



Environmental Product Declaration

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for:

ELECTROFUSION FITTINGS

(The EPD covers multiple products, based on the average results of the product group as indicated on page 4)

from

NTG PLASTİK SAN. VE TİC. A.Ş



Programme

The International EPD® System,
www.environdec.com
EPD® Turkey, www.epdturkey.org

Programme Operator

EPD International AB

Geographical Scope

Global

Licensee

EPD Türkiye

EPD Registration Number

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2025-02-14

Valid Until

2030-02-13

Programme Information

Programme Information

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Information about verification and reference PCR:

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

Product category rules (PCR)
 PCR 2019:14 Construction products (EN 15804:A2) Version 1.3.4

PCR review was conducted by
 The Technical Committee of the International EPD® System. See www.environdec.com/TC 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.

Independent verification of the declaration and data, according to ISO 14025:2021:

☐ EPD process verification

☒ EPD verification

Third party verifier
 SIPL Pvt Ltd, New Delhi, India -
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Approved by
 The International EPD®
 System Technical Committee, supported by the Secretariat

Procedure for follow-up of data during EPD validity involves third party verifier

☐ Yes

☒ No

LCA Study & EPD Design Conducted by

Semtrio Sustainability Consulting
 BUDOTEK Teknopark, No 8/27
 Umraniye / Istanbul Turkey
www.semtrio.com



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Company Information

Owner of the EPD

NTG PLASTİK SAN. VE TİC. A.Ş

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Founded in 1978 to serve the construction sector, NTG Plastik started HDPE fitting production in 2005, focusing on solutions for water and gas pipelines. Today, NTG Plastik is a leading name in the HDPE fitting industry, delivering durable and reliable products for infrastructure, water management, gas distribution, and industrial applications across domestic and international markets.

Operating from a 32,000m² facility, NTG Plastik ensures the highest quality standards in every step.

Certified by management systems and other international bodies for product conformities such as DVGW, Nordic Poly Mark, BV, GasCert, WRAS, ACS... NTG Plastik emphasizes environmental sustainability and customer satisfaction. NTG Plastik stands out in the market by offering the products with a commitment to quality and high service standards. NTG Plastik stays one step ahead in the market as all of EF and Spigot production, design, R&D, and automation processes are integrated under one roof!

Electrofusion Production

NTG Plastik makes a difference in the market with the high-quality EF products, providing reliable solutions to the customers.

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Spigot Production

Innovative manufacturing techniques and product designs allow NTG Plastik to offer high-performance Spigot products.

Mold Design & Manufacturing

By offering customized product with the ability of mold design & manufacturing, NTG Plastik meets the customers' expectations at the highest level.

Automation Solutions

With the modern automation systems and manufacturing cells, NTG Plastik delivers high efficiency and quality together.

R&D Center

Through the advanced R&D center, NTG Plastik continuously develop innovative solutions.

Geographic Location

Thanks to the strategic location, NTG Plastik provides the fast and effective service to the customers strengthened with its logistics advantages.



Product Information

Product Name: Electrofusion Fittings

Product description and identification:

The products included in the LCA study are:

- Sockets
 - Electrofusion Coupler (cod. 001 117 2160.... / 109 117 2160)
 - Electrofusion Long Coupler (cod. 001 117 2162....)
- Elbows
 - Electrofusion 90° Elbow (cod. 001 117 2021.... / 101 117 2021....)
 - Electrofusion 45° Elbow (cod. 001 117 2022.... / 101 117 2022)
- Tee
 - Electrofusion Equal TEE (cod. 001 117 2041.... / 101 117 2041....)
 - Electrofusion Reduced TEE (cod. 001 117 2042)
- Other Forms
 - Electrofusion End Cap (cod. 001 117 2140)
 - Electrofusion Reducer (cod. 001 117 2080)
- Saddles
 - Electrofusion Spigot Saddle (cod. 001 117 2091)
 - Electrofusion Tapping Saddle (cod. 001 117 2071)
 - Electrofusion Smart TEE (cod. 001 117 2075)
 - Electrofusion Smart TEE With Gas Stop (cod. 001 117 2076)
 - Electrofusion Tapping Valve (cod. 001 117 2072)

UN CPC code: 36320 Tubes, pipes and hoses, and fittings therefor, of plastics

Technical Specifications

The technical features of PE100 are:

Features	Typical values	Unit	Methods test
Density	>950	kg/m ³	ISO 1183
Melt mass-flow rate (MFR) 5 kg/190°C	0,20 – 0,60	g/10 min	ISO 1133
Tensile strength at yield	>22	MPa	ISO 527
Tensile elongation at break	>600	%	ISO 527
Carbon black content	2,0 – 2,5	%	ISO 6964
Linear thermal expansion co-efficient	2,0 x 10 ⁻⁴	m/m °C	
Temperature of brittleness	– 80	°C	ASTM D746

Technical Specifications

The NTG PLASTİK SAN. VE TİC. A.Ş. fittings are constantly monitored throughout the production process in accordance with the provisions of the internal self-control plans derived from EN 1555, EN 12201 and ISO 15494 standard for fittings

The test activities are carried out continuously in full compliance with the standards established by the reference standards and include mechanical and physical tests, performed both on the fitting and on the raw material.

