Environmental Product Declaration

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

TRANSITION 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	Programme Operator	Geographical Scope	Licensee
The International EPD® System, www.environdec.com EPD® Turkey, www.epdturkey.org	EPD International AB	Global	EPD Türkiye

EPD Registration Number	Publication Date	Valid Until
EPD-IES-0003192	2025-02-14	2030-02-13

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 "

Programme Information

Programme Information

Programme: The International EPD® System
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Licensee: EPD Türkiye SÜRATAM Sürdürülebilirlik Danışmanlığı A.Ş.
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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 - sunil@sipl-sustainability.com

Approved by
The International EPD®
System Technical Committee, supported by the Secretaria

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

☐ Yes ☑ No

LCA Study & EPD Design Conducted by

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BUDOTEK Teknopark, No 8/27
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SEMTRIO

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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 p oduction in 2005, focusing on solutions for water and gas pipelines. Today, NTG Plastik is a leading name in the HDPE fitting industr , 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.

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: Transition Fittings

Product description and identification:

The products included in the LCA study are:

o Steel
- Backing Flange, PP Steel (Metric) PN16 (cod. 001 517 7120 ….)
- Backing Flange, PP Steel (Metric) PN10 (cod. 001 515 7120 ….)
- Backing Flange, PP Steel (Ansi) (cod. 001 530 7121 ….)
- Transition Adaptor PE-STEEL (cod. 001 117 6180 ….)
- Transition Adaptor PE (Male Thread) (cod. 001 117 6210 ….)
- Transition Adaptor PE-BRASS (MS58) (Male Thread) (cod. 001 117 6205 ….)
- Transition Adaptor PE (Female Thread) (cod. 001 117 6211 ….)
- Transition Adaptor PE-BRASS (MS58) (Female Thread) (cod. 001 117 6206 ….)

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/m3	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 a e 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
- Resistance to internal hydrostatic pressure at 20°C AND 80°C: EN ISO 1167
- Impact resistance: EN 1716
- Oxidation induction time (OIT): ISO 11357-6
- Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, clas designated: ISO 7005
- Flanges and their joints - Circular flanges for pipes, fittings and accessories: EN 10
- BS 4504
- Cast iron pipe flanges: DIN 250
- Machine Made (Glass-Fiber-Reinforced Thermosetting Resin) Flanges ASTM D4024
- Flanges and their joints: BS EN 1759
- Pipe Flanges and Flanged Fittings: ANSI ASME B16,5 class 150

Article code	Article description	Weight (kg)
001 517 7120 0020	20mm DN15 BACKING FLANGE PP STEEL PN16	0,230
001 517 7120 0025	25mm DN20 BACKING FLANGE PP STEEL PN16	0,285
001 517 7120 0032	32mm DN25 BACKING FLANGE PP STEEL PN16	0,545
001 517 7120 0040	40mm DN32 BACKING FLANGE PP STEEL PN16	0,740
001 517 7120 0050	50mm DN40 BACKING FLANGE PP STEEL PN16	0,910
001 517 7120 0063	63mm DN50 BACKING FLANGE PP STEEL PN16	1,060
001 517 7120 0075	75mm DN65 BACKING FLANGE PP STEEL PN16	1,355
001 517 7120 0250	250mm DN250 BACKING FLANGE PP STEEL PN16	10,740
001 517 7120 0280	280mm DN250 BACKING FLANGE PP STEEL PN16	10,095
001 517 7120 0315	315mm DN300 BACKING FLANGE PP STEEL PN16	13,680
001 517 7120 0355	355mm DN350 BACKING FLANGE PP STEEL PN16	22,365
001 517 7120 0400	400mm DN400 BACKING FLANGE PP STEEL PN16	27,610
001 515 7120 0200	200mm DN200 BACKING FLANGE PP STEEL PN10	5,545
001 515 7120 0225	225mm DN200 BACKING FLANGE PP STEEL PN10	5,605
001 515 7120 0250	250mm DN250 BACKING FLANGE PP STEEL PN10	7,540
001 515 7120 0280	280mm DN250 BACKING FLANGE PP STEEL PN10	7,530
001 515 7120 0315	315mm DN300 BACKING FLANGE PP STEEL PN10	9,400

