

Environmental Product Declaration

 **EPD**®
THE INTERNATIONAL EPD® SYSTEM



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

Plastic spacer

(EPD of multiple products, based on the average results of the product group)
from

Spritz-Plast GmbH

Spritz-Plast
KUNSTSTOFFVERARBEITUNG

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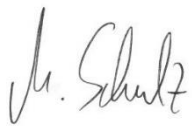
An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com



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 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): <i>PCR 2019:14: CONSTRUCTION PRODUCTS. version 1.3.4</i>
PCR review was conducted by: <i>The Technical Committee of the International EPD System. See www.environdec.com for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact.</i>
Life Cycle Assessment (LCA)
LCA accountability: Spritz-Plast GmbH, Rüde Group Luttinger Straße 82, 79725 Laufenburg, Germany LCA practitioner and EPD developer: Sphera Solutions GmbH, 70771 Leinfelden-Echterdingen, Germany, www.sphera.com
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: <input checked="" type="checkbox"/> EPD verification by individual verifier Third-party verifier: <i>Matthias Schulz, Schulz Sustainability Consulting</i> 
Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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, 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 and ISO 14025.

Company information

Owner of the EPD: Spritz-Plast GmbH, Rüde Group Luttinger Straße 82, 79725 Laufenburg, Germany

Contact: Jan Plahcinski, jan.plahcinski@ruede.de

Description of the organisation: The Rüde Group consists of three companies that share a common mission – to develop optimal solutions for the challenges of the construction industry. Our expertise and experience enable us to understand our customers' individual requirements and offer specific solutions.

Product-related or management system-related certifications: not yet certified

Name and location of production site(s): Luttinger Strasse 72, 79725 Laufenburg, Germany.

Product information

Product name: plastic spacers

Product identification: products made from recycled plastic

Product description: Spacers aim to maintain the distance between the wall and the reinforcement or armouring. The list of covered products is provided below.

Some spacers are fixed to the floor or ceiling (e.g. 'Dualfix' and 'Quix' spacers). These spacers require a certain robustness as they will be walked on by the construction workers.

There are also spacers for the walls to be embedded in concrete. These are usually lighter and less robust because they only must carry small loads. These spacers (called 'Z' spacers) are usually the size of a hand.

UN CPC code: 369 Other plastics products

Geographical scope: Europe

LCA information

Declared unit: 1 kg of average plastic spacer product made of secondary material

Reference service life: not applicable

Time representativeness: 2022

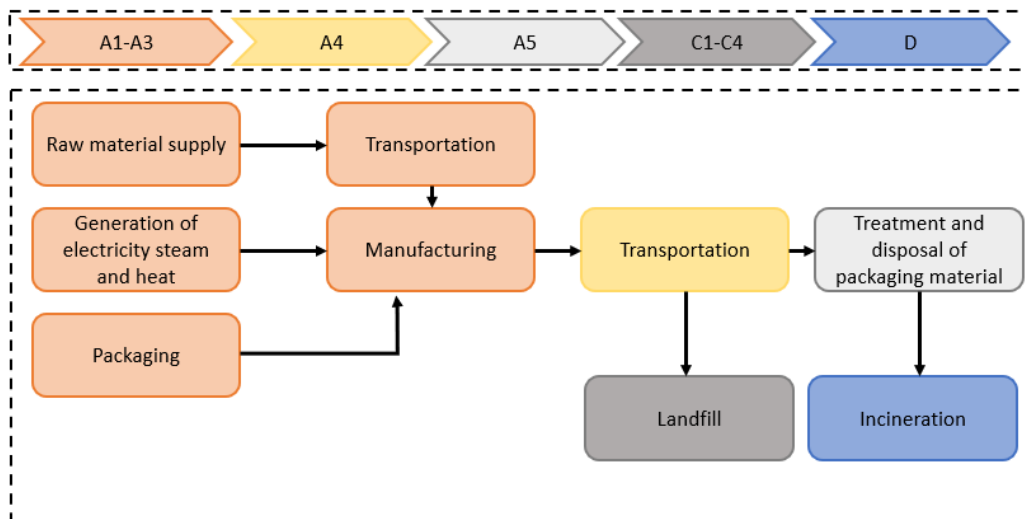
Geographical scope: A1-A2: EU (Germany, Switzerland, Austria), A3: Germany; A4-A5 and C1-D: EU.