In particular, the production is subjected to the following tests:

- Melt Flow Ratio (MFR): EN ISO 1133-1
- Dimensional check - Examination of the appearance - Verification of marking - Electric resistance: EN 1555, EN 12201, EN ISO 15494, EN ISO 3126
- Resistance to internal hydrostatic pressure at 20°C AND 80°C: EN ISO 1167
- Decohesion test: ISO 13954, ISO 13955, ISO 13956
- Oxidation induction time (OIT): ISO 11357-6

Article code	Article description	Weight (kg)
001 117 2160 0020	20mm EF COUPLER SDR11	0,035
001 117 2160 0025	25mm EF COUPLER SDR11	0,045
001 117 2160 0032	32mm EF COUPLER SDR11	0,055
001 117 2160 0040	40mm EF COUPLER SDR11	0,085
001 117 2160 0050	50mm EF COUPLER SDR11	0,140
001 117 2160 0063	63mm EF COUPLER SDR11	0,204
001 117 2160 0075	75mm EF COUPLER SDR11	0,250
001 117 2160 0250	250mm EF COUPLER SDR11	4,400
001 117 2160 0280	280mm EF COUPLER SDR11	6,730
001 117 2160 0315	315mm EF COUPLER SDR11	8,750
001 117 2160 0355	355mm EF COUPLER SDR11	10,380
001 117 2160 0400	400mm EF COUPLER SDR11	13,970
001 117 2160 0450	450mm EF COUPLER SDR11	20,600
001 117 2160 0500	500mm EF COUPLER SDR11	28,450
001 117 2160 0560	560mm EF COUPLER SDR11	39,500
001 117 2160 0630	630mm EF COUPLER SDR11	53,000
109 117 2160 0710	710mm EF COUPLER SDR11	72,450
109 117 2160 0800	800mm EF COUPLER SDR11	102,490
109 117 2160 0900	900mm EF COUPLER SDR11	137,930
109 117 2160 1000	1000mm EF COUPLER SDR11	187,700
109 117 2160 1200	1200mm EF COUPLER SDR11	285,400
001 115 2160 0110	110mm EF COUPLER SDR17	0,536
001 115 2160 0125	125mm EF COUPLER SDR17	0,745

Article code	Article description	Weight (kg)
001 117 2160 0090	90mm EF COUPLER SDR11	0,440
001 117 2160 0110	110mm EF COUPLER SDR11	0,680
001 117 2160 0125	125mm EF COUPLER SDR11	0,890
001 117 2160 0140	140mm EF COUPLER SDR11	1,036
001 117 2160 0160	160mm EF COUPLER SDR11	1,510
001 117 2160 0180	180mm EF COUPLER SDR11	1,990
001 117 2160 0200	200mm EF COUPLER SDR11	2,425
001 117 2160 0225	225mm EF COUPLER SDR11	3,270
109 115 2160 0800	800mm EF COUPLER SDR17	69,180
109 115 2160 0900	900mm EF COUPLER SDR17	93,150
109 115 2160 1000	1000mm EF COUPLER SDR17	125,650
109 115 2160 1200	1200mm EF COUPLER SDR17	196,450
001 118 2160 0075	75mm EF COUPLER SDR9	0,670
001 118 2160 0090	90mm EF COUPLER SDR9	1,100
001 118 2160 0110	110mm EF COUPLER SDR9	1,300
001 118 2160 0125	125mm EF COUPLER SDR9	1,560
001 118 2160 0140	140mm EF COUPLER SDR9	2,350
001 118 2160 0160	160mm EF COUPLER SDR9	2,750
001 118 2160 0180	180mm EF COUPLER SDR9	3,640
001 118 2160 0200	200mm EF COUPLER SDR9	5,160
001 118 2160 0225	225mm EF COUPLER SDR9	6,680
001 118 2160 0250	250mm EF COUPLER SDR9	8,500

Technical Specifications

Article code	Article description	Weight (kg)
001 115 2160 0140	140mm EF COUPLER SDR17	0,931
001 115 2160 0160	160mm EF COUPLER SDR17	1,188
001 115 2160 0180	180mm EF COUPLER SDR17	1,628
001 115 2160 0200	200mm EF COUPLER SDR17	2,000
001 115 2160 0225	225mm EF COUPLER SDR17	2,647
001 115 2160 0250	250mm EF COUPLER SDR17	3,619
001 115 2160 0280	280mm EF COUPLER SDR17	4,610
001 115 2160 0315	315mm EF COUPLER SDR17	6,440
001 115 2160 0355	355mm EF COUPLER SDR17	7,718
001 115 2160 0400	400mm EF COUPLER SDR17	11,837
001 115 2160 0450	450mm EF COUPLER SDR17	14,070
001 115 2160 0500	500mm EF COUPLER SDR17	19,030
001 115 2160 0560	560mm EF COUPLER SDR17	26,200
001 115 2160 0630	630mm EF COUPLER SDR17	35,850
109 115 2160 0710	710mm EF COUPLER SDR17	49,370
001 117 2021 0160	160mm EF ELBOW 90° SDR11	4,220
001 117 2021 0180	180mm EF ELBOW 90° SDR11	4,650
101 117 2021 0200	200mm EF ELBOW 90° SDR11	5,650
101 117 2021 0225	225mm EF ELBOW 90° SDR11	7,400
101 117 2021 0250	250mm EF ELBOW 90° SDR11	10,690
001 117 2022 0032	32mm EF ELBOW 45° SDR11	0,085
001 117 2022 0040	40mm EF ELBOW 45° SDR11	0,105
001 117 2022 0050	50mm EF ELBOW 45° SDR11	0,145
001 117 2022 0063	63mm EF ELBOW 45° SDR11	0,240
001 117 2022 0075	75mm EF ELBOW 45° SDR11	0,355
001 117 2022 0090	90mm EF ELBOW 45° SDR11	0,560
001 117 2022 0110	110mm EF ELBOW 45° SDR11	0,940
001 117 2022 0125	125mm EF ELBOW 45° SDR11	1,260
001 117 2022 0160	160mm EF ELBOW 45° SDR11	2,640
001 117 2022 0180	180mm EF ELBOW 45° SDR11	3,330
101 117 2022 0200	200mm EF ELBOW 45° SDR11	4,600

