJ	2,53E+01	2,96E-02	6,18E-03	6,06E-05	3,51E-03	2,81E-03	0,00E+00	-1,55E+01
PENRE	MJ	8,31E+00	1,27E-04	2,40E-05	8,12E-08	1,50E-05	3,28E-06	0,00E+00	-3,25E+00
PENRM	MJ	2,25E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-9,34E-03
PENRT	MJ	1,06E+01	1,27E-04	2,40E-05	8,12E-08	1,50E-05	3,28E-06	0,00E+00	-3,26E+00
SM	kg	3,24E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-2,20E-01
RSF	MJ	3,08E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-2,07E-02
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m ³	6,99E-02	1,23E-04	4,64E-05	2,75E-07	1,11E-05	6,23E-06	0,00E+00	-2,83E-02
Waste indicator									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D

Hazardous waste disposed	kg	1,69E+00	2,15E-03	9,11E-04	8,23E-06	2,18E-04	9,51E-05	0,00E+00	-7,88E-01
Non-hazardous waste disposed	kg	1,59E+01	2,13E-02	2,02E-01	6,25E-05	2,34E-03	2,55E-04	0,00E+00	-3,85E+00
Radioactive waste disposed	kg	1,77E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-6,03E-06
Output flows indicator									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Components for re-use	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
Material for recycling	kg	4,00E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,00E+00	0,00E+00	-2,71E-02
Materials for energy recovery	kg	1,73E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-8,77E-07
Exported energy, electricity	MJ	1,35E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-3,58E-03
Exported energy, thermal	MJ	5,03E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,26E-03

Additional LCA results – 100% landfill scenario

Results per declared unit									
Environmental impact									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ eq.	1,03E+01	2,39E-01	9,14E-03	4,15E-04	1,52E-02	0,00E+00	6,03E-04	-2,79E+00
GWP-biogenic	kg CO ₂ eq.	-5,46E-01	7,44E-04	7,16E-01	1,39E-06	1,06E-04	0,00E+00	2,02E-06	-1,43E-01
GWP-luluc	kg CO ₂ eq.	2,65E-02	4,98E-05	4,59E-06	1,10E-07	5,09E-06	0,00E+00	1,59E-07	-1,55E-02
GWP-total	kg CO ₂ eq.	9,80E+00	2,40E-01	7,26E-01	4,16E-04	1,53E-02	0,00E+00	6,05E-04	-2,47E+00
ODP	kg CFC 11 eq.	5,92E-06	9,53E-11	1,03E-11	2,72E-13	7,93E-12	0,00E+00	3,95E-13	-9,89E-09
AP	mol H ⁺ eq.	3,11E-01	1,03E-03	3,58E-05	4,97E-06	4,89E-05	0,00E+00	7,22E-06	-1,82E-01
EP-freshwater	kg P eq.	2,51E-02	9,30E-06	2,35E-06	2,37E-08	1,04E-06	0,00E+00	3,45E-08	-1,48E-02
EP-marine	kg N eq.	2,07E-02	3,74E-04	3,71E-05	2,22E-06	1,65E-05	0,00E+00	3,23E-06	-1,02E-02
EP-terrestrial	mol N eq.	2,60E-01	4,08E-03	1,21E-04	2,43E-05	1,79E-04	0,00E+00	3,54E-05	-1,35E-01
POCP	kg NMVOC eq.	7,81E-02	1,43E-03	3,76E-05	6,83E-06	7,41E-05	0,00E+00	9,93E-06	-3,80E-02
ADP-minerals&metals*	kg Sb eq.	4,08E-03	3,16E-07	5,77E-08	1,57E-09	5,13E-08	0,00E+00	2,29E-09	-2,53E-03
ADP-fossil*	MJ	1,04E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-3,18E+00
WDP*	m ³	2,74E+00	2,85E-03	1,21E-03	6,89E-06	2,19E-04	0,00E+00	1,00E-05	-1,23E+00
Additional environmental									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-GHG	kg CO ₂ eq.	1,04E+01	2,39E-01	1,43E-02	4,15E-04	1,52E-02	0,00E+00	6,04E-04	-2,82E+00
Resource use									

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	2,11E+01	2,96E-02	6,18E-03	6,06E-05	3,51E-03	0,00E+00	8,82E-05	-1,01E+01
PERM	MJ	4,20E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-5,34E+00
PERT	MJ	2,53E+01	2,96E-02	6,18E-03	6,06E-05	3,51E-03	0,00E+00	8,82E-05	-1,55E+01
PENRE	MJ	8,31E+00	1,27E-04	2,40E-05	8,12E-08	1,50E-05	0,00E+00	1,18E-07	-3,25E+00
PENRM	MJ	2,25E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-9,34E-03
PENRT	MJ	1,06E+01	1,27E-04	2,40E-05	8,12E-08	1,50E-05	0,00E+00	1,18E-07	-3,26E+00
SM	kg	3,24E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-2,20E-01
RSF	MJ	3,08E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-2,07E-02
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m ³	6,99E-02	1,23E-04	4,64E-05	2,75E-07	1,11E-05	0,00E+00	4,00E-07	-2,83E-02
Waste indicator									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1,69E+00	2,15E-03	9,11E-04	8,23E-06	2,18E-04	0,00E+00	1,20E-05	-7,88E-01
Non-hazardous waste disposed	kg	1,59E+01	2,13E-02	2,02E-01	6,25E-05	2,34E-03	0,00E+00	9,08E-05	-3,85E+00
Radioactive waste disposed	kg	1,77E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-6,03E-06
Output flows indicator									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Components for re-use	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
Material for recycling	kg	4,00E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-2,71E-02
Materials for energy recovery	kg	1,73E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-8,77E-07
Exported energy, electricity	MJ	1,35E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-3,58E-03
Exported energy, thermal	MJ	5,03E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,26E-03

VERSION HISTORY

Original Version of the EPD, 2026-05-06

ABBREVIATIONS

Abbreviation	Definition
General Abbreviations	
EN	European Norm (Standard)
EF	Environmental Footprint
GPI	General Programme Instructions
ISO	International Organization for Standardization
CEN	European Committee for Standardization
CLC	Co-location centre
CPC	Central product classification
GHS	Globally harmonized system of classification and labelling of chemicals
GRI	Global Reporting Initiative
SVHC	Substances of Very High Concern
ND	Not Declared
Environmental Impact Indicators	
GHG	Greenhouse gas
GWP	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
GWP-total	Total Global Warming Potential
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 deprivation potential
Resource Use Indicators	
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

REFERENCES

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- LCA Report for Brass basin and bidet mixers_2024 data_2026 05 06 v1