Database(s) and LCA software used: The background data has been taken from the Sphera MLC database CUP 2024.1. The LCA model was created using Sphera's LCA for Experts (LCA FE) software, version 10.8.

Description of system boundaries: Cradle to gate with options, modules C1–C4, and module D (A1–A3, C, D and additional modules A4 and A5).

Reference package used: EN 15804+A2 reference package based on EF 3.1.

System diagram:



More information:

More information on the product can be found under <https://www.ruede.de/en/>

Name and contact information of LCA practitioner:

Sphera Solutions GmbH, 70771 Leinfelden-Echterdingen, Germany, www.sphera.com

Information on electricity used in the manufacturing process:

In accordance with the PCR, the German residual grid mix is used for the LCA-calculations. The emission factor (with regards to the GWP-GHG indicator) accounts for: 0.85 kg CO₂ eq./kWh

Information about declared modules:

Module A1 to A3:

The product stage includes provision of all materials, products and energy, as well as waste processing up to the end-of waste state or disposal of final residues during the product stage. These modules consider the manufacturing of secondary raw materials in particular polypropylene, polyethylene, polyolefin mix (PE&PP). This EPD covers a whole range of different products, and an average of these products is declared. The declared average product composition represents the specific composition of all spacers produced at the production site over one year.

Spritz-Plast purchases readymade secondary plastic granulate of various composition that is transported to the production site delivered by EURO 6 truck (Module A2). This secondary plastic granulate is processed using the injection moulding process (A3). The impact of packaging materials is included. The plastics are assumed to reach the end of waste status before the recycling process, the recycling process is included in A1-A3.

Module A4:

This module considers 100 km truck transport to site (diesel driven, EURO 6, 40 tons total load, 61% utilization). The transport distance can be modified project specific if required by linear scaling.

Module A5:

Treatment and disposal of packaging material. Benefits for potential avoided burdens due to energy substitution of electricity and thermal energy generation are declared in module D.

Module C1 to C4:

- De-construction/ demolition (C1): Demolition is done with concrete elements; for spacers only, the environmental loads are cut-off.
- Transport (C2): 50 km EURO 6 Truck (EU Scenario)
- Waste processing (C3): not declared, as the spacers are landfilled
- Disposal (C4): Concrete and the spacers are disposed of in landfill.

Module D:

- Benefits and loads from module A5.

Excluded data and flows from the LCA calculation:

Infrastructure and capital goods are not considered within this EPD.

Allocation principles for secondary material:

The plastics are assumed to reach the end of waste status before the recycling process, the recycling process is included in A1-A3.

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	
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	MN D	MN D	MN D	MN D	MN D	MN D	MN D	X	X	X	X	X
Geography	EU	EU	DE	EU	EU								EU	EU	EU	EU	EU
Specific data used	58%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	- 0.7% / +1.4%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	NA			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Content information

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/declared unit
Polypropylene	0.32	100%	0
Polyethylene	0.20	100%	0
Polyolefin (PE&PP)	0.41	100%	0
Polystyrene	0.05	100%	0
Color Pigments	0.00005	0	0
Polycarbonate	0.01	100%	0
ABS (Acrylonitrile Butadiene Styrene)	0.001	100%	0
Polyamide	0.01	100%	0
TOTAL	1	~100%	0
Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/declared unit
Stretch film PE	0.0009	0.09	0
Cardboard	0.0019	0.19	8.74E-04
Wooden pallet	0.0584	5.84	0.024
TOTAL	0.06	6	0.0248

The product does not contain dangerous substances from the candidate list of SVHC for Authorisation.