Article code	Article description	Weight (kg)
001 118 2160 0280	280mm EF COUPLER SDR9	12,800
001 118 2160 0315	315mm EF COUPLER SDR9	15,350
001 118 2160 0355	355mm EF COUPLER SDR9	28,900
001 118 2160 0400	400mm EF COUPLER SDR9	30,174
001 118 2160 0450	450mm EF COUPLER SDR9	40,139
001 118 2160 0500	500mm EF COUPLER SDR9	54,871
001 118 2160 0560	560mm EF COUPLER SDR9	76,744
001 117 2021 0020	20mm EF ELBOW 90° SDR11	0,060
001 117 2021 0025	25mm EF ELBOW 90° SDR11	0,066
001 117 2021 0032	32mm EF ELBOW 90° SDR11	0,099
001 117 2021 0040	40mm EF ELBOW 90° SDR11	0,120
001 117 2021 0050	50mm EF ELBOW 90° SDR11	0,168
001 117 2021 0063	63mm EF ELBOW 90° SDR11	0,310
001 117 2021 0075	75mm EF ELBOW 90° SDR11	0,436
001 117 2021 0090	90mm EF ELBOW 90° SDR11	0,683
001 117 2021 0110	110mm EF ELBOW 90° SDR11	1,154
001 117 2021 0125	125mm EF ELBOW 90° SDR11	1,637
101 117 2041 0225	225mm EF EQUAL TEE SDR11	9,400
101 117 2041 0250	250mm EF EQUAL TEE SDR11	13,350
001 117 2042 0051	50-40mm EF REDUCED TEE SDR11	0,222
001 117 2042 0064	63-50mm EF REDUCED TEE SDR11	0,345
001 117 2042 0065	63-40mm EF REDUCED TEE SDR11	0,332
001 117 2042 0066	63-32mm EF REDUCED TEE SDR11	0,324
001 117 2042 0076	75-63mm EF REDUCED TEE SDR11	0,598
001 117 2042 0092	90-63mm EF REDUCED TEE SDR11	0,980
001 117 2042 0111	110-90mm EF REDUCED TEE SDR11	1,622
001 117 2042 0113	110-63mm EF REDUCED TEE SDR11	1,530
001 117 2042 0126	125-110mm EF REDUCED TEE SDR11	2,300
001 117 2042 0127	125-90mm EF REDUCED TEE SDR11	2,102
001 117 2042 0129	125-63mm EF REDUCED TEE SDR11	1,975

Technical Specifications

Article code	Article description	Weight (kg)
101 117 2022 0225	225mm EF ELBOW 45° SDR11	5,600
101 117 2022 0250	250mm EF ELBOW 45° SDR11	8,350
001 117 2041 0020	20mm EF EQUAL TEE SDR11	0,062
001 117 2041 0025	25mm EF EQUAL TEE SDR11	0,120
001 117 2041 0032	32mm EF EQUAL TEE SDR11	0,096
001 117 2041 0040	40mm EF EQUAL TEE SDR11	0,170
001 117 2041 0050	50mm EF EQUAL TEE SDR11	0,212
001 117 2041 0063	63mm EF EQUAL TEE SDR11	0,384
001 117 2041 0075	75mm EF EQUAL TEE SDR11	0,598
001 117 2041 0090	90mm EF EQUAL TEE SDR11	0,982
001 117 2041 0110	110mm EF EQUAL TEE SDR11	1,746
001 117 2041 0125	125mm EF EQUAL TEE SDR11	2,400
001 117 2041 0160	160mm EF EQUAL TEE SDR11	4,272
001 117 2041 0180	180mm EF EQUAL TEE SDR11	5,650
101 117 2041 0200	200mm EF EQUAL TEE SDR11	7,300
001 117 2080 0163	160-110mm EF REDUCER SDR11	1,812
001 117 2080 0164	160-90mm EF REDUCER SDR11	1,768
001 117 2080 0183	180-125mm EF REDUCER SDR11	2,256
001 117 2140 0020	20mm EF END CAP SDR11	0,040
001 117 2140 0025	25mm EF END CAP SDR11	0,040
001 117 2140 0032	32mm EF END CAP SDR11	0,058
001 117 2140 0040	40mm EF END CAP SDR11	0,086
001 117 2140 0050	50mm EF END CAP SDR11	0,110
001 117 2140 0063	63mm EF END CAP SDR11	0,148
001 117 2140 0075	75mm EF END CAP SDR11	0,248
001 117 2140 0090	90mm EF END CAP SDR11	0,442
001 117 2140 0110	110mm EF END CAP SDR11	0,623
001 117 2140 0125	125mm EF END CAP SDR11	0,869
001 117 2140 0160	160mm EF END CAP SDR11	1,503
001 117 2140 0180	180mm EF END CAP SDR11	1,794
001 117 2091 0041	40-32mm EF SPIGOT SADDLE SDR11	0,180
001 117 2091 0043	40-20mm EF SPIGOT SADDLE SDR11	0,170

Article code	Article description	Weight (kg)
001 117 2042 0163	160-110mm EF REDUCED TEE SDR11	3,712
001 117 2042 0164	160-90mm EF REDUCED TEE SDR11	3,778
001 117 2042 0166	160-63mm EF REDUCED TEE SDR11	3,552
001 117 2042 0183	180-125mm EF REDUCED TEE SDR11	5,650
001 117 2080 0026	25-20mm EF REDUCER SDR11	0,046
001 117 2080 0033	32-25mm EF REDUCER SDR11	0,067
001 117 2080 0034	32-20mm EF REDUCER SDR11	0,062
001 117 2080 0041	40-32mm EF REDUCER SDR11	0,085
001 117 2080 0051	50-40mm EF REDUCER SDR11	0,130
001 117 2080 0052	50-32mm EF REDUCER SDR11	0,134
001 117 2080 0064	63-50mm EF REDUCER SDR11	0,212
001 117 2080 0065	63-40mm EF REDUCER SDR11	0,170
001 117 2080 0066	63-32mm EF REDUCER SDR11	0,160
001 117 2080 0076	75-63mm EF REDUCER SDR11	0,314
001 117 2080 0092	90-63mm EF REDUCER SDR11	0,374
001 117 2080 0111	110-90mm EF REDUCER SDR11	0,780
001 117 2080 0113	110-63mm EF REDUCER SDR11	0,650
001 117 2080 0127	125-90mm EF REDUCER SDR11	0,912
001 117 2091 0208	180-200/63mm EF SPIGOT SADDLE SDR11	0,810
001 117 2091 0211	180-200/32mm EF SPIGOT SADDLE SDR11	0,760
001 117 2091 0260	225-250/63mm EF SPIGOT SADDLE SDR11	0,860
001 117 2091 0263	225-250/32mm EF SPIGOT SADDLE SDR11	0,810
001 117 2091 0327	280-315/63mm EF SPIGOT SADDLE SDR11	0,940
001 117 2091 0330	280-315/32mm EF SPIGOT SADDLE SDR11	0,900
001 117 2091 0412	315-400x90mm EF SPIGOT SADDLE SDR11	1,898
001 117 2091 0411	315-400x110mm EF SPIGOT SADDLE SDR11	2,000
001 117 2091 0410	315-400x125mm EF SPIGOT SADDLE SDR11	2,124
001 117 2091 0408	315-400x160mm EF SPIGOT SADDLE SDR11	2,486
001 117 2091 0575	450-560x90mm EF SPIGOT SADDLE SDR11	1,811

