

Environmental Product Declaration



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

Hinges FULCRA

from

GIESSE S.p.A.



Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-08400
Publication date:	2023-04-07
Valid until:	2028-04-05

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

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:	info@environdec.com

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804:2012+A2:2019 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): Construction products, PCR 2019:14 (EN 15804:A2+A2:2019), version 1.2.5
PCR review was conducted by: The Technical Committee of the International EPD®System. Chair: Claudia A. Peña. The review panel may be contacted via info@environdec.com
Life Cycle Assessment (LCA)
LCA accountability: Federica Gilardelli f.gilardelli@greenwichsrl.it – Giulia Perissinotto Greenwich S.r.l. https://greenwichsrl.it
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by accredited certification body Third-party verification: DNV Business Assurance Italy S.r.l. is an approved certification body accountable for the third-party verification The certification body is accredited by: Accredia 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 registered in different EPD programmes, or not compliant with EN 15804:2012+A2:2019, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same 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 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. For further information about comparability, see EN 15804:2012+A2:2019 and ISO 14025:2006.

Company information

Owner of the EPD: GIESSE S.p.A.

Contact: Valerio Venturi valerio.venturi@schlegelgiesse.com and Giovanni Liconti giovanni.liconti@schlegelgiesse.com

Description of the organisation: Giesse is the brand that opens up new hardware solution frontiers for aluminium windows and doors. Technical innovation and extremely high quality are at the core of our daily work. Our focus is on achieving complete customer satisfaction, from design and production to providing our clients with a trusted partner, every step of the way.

GIESSE S.p.A. was founded in 1965 and in 2016 it was acquired by Schlegel, a leading English company in the sealing systems sector. Both companies are part of the international division of Tyman PLC, a group listed on the London stock exchange, with a commercial network capable of reaching customers in over 100 countries and offering them the highest degree of satisfaction, a wide range of standard components and boasts over 150 registered patents.

Product-related or management system-related certifications: ISO 9001:2015 and ISO 14001:2015 certificates, Cradle to Cradle Certified® Silver, Product certification RAL-GZ 607/3.



Name and location of production site: GIESSE S.p.A. Via Tubertini 1, 40054 Budrio (Bologna BO), Italy.

Product information

Product name: hinge FULCRA

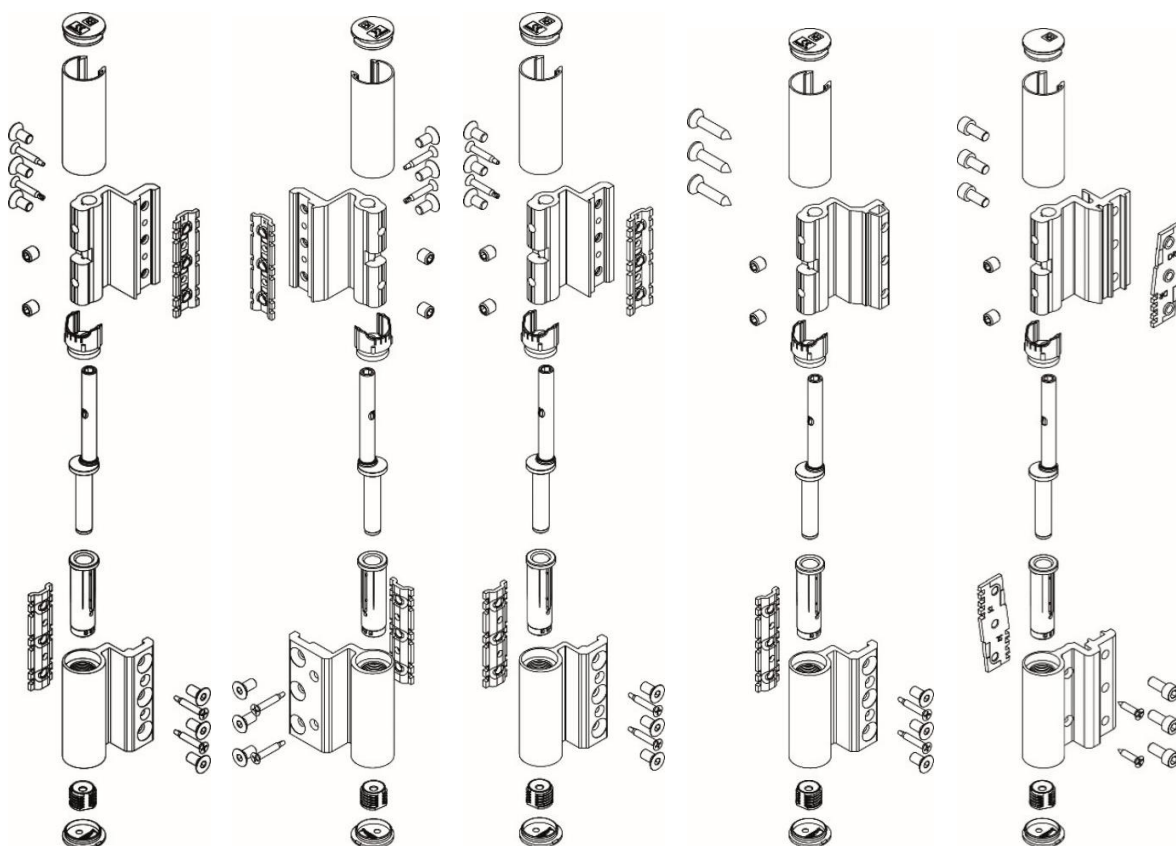
Product identification: Fulcra 00758, Fulcra 00759, Fulcra 00762, Fulcra 00703, Fulcra 00702, Fulcra 00700, Fulcra 00761, Fulcra 00760, Fulcra 00701