Article code	Article description	Weight (kg)
001 517 7120 0090	90mm DN80 BACKING FLANGE PP STEEL PN16	1,555
001 517 7120 0110	110mm DN100 BACKING FLANGE PP STEEL PN16	1,970
001 517 7120 0125	125mm DN100 BACKING FLANGE PP STEEL PN16	1,845
001 517 7120 0140	140mm DN125 BACKING FLANGE PP STEEL PN16	2,740
001 517 7120 0160	160mm DN150 BACKING FLANGE PP STEEL PN16	3,600
001 517 7120 0180	180mm DN150 BACKING FLANGE PP STEEL PN16	3,310
001 517 7120 0200	200mm DN200 BACKING FLANGE PP STEEL PN16	5,155
001 517 7120 0225	225mm DN200 BACKING FLANGE PP STEEL PN16	5,170
001 530 7121 0400	400mm DN400 16" BACKING FLANGE PP STEEL (ANSI) CLASS 150	31,470
001 117 6180 0025	25mm ¾" TRANSITION ADAPTOR PE- STEEL PN16	0,695
001 117 6183 0032	32mm 1" TRANSITION ADAPTOR PE- STEEL PN16	1,000
001 117 6180 0040	40mm 1¼" TRANSITION ADAPTOR PE- STEEL PN16	1,295
001 117 6180 0050	50mm 1½" TRANSITION ADAPTOR PE- STEEL PN16	1,580
001 117 6183 0063	63mm 2" TRANSITION ADAPTOR PE- STEEL PN16	2,300
001 117 6180 0075	75mm 2½" TRANSITION ADAPTOR PE- STEEL PN16	4,005
001 117 6180 0090	90mm 3" TRANSITION ADAPTOR PE- STEEL PN16	5,390
001 117 6180 0110	110mm 4" TRANSITION ADAPTOR PE- STEEL PN16	7,545

Technical Specifications

Article code	Article description	Weight (kg)
001 515 7120 0355	355mm DN350 BACKING FLANGE PP STEEL PN10	19,515
001 515 7120 0400	400mm DN400 BACKING FLANGE PP STEEL PN10	21,420
001 515 7120 0450	450mm DN450 BACKING FLANGE PP STEEL PN10	27,950
001 515 7120 0500	500mm DN500 BACKING FLANGE PP STEEL PN10	34,610
001 515 7120 0560	560mm DN600 BACKING FLANGE PP STEEL PN10	49,500
001 515 7120 0630	630mm DN600 BACKING FLANGE PP STEEL PN10	41,190
001 530 7121 0020	20mm DN15 ½" BACKING FLANGE PP STEEL (ANSI) CLASS 150	0,210
001 530 7121 0025	25mm DN20 ¾" BACKING FLANGE PP STEEL (ANSI) CLASS 150	0,235
001 530 7121 0032	32mm DN25 1" BACKING FLANGE PP STEEL (ANSI) CLASS 150	0,475
001 530 7121 0040	40mm DN32 1¼" BACKING FLANGE PP STEEL (ANSI) CLASS 150	0,670
001 530 7121 0050	50mm D40 1½" BACKING FLANGE PP STEEL (ANSI) CLASS 150	0,610
001 530 7121 0063	63mm DN50 2" BACKING FLANGE PP STEEL (ANSI) CLASS 150	1,020
001 530 7121 0075	75mm DN65 2½" BACKING FLANGE PP STEEL (ANSI) CLASS 150	1,290
001 530 7121 0090	90mm DN80 3" BACKING FLANGE PP STEEL (ANSI) 150	1,450
001 530 7121 0110	110mm DN100 4" BACKING FLANGE PP STEEL (ANSI) CLASS 150	1,935
001 530 7121 0160	160mm DN150 6" BACKING FLANGE PP STEEL (ANSI) CLASS 150	3,935
001 530 7121 0180	180mm DN150 6" BACKING FLANGE PP STEEL (ANSI) CLASS 150	3,330
001 530 7121 0200	200mm DN200 8" BACKING FLANGE PP STEEL (ANSI) CLASS 150	5,090
001 530 7121 0250	250mm DN250 10" BACKING FLANGE PP STEEL (ANSI) CLASS 150	9,780
001 530 7121 0315	315mm DN300 12" BACKING FLANGE PP STEEL (ANSI) CLASS 150	14,410