Technical Specifications

Article code	Article description	Weight (kg)
001 117 2091 0063	63-63mm EF SPIGOT SADDLE SDR11	0,300
001 117 2091 0066	63-32mm EF SPIGOT SADDLE SDR11	0,240
001 117 2091 0076	75-63mm EF SPIGOT SADDLE SDR11	0,310
001 117 2091 0079	75-32mm EF SPIGOT SADDLE SDR11	0,250
001 117 2091 0092	90-63mm EF SPIGOT SADDLE SDR11	0,370
001 117 2091 0095	90-32mm EF SPIGOT SADDLE SDR11	0,300
001 117 2091 0113	110-63mm EF SPIGOT SADDLE SDR11	0,430
001 117 2091 0116	110-32mm EF SPIGOT SADDLE SDR11	0,380
001 117 2091 0129	125-63mm EF SPIGOT SADDLE SDR11	0,450
001 117 2091 0132	125-32mm EF SPIGOT SADDLE SDR11	0,400
001 117 2091 0145	140-63mm EF SPIGOT SADDLE SDR11	0,470
001 117 2091 0148	140-32mm EF SPIGOT SADDLE SDR11	0,420
001 117 2091 0166	160-63mm EF SPIGOT SADDLE SDR11	0,500
001 117 2091 0169	160-32mm EF SPIGOT SADDLE SDR11	0,450
001 117 2071 0077	75-50mm EF TAPPING SADDLE SDR11	0,660
001 117 2071 0078	75-40mm EF TAPPING SADDLE SDR11	0,624
001 117 2071 0079	75-32mm EF TAPPING SADDLE SDR11	0,610
001 117 2071 0080	75-25mm EF TAPPING SADDLE SDR11	0,600
001 117 2071 0081	75-20mm EF TAPPING SADDLE SDR11	0,620
001 117 2071 0092	90-63mm EF TAPPING SADDLE SDR11	0,830
001 117 2071 0093	90-50mm EF TAPPING SADDLE SDR11	0,760
001 117 2071 0094	90-40mm EF TAPPING SADDLE SDR11	0,720
001 117 2071 0095	90-32mm EF TAPPING SADDLE SDR11	0,700
001 117 2071 0096	90-25mm EF TAPPING SADDLE SDR11	0,700
001 117 2071 0097	90-20mm EF TAPPING SADDLE SDR11	0,690
001 117 2071 0113	110-63 EF TAPPING SADDLE SDR11	0,860
001 117 2071 0114	110-50mm EF TAPPING SADDLE SDR11	0,800

Article code	Article description	Weight (kg)
001 117 2091 0574	450-560x110mm EF SPIGOT SADDLE SDR11	1,920
001 117 2091 0573	450-560x125mm EF SPIGOT SADDLE SDR11	2,032
001 117 2091 0571	450-560x160mm EF SPIGOT SADDLE SDR11	2,379
001 117 2091 0919	630-900x90mm EF SPIGOT SADDLE SDR11	1,786
001 117 2091 0918	630-900x110mm EF SPIGOT SADDLE SDR11	1,893
001 117 2091 0917	630-900x125mm EF SPIGOT SADDLE SDR11	2,032
001 117 2091 0915	630-900x160mm EF SPIGOT SADDLE SDR11	2,337
001 117 2071 0041	40-32mm EF TAPPING SADDLE SDR11	0,340
001 117 2071 0042	40-25mm EF TAPPING SADDLE SDR11	0,340
001 117 2071 0043	40-20mm EF TAPPING SADDLE SDR11	0,340
001 117 2071 0052	50-32mm EF TAPPING SADDLE SDR11	0,330
001 117 2071 0053	50-25mm EF TAPPING SADDLE SDR11	0,330
001 117 2071 0054	50-20mm EF TAPPING SADDLE SDR11	0,300
001 117 2071 0063	63-63mm EF TAPPING SADDLE SDR11	0,700
001 117 2071 0064	63-50mm EF TAPPING SADDLE SDR11	0,650
001 117 2071 0065	63-40mm EF TAPPING SADDLE SDR11	0,610
001 117 2071 0066	63-32mm EF TAPPING SADDLE SDR11	0,590
001 117 2071 0067	63-25mm EF TAPPING SADDLE SDR11	0,590
001 117 2071 0068	63-20mm EF TAPPING SADDLE SDR11	0,590
001 117 2071 0076	75-63mm EF TAPPING SADDLE SDR11	0,730
001 117 2071 0168	160-40mm EF TAPPING SADDLE SDR11	0,960
001 117 2071 0169	160-32mm EF TAPPING SADDLE SDR11	0,930
001 117 2071 0170	160-25mm EF TAPPING SADDLE SDR11	0,920
001 117 2071 0171	160-20mm EF TAPPING SADDLE SDR11	0,910
001 117 2071 0187	180-63mm EF TAPPING SADDLE SDR11	1,130
001 117 2071 0188	180-50mm EF TAPPING SADDLE SDR11	1,040
001 117 2071 0189	180-40mm EF TAPPING SADDLE SDR11	0,980