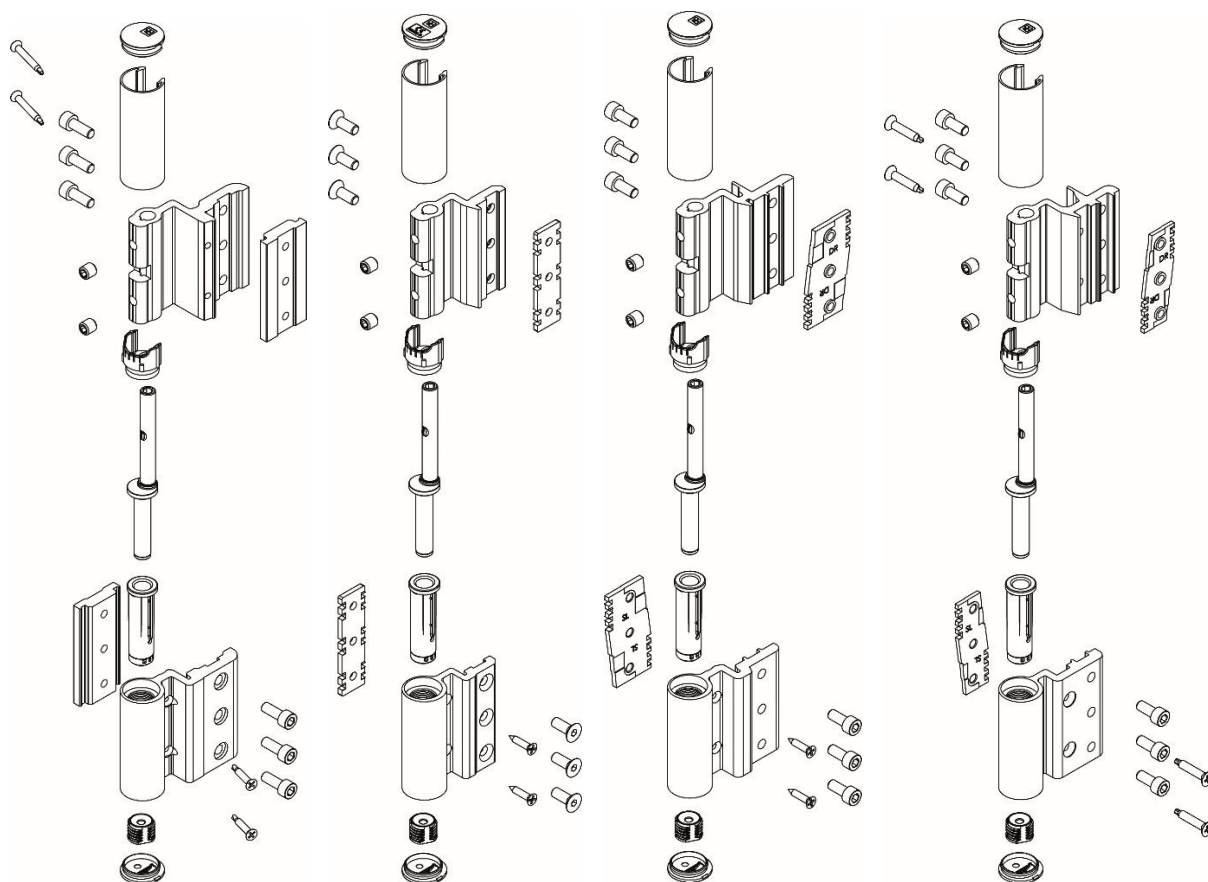
Product description: Clamp door hinge for profile with channel and adjustable in three directions (height, width and compression). Thanks to the innovative adjustment system (patented) the two hinge bodies are always kept in line regardless of the sideways shift performed.