Module A4:

The following table displays technical information used in module A4 (transportation by truck to the building site)

Parameter	Unit	Amount
Diesel consumption	l/100 km (per kg of transported good)	0.0029
Distance	km	100
Capacity utilization (including empty returns)	%	61
Gross weight of transported product	kg	1
Volume capacity utilization factor	-	1

Module A5:

The following table displays technical information regarding the installation in the building (treatment of packaging waste). Note: Installation offcuts or installation efforts and related auxiliary materials are not considered in this study and therefore not listed.

Parameter	Unit	Amount
Carton packaging waste sent to incineration	kg/ declared unit	0.0019
Wooden pallets sent to incineration	kg/ declared unit	0.0584
PE film sent to incineration	kg/ declared unit	0.0009

End-of-life (C-modules)

The following table displays the waste flows at the product’s end of life (for the average product). The amounts listed represent gross quantities including secondary material. The transportation distance for C2 is considered to be 50 km.

Parameter	Unit	Amount
Waste collected as mixed construction waste	kg	1
EoL Scenario (Landfill) Waste materials for final deposition	kg	1

Results of the environmental performance indicators

The environmental performance of the declared unit of one kg of plastic spacer made of secondary material are reported below using the parameters and units as specified in PCR 2019:14 v1.3.4. To evaluate the environmental impact of any specific product, corresponding scaling according to the specific mass of the product is needed.

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.

Mandatory impact category indicators according to EN 15804+A2 (EF 3.1)

Results per 1 kg of plastic spacer made of secondary material									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ eq.	1.47E+00	8.12E-03	4.42E-03	0	3.83E-03	0	2.94E-02	-2.83E-02
GWP-biogenic	kg CO ₂ eq.	-7.98E-02	1.94E-05	9.10E-02	0	9.14E-06	0	0.00E+00	-1.24E-04
GWP-luluc	kg CO ₂ eq.	8.42E-04	1.37E-04	9.17E-07	0	6.44E-05	0	1.08E-04	-2.58E-06
GWP-total	kg CO ₂ eq.	1.39E+00	8.28E-03	9.54E-02	0	3.90E-03	0	2.94E-02	-2.84E-02
ODP	kg CFC 11 eq.	3.64E-12	1.20E-15	1.05E-14	0	5.64E-16	0	9.70E-14	-2.55E-13
AP	mol H ⁺ eq.	1.51E-03	1.18E-05	1.60E-05	0	5.54E-06	0	1.76E-04	-2.99E-05
EP-freshwater	kg P eq.	1.79E-06	3.47E-08	2.70E-09	0	1.64E-08	0	1.69E-05	-4.76E-08
EP-marine	kg N eq.	4.87E-04	4.21E-06	4.75E-06	0	1.99E-06	0	3.79E-05	-9.10E-06
EP-terrestrial	mol N eq.	5.33E-03	4.99E-05	6.78E-05	0	2.35E-05	0	4.16E-04	-9.76E-05
POCP	kg NMVOC eq.	1.31E-03	1.14E-05	1.30E-05	0	5.39E-06	0	1.21E-04	-2.58E-05
ADP-minerals&metals*	kg Sb eq.	7.80E-08	7.08E-10	1.12E-10	0	3.34E-10	0	1.95E-09	-2.48E-09
ADP-fossil*	MJ	1.43E+01	1.07E-01	2.32E-02	0	5.05E-02	0	4.97E-01	-5.06E-01
WDP*	m ³	8.61E-02	1.26E-04	1.05E-02	0	5.93E-05	0	3.80E-03	-3.13E-03
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.

Additional mandatory and voluntary impact category indicators

Results per 1 kg of plastic spacer made of secondary material									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-GHG ¹	kg CO ₂ eq.	1.48E+00	8.15E-03	4.42E-03	0	3.84E-03	0	2.95E-02	-2.84E-02

¹ This 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.