Technical Specifications

Article code	Article description	Weight (kg)
001 117 2071 0115	110-40mm EF TAPPING SADDLE SDR11	0,736
001 117 2071 0116	110-32mm EF TAPPING SADDLE SDR11	0,740
001 117 2071 0117	110-25mm EF TAPPING SADDLE SDR11	0,730
001 117 2071 0118	110-20mm EF TAPPING SADDLE SDR11	0,716
001 117 2071 0129	125-63mm EF TAPPING SADDLE SDR11	0,890
001 117 2071 0130	125-50mm EF TAPPING SADDLE SDR11	0,819
001 117 2071 0131	125-40mm EF TAPPING SADDLE SDR11	0,800
001 117 2071 0132	125-32mm EF TAPPING SADDLE SDR11	0,780
001 117 2071 0133	125-25mm EF TAPPING SADDLE SDR11	0,775
001 117 2071 0134	125-20mm EF TAPPING SADDLE SDR11	0,700
001 117 2071 0145	140-63mm EF TAPPING SADDLE SDR11	1,010
001 117 2071 0146	140-50mm EF TAPPING SADDLE SDR11	0,950
001 117 2071 0147	140-40mm EF TAPPING SADDLE SDR11	0,900
001 117 2071 0148	140-32mm EF TAPPING SADDLE SDR11	0,880
001 117 2071 0149	140-25mm EF TAPPING SADDLE SDR11	0,870
001 117 2071 0150	140-20mm EF TAPPING SADDLE SDR11	0,860
001 117 2071 0166	160-63mm EF TAPPING SADDLE SDR11	1,060
001 117 2071 0167	160-50mm EF TAPPING SADDLE SDR11	1,000
001 117 2071 0294	280-32mm EF TAPPING SADDLE SDR11	1,240
001 117 2071 0295	280-25mm EF TAPPING SADDLE SDR11	1,310
001 117 2071 0296	280-20mm EF TAPPING SADDLE SDR11	1,510
001 117 2071 0327	315-63mm EF TAPPING SADDLE SDR11	1,370
001 117 2071 0328	315-50mm EF TAPPING SADDLE SDR11	1,298
001 117 2071 0329	315-40mm EF TAPPING SADDLE SDR11	1,270
001 117 2071 0330	315-32mm EF TAPPING SADDLE SDR11	1,310
001 117 2071 0331	315-25mm EF TAPPING SADDLE SDR11	1,330
001 117 2071 0332	315-20mm EF TAPPING SADDLE SDR11	1,520

Article code	Article description	Weight (kg)
001 117 2071 0190	180-32mm EF TAPPING SADDLE SDR11	1,000
001 117 2071 0191	180-25mm EF TAPPING SADDLE SDR11	0,950
001 117 2071 0192	180-20mm EF TAPPING SADDLE SDR11	0,995
001 117 2071 0208	200-63mm EF TAPPING SADDLE SDR11	1,200
001 117 2071 0209	200-50mm EF TAPPING SADDLE SDR11	1,100
001 117 2071 0210	200-40mm EF TAPPING SADDLE SDR11	1,050
001 117 2071 0211	200-32mm EF TAPPING SADDLE SDR11	1,060
001 117 2071 0212	200-25mm EF TAPPING SADDLE SDR11	1,050
001 117 2071 0213	200-20mm EF TAPPING SADDLE SDR11	1,040
001 117 2071 0234	225-63mm EF TAPPING SADDLE SDR11	1,260
001 117 2071 0235	225-50mm EF TAPPING SADDLE SDR11	1,190
001 117 2071 0236	225-40mm EF TAPPING SADDLE SDR11	1,140
001 117 2071 0237	225-32mm EF TAPPING SADDLE SDR11	1,100
001 117 2071 0238	225-25mm EF TAPPING SADDLE SDR11	1,070
001 117 2071 0239	225-20mm EF TAPPING SADDLE SDR11	1,100
001 117 2071 0260	250-63mm EF TAPPING SADDLE SDR11	1,290
001 117 2071 0261	250-50mm EF TAPPING SADDLE SDR11	1,220
001 117 2071 0262	250-40mm EF TAPPING SADDLE SDR11	1,200
001 117 2071 0263	250-32mm EF TAPPING SADDLE SDR11	1,140
001 117 2071 0264	250-25mm EF TAPPING SADDLE SDR11	1,120
001 117 2071 0265	250-20mm EF TAPPING SADDLE SDR11	1,120
001 117 2071 0291	280-63mm EF TAPPING SADDLE SDR11	1,350
001 117 2071 0292	280-50mm EF TAPPING SADDLE SDR11	1,280
001 117 2071 0293	280-40mm EF TAPPING SADDLE SDR11	1,250
001 117 2076 0066	63-32mm EF SMART TEE WITH GAS STOP SDR11	0,400
001 117 2076 0068	63-20mm EF SMART TEE WITH GAS STOP SDR11	0,375