Hinge suitable for doors subject to intensive use (use category 4* - heavy duty use). The innovative adjustment system (patented) makes it easier and more accurate to align the sash to the frame, always ensuring the perfect alignment of the two hinge bodies. Fixing plates of special geometry

guarantee the firmest possible attachment on both sides of the profile channel. The additional strengthening screws on the frame plate increase the slip resistance. The height adjustment device also acts as an axial bearing, increasing the resistance to fatigue of the hinge (durability grade 7* - 200,000 opening cycles). Adjustments in the three directions: - Side adjustment (± 2 mm.), using an Allen key on the eccentric pin, then locking it in the desired position by means of two grub screws. - Height adjustment ($0/+ 3$ mm.), using an Allen key on the grub screw integral with the frame hinge body. - Compression adjustment ($\pm 0,5$ mm.), obtainable by turning the eccentric bush in the frame hinge body.

(*) Complies with EN1935





UN CPC code: 4212

Geographical scope: Europe

LCA information

Functional unit / declared unit: 1 kg of hinge

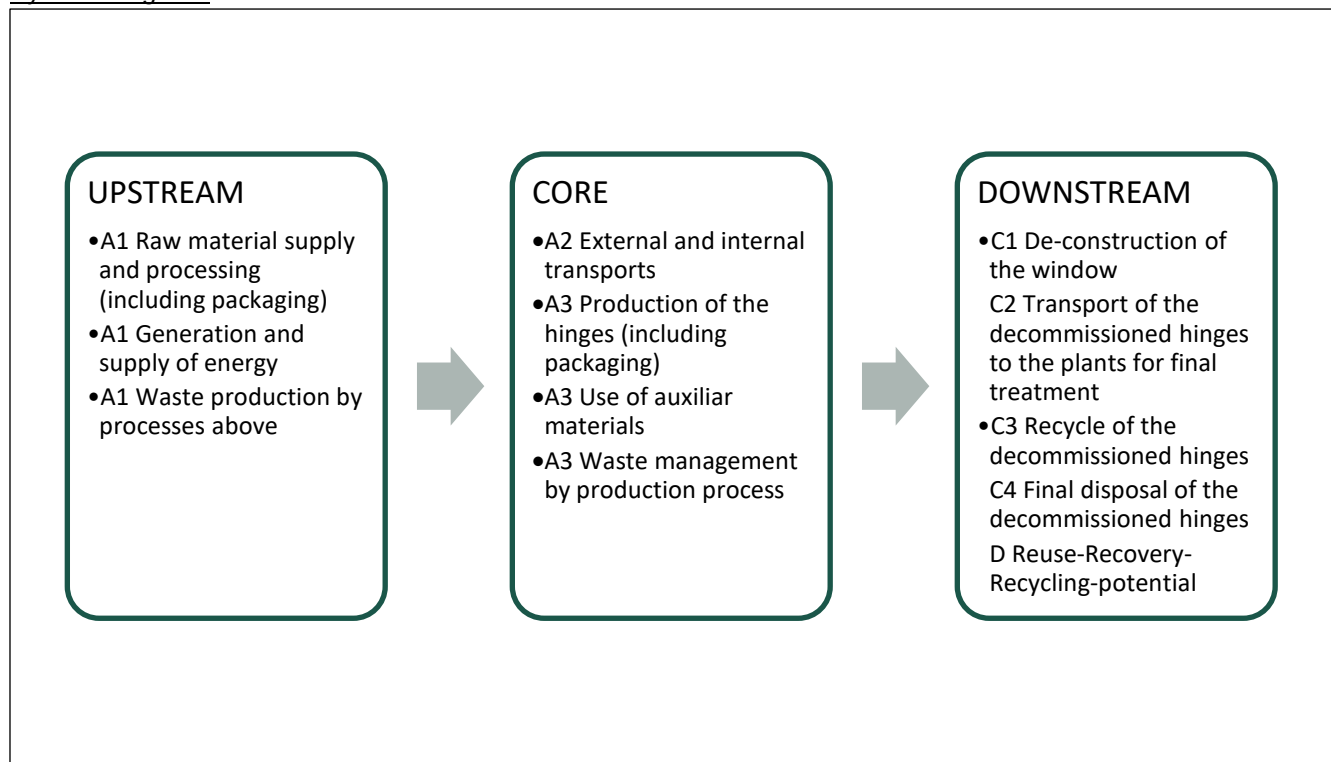
Time representativeness: 2021

Database(s) and LCA software used: SimaPro 9.4.0.2 and Ecoinvent 3.8

Description of system boundaries: Cradle to gate with modules C1–C4 and module D (A1–A3 + C + D).