Article code	Article description	Weight (kg)
001 117 6180 0125	125mm 4" TRANSITION ADAPTOR PE- STEEL PN16	7,950
001 117 6180 1256	125mm 6" TRANSITION ADAPTOR PE- STEEL PN16	14,910
001 117 6180 0160	160mm 6" TRANSITION ADAPTOR PE- STEEL PN16	17,745
001 117 6180 0180	180mm 6" TRANSITION ADAPTOR PE- STEEL PN16	18,565
001 117 6180 0200	200mm 8" TRANSITION ADAPTOR PE- STEEL PN16	37,500
001 117 6180 0225	225mm 8" TRANSITION ADAPTOR PE- STEEL PN16	40,000
001 117 6180 0250	250mm 10" TRANSITION ADAPTOR PE- STEEL PN16	70,000
001 117 6180 0280	280mm 10" TRANSITION ADAPTOR PE- STEEL PN16	68,500
001 117 6180 0315	315mm 12" TRANSITION ADAPTOR PE- STEEL PN16	107,000
001 117 6210 0020	20mm ½" TRANSITION ADAPTOR PE MALE THREAD PN16	0,019
001 117 6210 0025	25mm ¾" TRANSITION ADAPTOR PE MALE THREAD PN16	0,030
001 117 6210 0032	32mm 1" TRANSITION ADAPTOR PE MALE THREAD PN16	0,040
001 117 6210 4001	40mm 1" TRANSITION ADAPTOR PE MALE THREAD PN16	0,060
001 117 6210 0040	40mm 1¼" TRANSITION ADAPTOR PE MALE THREAD PN16	0,065
001 117 6210 0050	50mm 1½" TRANSITION ADAPTOR PE MALE THREAD PN16	0,095
001 117 6210 6301	63mm 1½" TRANSITION ADAPTOR PE MALE THREAD PN16	0,160
001 117 6210 0063	63mm 2" TRANSITION ADAPTOR PE MALE THREAD PN16	0,175
001 117 6205 0020	20mm ½" TRANSITION ADAPTOR PE-BRASS (MS58) MALE THREAD PN10	0,060
001 117 6205 0025	25mm ¾" TRANSITION ADAPTOR PE-BRASS (MS58) MALE THREAD PN10	0,100
001 117 6205 3201	32mm ¾" TRANSITION ADAPTOR PE-BRASS (MS58) MALE THREAD PN10	0,130