Technical Specifications

Article code	Article description	Weight (kg)
001 117 2075 0041	40-32mm EF SMART TEE SDR11	0,300
001 117 2075 0042	40-25mm EF SMART TEE SDR11	0,290
001 117 2075 0043	40-20mm EF SMART TEE SDR11	0,285
001 117 2075 0066	63-32mm EF SMART TEE SDR11	0,385
001 117 2075 0067	63-25mm EF SMART TEE SDR11	0,375
001 117 2075 0068	63-20mm EF SMART TEE SDR11	0,370
001 117 2075 0097	90-20mm EF SMART TEE SDR11	0,460
001 117 2075 0096	90-25mm EF SMART TEE SDR11	0,470
001 117 2075 0095	90-32mm EF SMART TEE SDR11	0,490
001 117 2075 0118	110-20mm EF SMART TEE SDR11	0,470
001 117 2075 0117	110-25mm EF SMART TEE SDR11	0,480
001 117 2075 0116	110-32mm EF SMART TEE SDR11	0,500
001 117 2075 0132	125-32mm EF SMART TEE SDR11	0,520
001 117 2075 0133	125-25mm EF SMART TEE SDR11	0,500
001 117 2075 0134	125-20mm EF SMART TEE SDR11	0,490
001 117 2075 0148	140-32mm EF SMART TEE SDR11	0,525
001 117 2075 0149	140-25mm EF SMART TEE SDR11	0,505
001 117 2075 0150	140-20mm EF SMART TEE SDR11	0,495
001 117 2075 0169	160-32mm EF SMART TEE SDR11	0,530
001 117 2075 0170	160-25mm EF SMART TEE SDR11	0,510
001 117 2075 0171	160-20mm EF SMART TEE SDR11	0,500
001 117 2076 0041	40-32mm EF SMART TEE WITH GAS STOP SDR11	0,315
001 117 2076 0043	40-20mm EF SMART TEE WITH GAS STOP SDR11	0,290

Article code	Article description	Weight (kg)
001 117 2076 0095	90-32mm EF SMART TEE WITH GAS STOP SDR11	0,505
001 117 2076 0097	90-20mm EF SMART TEE WITH GAS STOP SDR11	0,465
001 117 2076 0116	110-32mm EF SMART TEE WITH GAS STOP SDR11	0,515
001 117 2076 0118	110-20mm EF SMART TEE WITH GAS STOP SDR11	0,475
001 117 2076 0132	125-32mm EF SMART TEE WITH GAS STOP SDR11	0,535
001 117 2076 0134	125-20mm EF SMART TEE WITH GAS STOP SDR11	0,495
001 117 2072 0092	90-63mm EF TAPPING VALVE SDR11	2,450
001 117 2072 0095	90-32mm EF TAPPING VALVE SDR11	2,390
001 117 2072 0113	110-63mm EF TAPPING VALVE SDR11	2,510
001 117 2072 0116	110-32mm EF TAPPING VALVE SDR11	2,450
001 117 2072 0129	125-63mm EF TAPPING VALVE SDR11	2,540
001 117 2072 0132	125-32mm EF TAPPING VALVE SDR11	2,480
001 117 2072 0145	140-63mm EF TAPPING VALVE SDR11	2,540
001 117 2072 0148	140-32mm EF TAPPING VALVE SDR11	2,480
001 117 2072 0166	160-63mm EF TAPPING VALVE SDR11	2,550
001 117 2072 0169	160-32mm EF TAPPING VALVE SDR11	2,490
001 117 2072 0208	180-200/63mm EF TAPPING VALVE SDR11	2,670
001 117 2072 0211	180-200/32mm EF TAPPING VALVE SDR11	2,610
001 117 2072 0260	225-250/63mm EF TAPPING VALVE SDR11	2,690
001 117 2072 0263	225-250/32mm EF TAPPING VALVE SDR11	2,630
001 117 2072 0327	280-315/63mm EF TAPPING VALVE SDR11	3,090
001 117 2072 0330	280-315/32mm EF TAPPING VALVE SDR11	3,030
001 117 2162 0020	20 EF LONG COUPLER SDR11	0,076
001 117 2162 0032	32 EF LONG COUPLER SDR11	0,126

LCA Information

Declared Unit

The declared unit is a 1 kg of electrofusion fitting

Reference Service Life

Not applicable.

Time Representativeness

The production data in this LCA study represents the period of 1 January - 31 December 2023.

Database(s) and LCA software used

SimaPro LCA v9.6.0.1 software with Ecoinvent v3.10

Description of System Boundaries

Cradle to gate with options, modules C1–C4, module D and with optional modules A4–A5 (A1–A3 + C + D and A4-5).

Data Quality and Data Collection

According to EN 15804:2012+A2:2019 specific data was used for module A3 (Processes the manufacturer has influence over) and was gathered from the manufacturing plant. Specific data includes actual product weights, amounts of raw materials used, product content, energy consumption, transport figures and amounts of wastes. For A1 and A2 modules, according to EN 15804:2012+A2:2019, generic data was applied and was obtained from Ecoinvent v3.10

Allocation

Consumption of electricity and diesel is allocated based on products that are being produced.