Resource use indicators

The calculation of the resource use indicators follows option B from Annex 3 in PCR 2019:14 - Construction Products v.3.4 for packaging. Thus, there is an input in A3 for PERM and PENRM values and output in A5. No calorific values for the product are considered as all materials are secondary.

Results per 1 kg of plastic spacer made of secondary material									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	2.63E+00	9.22E-03	9.00E-01	0	4.35E-03	0	7.51E-02	-1.71E-01
PERM	MJ	8.93E-01	0	-8.93E-01	0	0	0	0	0
PERT	MJ	3,53E+00	9.22E-03	6.55E-03	0	4.35E-03	0	7.51E-02	-1.71E-01
PENRE	MJ	1.43E+01	1.07E-01	6.46E-02	0	5.05E-02	0	4.97E-01	-5.06E-01
PENRM	MJ	4.14E-02	0	-4.14E-02	0	0	0	0	0
PENRT	MJ	1.43E+01	1.07E-01	2.32E-02	0	5.05E-02	0	4.97E-01	-5.06E-01
SM	kg	1.00E+00	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m ³	3.93E-03	1.03E-05	2.47E-04	0	4.84E-06	0	1.14E-04	-1.31E-04
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 indicators

Results per 1 kg of plastic spacer made of secondary material									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1.44E-07	4.10E-12	1.36E-11	0	1.93E-12	0	1.23E-10	-3.46E-10
Non-hazardous waste disposed	kg	5.54E-02	1.75E-05	1.87E-03	0	8.24E-06	0	9.96E-01	-2.65E-04
Radioactive waste disposed	kg	9.85E-04	1.95E-07	1.25E-06	0	9.19E-08	0	7.01E-06	-3.78E-05

Output flow indicators

Results per 1 kg of plastic spacer made of secondary material									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Components for re-use	kg	0	0	0	0	0	0	0	0
Material for recycling	kg	0	0	0	0	0	0	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	1.35E-01	0	0	0	0	0
Exported energy, thermal	MJ	0	0	2.44E-01	0	0	0	0	0

Optional impact category indicators according to EN 15804+A2 (EF 3.1)

Results per 1 kg of plastic spacer made of secondary material									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Particulate matter	Disease incidences	2.55E-08	1.15E-10	1.06E-10	0	5.40E-11	0	1.82E-09	-2.45E-10
Ionising radiation, human health *	kBq U235 eq.	1.20E-01	2.83E-05	1.98E-04	0	1.33E-05	0	9.61E-04	-6.22E-03
Ecotoxicity, freshwater **	CTUe	2.81E+00	7.95E-02	9.99E-03	0	3.75E-02	0	1.08E+00	-7.22E-02
Human toxicity, cancer **	CTUh	1.20E-10	1.61E-12	9.85E-13	0	7.56E-13	0	1.60E-11	-5.82E-12
Human toxicity, non-cancer **	CTUh	4.79E-09	7.21E-11	5.04E-11	0	3.40E-11	0	3.34E-10	-1.36E-10
Land Use **	Pt	1.52E+01	5.27E-02	7.35E-03	0	2.48E-02	0	8.43E-02	-1.00E-01

* Disclaimer: 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: 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.

100% of the plastic scrap enters the product system without environmental impacts (0.00 kg CO₂ eq./tonne). The environmental impact of sorting, washing and re-granulation processes is taken into account.

When using the EPD, the results of module C should be considered together with modules A1-A3 (incl. A4 and A5). Further information on the assumptions made in the LCA calculation and the interpretation of the results can be provided upon request.

References

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

EN 15804:2012+A2:2019, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

ISO14025, 2006. Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

PCR 2019:14: CONSTRUCTION PRODUCTS. version 1.3.4 The International EPD System.
www.environdec.com.