Technical Specifications

Article code	Article description	Weight (kg)
001 530 7121 0355	355mm DN350 14" BACKING FLANGE PP STEEL (ANSI) CLASS 150	24,750
001 117 6205 0050	50mm 1½" TRANSITION ADAPTOR PE-BRASS (MS58) MALE THREAD PN10	0,370
001 117 6205 0063	63mm 2" TRANSITION ADAPTOR PE-BRASS (MS58) MALE THREAD PN10	0,560
001 117 6200 0075	75mm 2½" TRANSITION ADAPTOR PE-BRASS (MS58) MALE THREAD PN10	0,980
001 117 6200 0090	90mm 3" TRANSITION ADAPTOR PE-BRASS (MS58) MALE THREAD PN10	1,410
001 117 6200 0110	110mm 4" TRANSITION ADAPTOR PE-BRASS (MS58) MALE THREAD PN10	2,080
001 117 6200 0125	125mm 4" TRANSITION ADAPTOR PE-BRASS (MS58) MALE THREAD PN10	2,230
001 117 6211 0020	20mm ½" TRANSITION ADAPTOR PE FEMALE THREAD PN10	0,025
001 117 6211 0025	25mm ¾" TRANSITION ADAPTOR PE FEMALE THREAD PN10	0,033
001 117 6211 0032	32mm 1" TRANSITION ADAPTOR PE FEMALE THREAD PN10	0,060
001 117 6211 4001	40mm 1" TRANSITION ADAPTOR PE FEMALE THREAD PN10	0,110
001 117 6211 0040	40mm 1¼" TRANSITION ADAPTOR PE FEMALE THREAD PN10	0,100
001 117 6211 0050	50mm 1½" TRANSITION ADAPTOR PE FEMALE THREAD PN10	0,135
001 117 6211 6301	63mm 1½" TRANSITION ADAPTOR PE FEMALE THREAD PN10	0,170
001 117 6211 0063	63mm 2" TRANSITION ADAPTOR PE FEMALE THREAD PN10	0,170
001 117 6206 0020	20mm ½" TRANSITION ADAPTOR PE-BRASS (MS58) FEMALE THREAD PN10	0,065
001 117 6206 0025	25mm ¾" TRANSITION ADAPTOR PE-BRASS (MS58) FEMALE THREAD PN10	0,095
001 117 6206 0032	32mm 1" TRANSITION ADAPTOR PE-BRASS (MS58) FEMALE THREAD PN10	0,145
001 117 6206 0040	40mm 1¼" TRANSITION ADAPTOR PE-BRASS (MS58) FEMALE THREAD PN10	0,270
001 117 6206 0050	50mm 1½" TRANSITION ADAPTOR PE-BRASS (MS58) FEMALE THREAD PN10	0,375
001 117 6206 0063	63mm 2" TRANSITION ADAPTOR PE-BRASS (MS58) FEMALE THREAD PN10	0,550

Article code	Article description	Weight (kg)
001 117 6205 0032	32mm 1" TRANSITION ADAPTOR PE-BRASS (MS58) MALE THREAD PN10	0,140
001 117 6205 0040	40mm 1¼" TRANSITION ADAPTOR PE-BRASS (MS58) MALE THREAD PN10	0,255
001 117 6201 0075	75mm 2½" TRANSITION ADAPTOR PE-BRASS (MS58) FEMALE THREAD PN10	0,825
001 117 6201 0090	90mm 3" TRANSITION ADAPTOR PE-BRASS (MS58) FEMALE THREAD PN10	1,130
001 117 6201 0110	110mm 4" TRANSITION ADAPTOR PE-BRASS (MS58) FEMALE THREAD PN10	1,690
001 117 6201 0125	125mm 4" TRANSITION ADAPTOR PE-BRASS (MS58) FEMALE THREAD PN10	1,760

LCA Information

Declared Unit

The declared unit is a 1 kg of transition 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 i cludes actual product weights, amounts of raw materials used, product content, energy consumption, transport figures an 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