Cut-off Rules

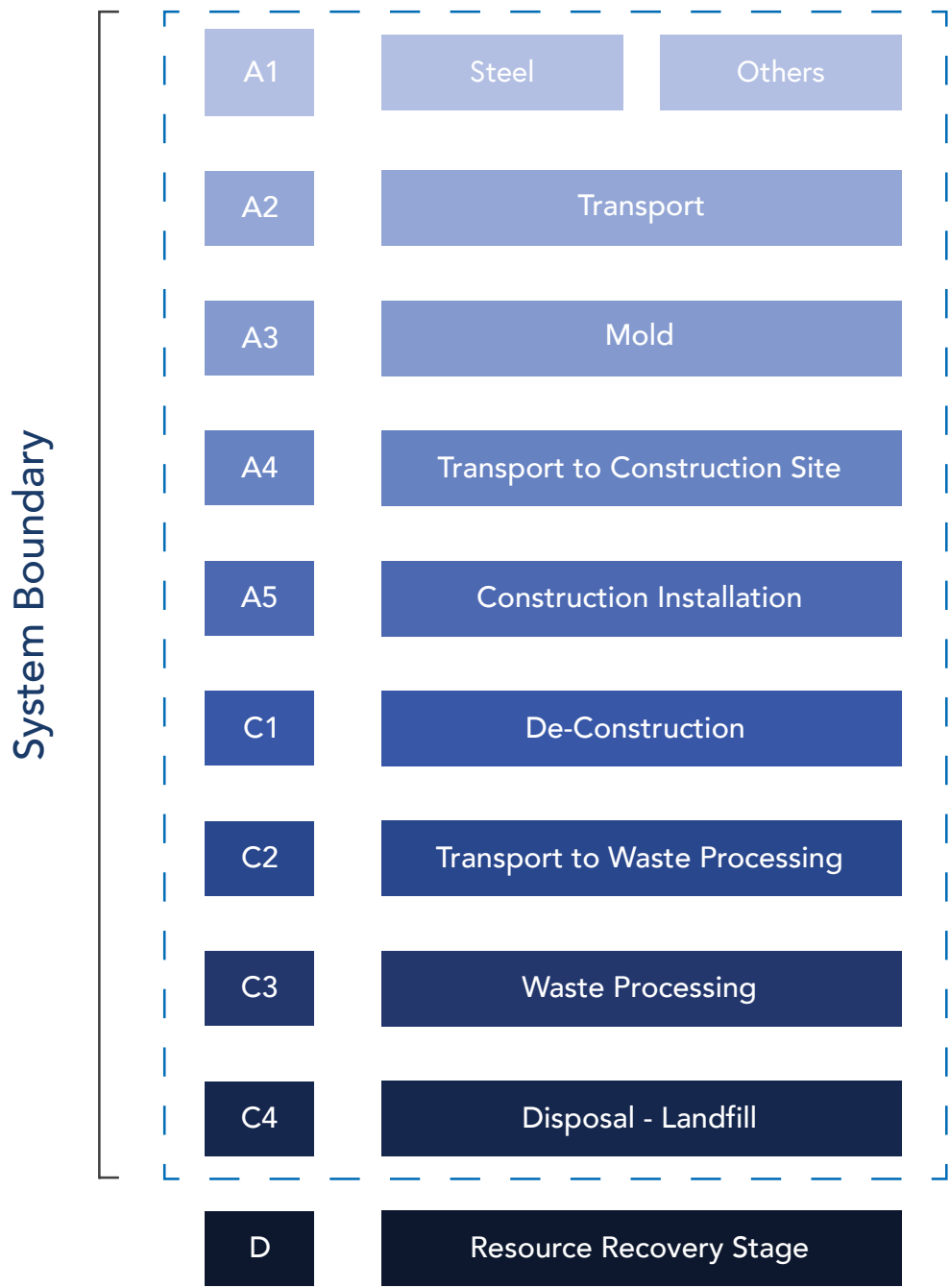
Life Cycle Inventory data for a minimum of 99 % of total inflow to the three life cycle stages have been included and a cut-off rule of 1% regarding energy, mass, and environmental relevance was applied.

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

	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	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	TR	GLO	GLO	-	-	-	-	-	-	-	GLO	GLO	GLO	GLO	GLO
Specific data use	>34%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation-products	<10%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation-sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

X: Declared, ND: Not declared.

System Diagram



Description of Declared Modules

A1 - Raw Materials Supply

This module represents raw material extraction, processing and energy used in the production process.

A2 - Transport to the Manufacturer

This module includes transportation of the raw materials from supplier to factory gate. Transportation methods are considered as roadway and seaway.

A3 - Manufacturing

This stage includes energy during the manufacturing process. Furthermore, this module also addresses packaging materials and includes the management of any waste generated during this stage. The parameter "Electricity, medium voltage {TR} market for electricity, medium voltage | EN15804, S" was used in modeling for electricity. For 1 kWh of electricity, 0.56728081 kgCO_{2e} emissions are released.

A1-3 - Cradle to gate – Mandatory Module

The aggregation of the modules A1, A2 and A3 is allowed by EN 15804:2012+A2:2019. This rule is applied in this EPD and denoted by A1-3. This module encompasses the extraction and processing of raw materials, their transportation to production facilities, as well as the manufacturing and packaging processes.

A4 - Transport to construction site – Voluntary Optional Module

An average distance of 100 km has been assumed for transportation to the construction site. The calculation is based on a scenario using the parameters outlined in the table below.

Parameters A4 Module	
Transport by road*	Lorry >32 metric ton
Distance (km)	100
Database	Ecoinvent v3.10

A5 - Construction installation - Voluntary Optional Module

An average installation machine electricity consumption assumed. It is calculated on the basis of a scenario with the parameters described in the table below.

Parameters A5 Module	
Electricity, kWh	1.7

C1 - De-construction

The demolition of transition fittings from the base construction is assumed to be carried out manually. Based on the assumed scenario, the environmental impact of the deconstruction process is excluded from the scope of this study.

C2 - Transport to Waste Processing – Mandatory Module

It has been assumed that the transportation to the sorting facility covers an average distance of 100 km. Transport is calculated on the basis of a scenario with the parameters described in the attached table.

Parameters C2 Module	
Transport by road*	Lorry >32 metric ton
Distance (km)	100
Database	Ecoinvent v3.10

*Technology is Euro 6

C3 - Waste Processing for Reuse, Recovery and/or Recycling – Mandatory Module

This module covers the energy consumption needed for sorting transition fittings during the recycling process.

C4 - Final Disposal – Mandatory Module

All end-of-life products will be collected and recycled back into the production system, including the electrofusion fitting. A total of 76.60% of these products are recycled and reused in construction projects or material production, while the remaining 23.4% are sent to landfill. The recovery rates for plastics are based on data from the AF Plastics, assuming a 76.6% recovery rate and 23.4% going to landfill.

D - Reuse, recovery or recycling – Mandatory Module

Module D includes the environmental aspects of recycled material generated at the end-of-life minus that used Module A1, which stands for the extraction and processing during the production stage. Module D reports the environmental aspects of recycled material generated at the end of life minus that used at the production stage.

This LCA and the EPD only cover the Cradle to Gate A1-3, A4-5 and C1-4 and D stages because other stages are very dependent on particular scenarios and are better developed.