The current EPD certificate follows the indications reported in the third option of paragraph 4.6.1 of the reference PCR (2019:14 Construction products), which considers the results of the “worst-case product”. The General Programme Instructions (GPI) of the International EPD System version 4.0 are also contemplated.

System diagram:



More information: Federica Gilardelli f.gilardelli@greenwichsrl.it – Giulia Perissinotto Greenwich S.r.l.
<https://greenwichsrl.it>

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

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	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	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	EU27	EU27	ITA	ND	ND	ND	ND	ND	ND	ND	ND	ND	EU27	EU27	EU27	EU27	EU27
Specific data used	>90%			ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Variation – products	<10%			ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-
Variation – sites	-			ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-

Content information

The data relating to the weight of the hinges refer to the net quantities.

Product components	Weight [g]									Post-consumer material, weight-% [worst case]	Biogenic material, weight-% and kg C/kg [worst case]
	FULCRA 00700	FULCRA 00701	FULCRA 00702	FULCRA 00703	FULCRA 00758	FULCRA 00759	FULCRA 00760	FULCRA 00761	FULCRA 00762		
Aluminium	197,28	219,96	188,83	195,13	246,13	392,03	220,84	278,63	258,92	0,0	0,0
Stainless steel	153,03	153,62	154,23	113,24	144,64	121,82	206,10	189,38	156,00	0,0	0,0
Steel	-	-	-	25,50	-	-	-	-	-	0,0	0,0
Polyamide	7,04	7,04	7,04	7,04	7,04	7,04	7,04	7,04	7,04	0,0	0,0
Polypropylene	2,74	2,74	2,74	2,74	2,76	2,76	2,73	2,76	2,76	0,0	0,0
Polyoxymethylene	1,90	1,90	1,90	1,90	1,90	1,90	1,90	1,90	1,90	0,0	0,0
Zinc alloy	10,20	10,20	10,20	10,20	10,20	10,20	10,79	10,78	10,20	0,0	0,0
Total weight (g)	372,19	395,46	364,94	355,75	412,67	535,75	449,40	490,49	436,82		
Packaging materials	Weight [g]									Weight-% (versus the product) [worst case]	Weight biogenic carbon, kg C/kg [worst case]
Wood	16,67	16,67	16,67	16,67	16,67	16,67	16,67	16,67	16,67	3,11	0,03
Plastic	6,04	6,04	6,04	6,04	6,04	6,04	6,04	6,04	6,04	1,13	0,0
Cardboard	54,90	54,90	54,90	54,90	54,90	54,90	54,90	54,90	54,90	10,25	0,10
TOTAL (g)	77,61	77,61	77,61	77,61	77,61	77,61	77,61	77,61	77,61		

Environmental Information

Fulcra

Potential environmental impact – mandatory indicators according to EN 15804

The following tables show the maximum values of the environmental indicators for each module chosen among those of the products studied in this document.

Results per functional or declared unit							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq.	1,04E+01	0,00E+00	1,22E-01	3,06E-02	4,31E-03	-5,74E+00
GWP-fossil	kg CO ₂ eq.	1,03E+01	0,00E+00	1,22E-01	3,05E-02	4,27E-03	-5,57E+00
GWP-biogenic	kg CO ₂ eq.	2,39E-01	0,00E+00	2,73E-04	1,29E-01	2,06E-04	-8,08E-02
GWP-luluc	kg CO ₂ eq.	1,44E-01	0,00E+00	1,34E-05	6,99E-06	4,06E-06	-1,32E-01
ODP	kg CFC 11 eq.	7,38E-07	0,00E+00	2,64E-08	3,62E-09	4,13E-10	-5,87E-07
AP	mol H ⁺ eq.	1,35E-01	0,00E+00	7,69E-04	4,57E-05	2,45E-05	-3,66E-02
EP-freshwater	kg P eq.	4,41E-03	0,00E+00	2,18E-06	8,62E-06	1,07E-06	-3,23E-03
EP-marine	kg N eq.	1,11E-02	0,00E+00	3,09E-04	9,97E-06	2,04E-05	-4,94E-03
EP-terrestrial	mol N eq.	1,11E-01	0,00E+00	3,40E-03	9,82E-05	6,58E-05	-4,53E-02
POCP	kg NMVOC eq.	3,98E-02	0,00E+00	1,20E-03	2,69E-05	1,97E-05	-1,69E-02
ADP-fossil*	MJ	1,22E+02	0,00E+00	1,66E+00	1,44E-01	5,28E-02	-8,66E+01
ADP-minerals&metals*	kg Sb eq.	2,61E-04	0,00E+00	1,06E-07	6,09E-08	8,19E-09	-1,28E-05
WDP*	m ³	5,26E+00	0,00E+00	1,49E-03	4,08E-03	1,35E-03	-4,27E-01
Acronyms	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						