Sphera LCA for Experts. LCA FE. software-system and databases. Managed LCA content MLC (fka GaBi database). University of Stuttgart and Sphera Solutions GmbH. 2024. CUP Version: 2024.1. MLC data set documentation under <https://lcadatabase.sphera.com/> (Oct 2024)

List of products

Article number:	Description:	Article number:	Description:
115.	Dualfix	364.a	Attachment pieces for ISI- and T-Rocket
115.R	Dualfix with knobs	364.a	Attachment pieces for Multi-Rocket
116.	ISO-Fix	364.k	GFK-Pin
117.	Track Spacer PP	364.kt	GFK-Pin with stair base
350.	Steckfix	396.(.)g	Plain shim pads
351.	Steckfix with nubs	397.	Horseshoe shim pads
352.	SP-Fix	398.	Maxi plain shim pads
352.(.)n	SP-Fix with nubs	399.	F-Plain shim pads
354.	Wellfix	395.	Hole pads
354.(.)n	Wellfix with nubs	480.e	Plastic wedges
353.	Quix	394.004	Mounting tape
355.	Raster-Fix	450.	Corner protection
360.	Wheel spacer Z	492.	Fixing clips
360.M	Maxi Z	425.	Rebar end cups
361.	Star Spacer light grey	425.k	Plastic feet caps (round)
362.122020	Klemmfix	425.rs	Plastic feet caps (flat ribbed)
360.D	Rüdux	425.ds48	Plastic feet caps (round) 4-8mm
360.mf	Wheelspacer MF	903.steck	Plug-In spacer
365.	Plastic chair spacer	460.X20	Cross spacer
365.M	Maxi KB	460.T	T-spacer
368.c015	Crossfix	460.steck	Plug-In sleeve
365.OK	Bucks	224.	Spacer tube
366.	Rüfix	201.K	Opti-Wall spacer Combipack
367.	Pyra	201.s	Opti-shims
368.	4 feet spacer	202.	Wall Spacer with cones
369.	Kreuzfix	328.	Rüdict
417.040	Spacer drone	201.SK	Opti-S combipack
363.	Quadrofix	302.2226	Opti-S-Cone
366.p	Rüdor	312.2226	Opti-S-Stoppers
367.	ISO Spacer	316.	Plastic cones
380.	Ring spacer discus	311.	Opti-stoppers
380.d020	Cover ring	320.	Cover caps
380.s	HD-Ring	326.	Stoppers
381.	Rhombus	318.K22	Couplers
381.sh	Spacer Rhombus with clips	319.SK22	Seal caps
383.	Spacer Rhomfix with 2 clips	327	Fire tree stopper
385.	Mattenfix	327.s	Formwork stopper
385.h	Mattenfix with clips	400.	Plastic inserts
380.p	Progress-Ring	496.W	Water drainage nozzle
411.MS	Multi-Swing	496.L	Leaf trap grid
412.MS	Maxi-Swing	130.	Rüfecto protection profile
400.	Plastic Inserts	445.	Protection caps
500.	Plastic kicker	445.po	Protection caps sandglass orange
208.	Talonnette	445.s	Protection caps sandglass yellow
407.	Plastic anchor Z	482.	Marker
407.v	Plastic sealing plugs	420.7025	Lifting device
405.	Plastic anchor for precast walls	495.	Ventilation grille
406.	Plastic anchor M12	422.	Dowel block
402.M	Nailing plates	422.030	Peg dowel
403.m	Bonding plates	492.8050	Peg bridge
419.	Guardrail socket	301.	Opti-Cones

493.	Corrugated pipe connection	392.p	Panel pads
370.	Plate nail	392.lp	Storage plate
370.tp90	Plate for plastic nail	392.eh4090	Stapel-Fix (one-sided)
375.	Insulating board fixing	392.dh04070	Stapel-Fix (double-sided)
392.	Stacking plate	392.16070	Stacking Angle