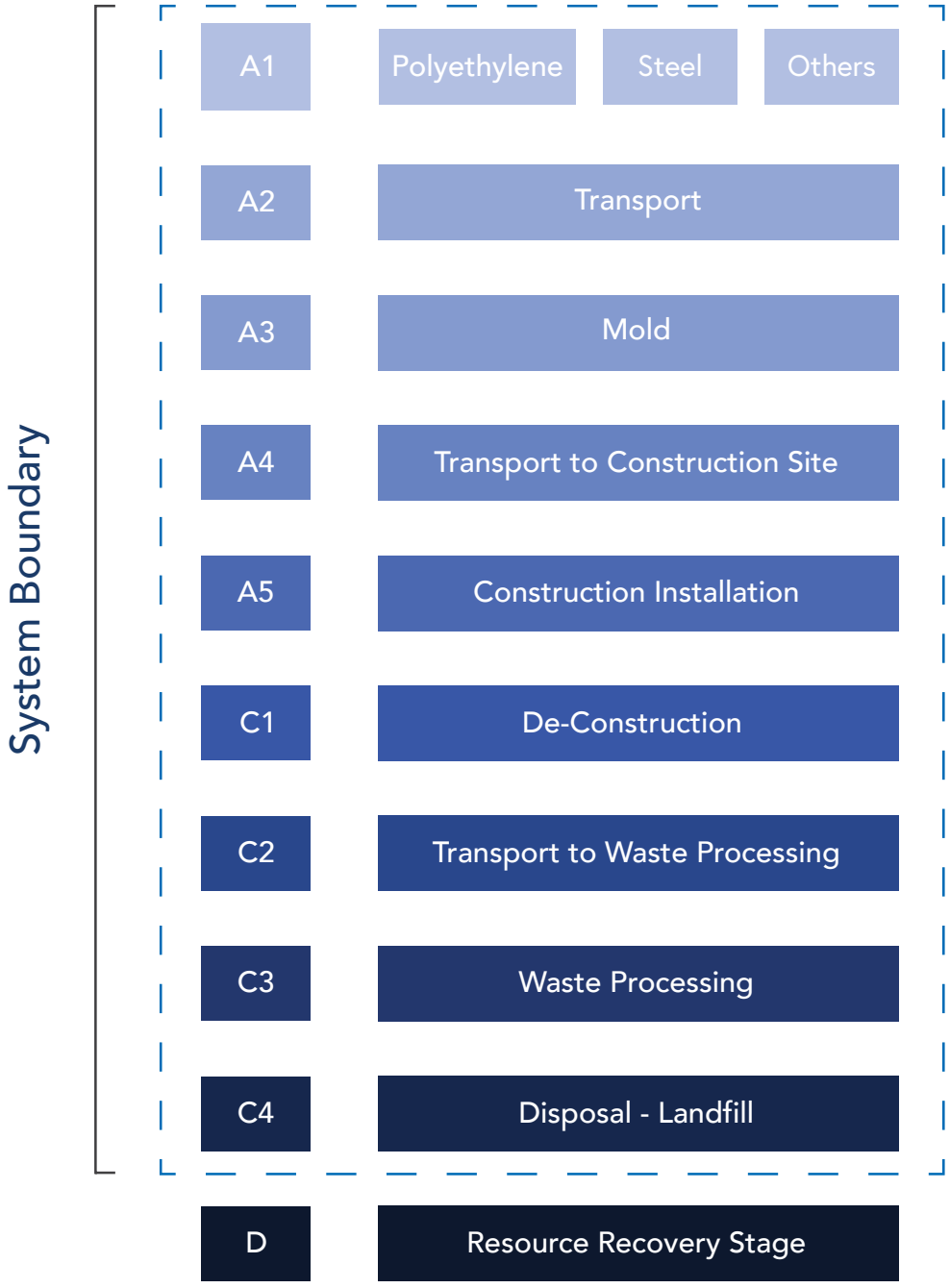
Life Cycle Inventory data for a minimum of 99 % of total inflow to the three life cycle stages have been included and a cut-off rule of 1% regarding energy, mass, and environmental relevance was applied.

Modules declared, geographical scope, share of specific data (n 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	Maintanence	Repair	Replacement	Refurbishment	Operaitional 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	>36%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
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 kgCO2e 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 natural gas and 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	0.0509
Natural Gas, MJ	1.2672

C1 - De-construction

The demolition of transition fittings f om 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 ecycling process.