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

Potential environmental impact – additional mandatory and voluntary indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-GHG	kg CO ₂ eq.	1,01E+01	0,00E+00	1,21E-01	3,04E-02	4,04E-03	-5,52E+00

Results per functional or declared unit

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
PM	disease inc.	1,01E-06	0,00E+00	1,72E-08	4,31E-10	3,69E-10	-4,21E-07
IRP	kBq U235 eq.	1,27E+00	0,00E+00	7,42E-03	9,38E-04	3,09E-04	-1,59E+00
ETP-fw	CTUe	3,56E+02	0,00E+00	9,29E-01	5,92E-01	5,75E+01	-1,01E+02
HTP-nc	CTUh	3,79E-07	0,00E+00	6,30E-10	2,22E-10	8,98E-11	-2,42E-07
HTP-c	CTUh	4,52E-08	0,00E+00	1,67E-11	1,91E-11	3,41E-12	-1,78E-08
SQP	Pt	4,21E+01	0,00E+00	2,89E-01	3,07E-02	6,93E-02	-7,39E+00
Additional voluntary indicators e.g. the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017							

Use of resources

Results per functional or declared unit

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
PERE	MJ	6,21E+01	0,00E+00	6,46E-03	6,03E-03	3,40E-03	-3,47E+01
PERM	MJ	3,43E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	6,21E+01	0,00E+00	6,46E-03	6,03E-03	3,40E-03	-3,47E+01
PENRE	MJ	1,29E+02	0,00E+00	1,76E+00	1,53E-01	5,62E-02	-9,20E+01
PENRM	MJ	2,30E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	1,29E+02	0,00E+00	1,76E+00	1,53E-01	5,62E-02	-9,20E+01

SM	kg	0,00E+00	0,00E+00	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	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m ³	1,94E-01	0,00E+00	6,16E-05	1,07E-04	4,11E-05	-2,43E-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 production and output flows

Waste production

Results per functional or declared unit							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	2,28E-03	0,00E+00	4,47E-06	5,18E-07	5,29E-08	-5,41E-05
Non-hazardous waste disposed	kg	3,26E+00	0,00E+00	8,42E-03	5,61E-03	1,00E-01	-1,70E+00
Radioactive waste disposed	kg	4,79E-04	0,00E+00	1,17E-05	8,46E-07	2,13E-07	-5,47E-04

Output flows

Results per functional or declared unit							
Indicator	Unit	A1-A3	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
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00	4,76E-01	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	4,91E-03	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Additional environmental information

Corrosion resistance grade 4 (240 h according to EN 1935:2002)

References

General Programme Instructions of the International EPD® System. Version 4.0.

UNI EN ISO 14040: 2021, Gestione ambientale – Valutazione del ciclo di vita – Principi e quadro di riferimento.

UNI EN ISO 14044: 2021, Gestione ambientale – Valutazione del ciclo di vita – Requisiti e linee guida.

UNI EN ISO 14025:2010, Etichette e dichiarazioni ambientali - Dichiarazioni ambientali di Tipo III - Principi e procedure

UNI EN 15804:2012 + A2:2019, Sostenibilità delle costruzioni – Dichiarazioni ambientali di prodotto – Regole chiave di sviluppo per categoria di prodotto.

PCR 2019 :14 Construction products (EN 15804:2012+A2:2019) (1.2.5)

EuRIC AISBL – Recycling: Bridging Circular Economy & Climate Policy 80 Boulevard Auguste Reyers, B-1030 Brussels +32 2 706 87 24. www.euric-aisbl.eu

Plastics - the Facts 2021 An analysis of European plastics production, demand and waste data

Background report. Analisi del ciclo di vita delle cerniere CHIC e FULCRA GIESSE. Febbraio 2023.

Redatto da F. Gilardelli & Giulia Perissinotto Greenwich S.r.l.