Content Declaration Including Packaging

Material	Weight, kg
Steel	0.85-0.90
Others	0.10-0.15
Biogenic Carbon	0

Material	Weight, kg	Biogenic Carbon, kg
Wood	0-0.10	0-0.05
Kraft Paper	0-0.10	0-0.05
Plastic	0-0.05	-

Environmental Information

Potential Environmental Impact –

Mandatory Indicators According to EN 15804:2012+A2:2019/AC:2021

Results for 1 kg of Electrofusion Fitting									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ eq.	4.86	0.011	0.560	0	0.011	0.265	0.033	-1.84
GWP -biogenic	kg CO ₂ eq.	0.391	5.16E-05	0.086	0	5.16E-05	0.008	5.24E-05	-0.051
GWP-luluc	kg CO ₂ eq.	0.019	4.40E-06	0.002	0	4.40E-06	0.003	1.53E-06	-0.001
GWP-total	kg CO ₂ eq.	5.27	0.011	0.648	0	0.011	0.276	0.033	-1.89
ODP	kg CFC 11eq.	1.21E-07	1.65E-10	9.46E-09	0	1.65E-10	1.52E-09	6.70E-11	-7.74E-08
AP	mol H ⁺ eq.	0.045	2.65E-05	0.003	0	2.65E-05	0.002	1.86E-05	-0.005
EP-freshwater	kg P eq.	3.10E-04	9.78E-08	5.25E-05	0	9.78E-08	2.84E-05	3.23E-08	-3.68E-05
EP-marine	kg N eq.	0.004	6.56E-06	3.73E-04	0	6.56E-06	2.48E-04	9.16E-06	-0.001
EP-terrestrial	mol N eq.	0.052	7.27E-05	0.004	0	7.27E-05	0.003	7.60E-05	-0.011
POCP	kg NMVOC eq.	0.024	4.01E-05	0.001	0	4.01E-05	0.001	3.30E-05	-0.010
ADP minerals & metals*	kg Sb eq.	3.73E-04	2.93E-08	0.000	0	2.93E-08	2.92E-07	5.72E-09	-1.53E-05
ADP-fossil*	MJ	101	0.156	13.01	0	0.156	2.89	0.058	-54.8
WDP*	m ³	1.80	0.001	0.422	0	0.001	0.092	-0.037	-0.506

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.

** 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.

Environmental Information

Potential Environmental Impact –

Mandatory Indicators According to EN 15804:2012+A2:2019/AC:2021

Results according to PCR2019:14 for 1 kg of Electrofusion Fitting									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-GHG1	kg CO ₂ eq.	5.27	0.011	0.648	0	0.011	0.276	0.033	-1.89
Results according to EN 15804+A2 for 1 kg of Electrofusion Fitting									
PM	[disease inc.]	1.79E-07	1.02E-09	8.27E-09	0	1.02E-09	7.55E-09	4.14E-10	-4.16E-08
IRP	[kBq U235 eq]	0.086	5.37E-05	0.115	0	5.37E-05	0.001	2.25E-05	-0.046
ETP-fw	[CTUe]	288	0.167	13.8	0	0.167	6.61	0.170	-42.0
HT-C	[CTUh]	2.02E-08	5.34E-11	1.12E-09	0	5.34E-11	3.07E-10	1.53E-11	-6.91E-09
HT-nc	[CTUh]	3.31E-07	1.29E-10	5.65E-09	0	1.29E-10	2.10E-09	7.89E-10	-1.82E-08
SQP	[pt]	37.1	0.157	2.21	0	0.157	0.359	0.136	-4.91

Acronyms

GWP-GHG = Global Warming Potential total excl. biogenic carbon following IPCC AR5 methodology; PM = Potential incidence of disease due to PM emissions; IRP = Potential Human exposure efficiency relative to U235; ETP-fw = Potential Comparative Toxic Unit for ecosystems; HT-C = Potential Comparative Toxic Unit for humans; HT-nc = Potential Comparative Toxic Unit for humans; SQP = Potential soil quality index (SQP)

* 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.

** 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.

Environmental Information

Use of Resources

Results for 1 kg of Electrofusion Fitting									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	13.8	0.002	3.04	0	0.002	1.22	0.001	-1.50
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	13.8	0.002	3.04	0	0.002	1.22	0.001	-1.50
PENRE	MJ	109	0.166	13.5	0	0.166	3.10	0.062	-58.9
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	109	0.166	13.5	0	0.166	3.10	0.062	-58.9
SM	kg	0	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	0.345	1.47E-04	0.096	0	1.47E-04	0.016	1.15E-04	-0.149

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

* 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.

** 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.

Environmental Information

Waste Production

Results for 1 kg of Electrofusion Fitting									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	0	0	0	0	0	0	0	0
Non-hazardous waste disposed	kg	0	0	0	0	0	0	0	0
Radioactive waste disposed	kg	0	0	0	0	0	0	0	0

Output Flows

Results for 1 kg of Electrofusion Fitting									
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	0.068	0	0	0	0	0	0	0
Materials for energy recovery	kg	0.002	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0

References

- ISO 14040 Environmental management - Life cycle assessment - Principles and framework
- ISO 14044 2006 Environmental management - Life cycle assessment - Requirements and guidelines
- ISO 14025 2006 Environmental labels and declarations - Type III environmental declarations - Principles and procedures
- ISO 14021 2016 Environmental labels and declarations
- ISO 14020 2000 Environmental labels and declarations - General principles
- EN 15804:2012+A2:2019 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
- The International EPD® System www.environdec.com
- The International EPD® System The General Programme Instructions v5.0.0
<https://www.environdec.com/resources/documentation#generalprogrammeinstructions>
- Ecoinvent 3.10 www.ecoinvent.org
- SimaPro LCA Software www.simapro.com
- NTG Plastik www.ntgplastik.com
- EN 15804 reference package based on EF 3.1 eplca.jrc.ec.europa.eu

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LCA, GHG and ESG Consultants

Owner of Declaration

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