C4 - Final Disposal – Mandatory Module

All end-of-life products will be collected and recycled back into the production system, including the transition fitting. A total of 45.1% of these products are recycled and reused in construction projects or material production, while the remaining 54.9% are sent to landfill. The ecovery rates for plastics are based on data from the EPA, assuming a 45.1% recovery rate and 54.9% 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 materialt 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	0.80-0.85
Polypropylene	0.10-0.15
Others	0.05-0.10
Biogenic Carbon	0

Material	Weight, kg	Biogenic Carbon, kg
Wood	0-0.05	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 Transition Fitting									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	5.15	0.011	0.090	0	0.011	0.332	0.010	-1.08
GWP -biogenic	kg CO_2 eq.	0.266	5.16E-05	0.003	0	5.16E-05	0.026	1.28E-04	-0.026
GWP-luluc	kg CO_2 eq.	0.021	4.40E-06	0.000	0	4.40E-06	0.001	2.58E-05	-0.001
GWP-total	kg CO_2 eq.	5.43	0.011	0.093	0	0.011	0.358	0.010	-1.11
ODP	kg CFC 11eq.	4.06E-08	1.65E-10	3.29E-09	0	1.65E-10	9.61E-09	2.03E-10	-5.76E-09
AP	mol H^+ eq.	0.037	2.65E-05	0.000	0	2.65E-05	0.001	5.38E-05	-0.004
EP-freshwater	kg P eq.	3.58E-04	9.78E-08	1.77E-06	0	9.78E-08	1.68E-05	9.75E-08	-5.71E-05
EP-marine	kg N eq.	0.005	6.56E-06	3.20E-05	0	6.56E-06	1.58E-04	2.03E-05	-0.001
EP-terrestrial	mol N eq.	0.056	7.27E-05	0.000	0	7.27E-05	0.002	2.22E-04	-0.010
POCP	kg NMVOC eq.	0.019	4.01E-05	0.000	0	4.01E-05	0.001	7.77E-05	-0.004
ADP minerals &metals*	kg Sb eq.	2.15E-04	2.93E-08	0.000	0	2.93E-08	2.32E-06	2.56E-08	-6.28E-06
ADP-fossil*	MJ	60	0.156	1.52	0	0.156	6.41	0.176	-11.0
WDP*	m^3	1.52	0.001	0.016	0	0.001	0.137	0.004	-0.429

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.

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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 Transition Fitting									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG1	kg CO_2 eq.	5.43	0.011	0.093	0	0.011	0.358	0.010	-1.11
Results according to EN 15804+A2 for 1 kg of Transition Fitting									
PM	[disease inc.]	3.27E-07	1.02E-09	6.10E-10	0	1.02E-09	3.70E-09	1.19E-09	-9.25E-08
IRP	[kBq U235 eq]	0.049	5.37E-05	0.004	0	5.37E-05	0.035	5.27E-05	-0.016
ETP-fw	[CTUe]	369	0.167	0.9	0	0.167	6.23	0.183	-79.7
HT-C	[CTUh]	2.08E-07	5.34E-11	1.53E-10	0	5.34E-11	6.42E-10	4.97E-11	-1.02E-07
HT-nc	[CTUh]	2.29E-07	1.29E-10	4.52E-10	0	1.29E-10	3.52E-09	1.21E-10	-4.23E-08
SQP	[pt]	25.2	0.157	0.10	0	0.157	0.912	0.238	-3.29

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 elative 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)

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Environmental Information

Use of Resources

Results for 1 kg of Transition Fitting									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	13.2	0.002	0.111	0	0.002	1.09	0.002	-1.00
PERM	MJ	0	0	0	0	0	0	0	0
PERT	MJ	13.2	0.002	0.111	0	0.002	1.09	0.002	-1.00
PENRE	MJ	65	0.166	1.7	0	0.166	6.84	0.187	-11.8
PENRM	MJ	0	0	0	0	0	0	0	0
PENRT	MJ	65	0.166	1.7	0	0.166	6.84	0.187	-11.8
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	0.223	1.47E-04	0.005	0	1.47E-04	0.030	2.25E-04	-0.045

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

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Environmental Information

Waste Production

Results for 1 kg of Transition 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 Transition 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	0.258	0	0	0	0	0	0	0
Materials for energy recovery	kg	0.003	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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