

# Environmental Product Declaration

 **EPD**  
INTERNATIONAL EPD SYSTEM



In accordance with ISO 14025 and EN 15804:2012+A2:2019/AC:2021 for:  
EPD of multiple products, based on a representative product.

## LK Joint nipple f/f and f/m

From



Programme:	The International EPD® System, <a href="http://www.environdec.com">www.environdec.com</a>
Programme operator:	EPD International AB
EPD registration number:	EPD-IES-0026591:001
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*An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see [www.environdec.com](http://www.environdec.com).*

Product no.	Product	Weight (kg)
2418159	Joint Nipple f/f 1"x1"	0,181
<b>2418160</b>	<b>Joint Nipple f/m 1"x3/4"</b>	<b>0,99</b>

The representative product is marked in bold text.



## General information

### Programme information

<b>Programme:</b>	The International EPD® System
<b>Address:</b>	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
<b>Website:</b>	<a href="http://www.environdec.com">www.environdec.com</a>
<b>E-mail:</b>	<a href="mailto:support@environdec.com">support@environdec.com</a>

<b>Accountabilities for PCR, LCA and independent, third-party verification</b>
<b>Product Category Rules (PCR)</b>
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): <i>Product category rules (PCR): 2019:14, Construction products (EN 15804:A2) (2.0.1)</i>
PCR review was conducted by: The Technical Committee of the International EPD System. See <a href="http://www.environdec.com">www.environdec.com</a> for a list of members. Review Chair: Rob Rouwette (chair), Noa Meron (co-chair). The review panel may be contacted via the Secretariat <a href="http://www.environdec.com/contact">www.environdec.com/contact</a> .
<b>Life Cycle Assessment (LCA)</b>
LCA accountability: <i>Tyréns Sverige AB, Folkungagatan 44, 118 26, Stockholm</i> Contact: <a href="mailto:support.epdgenerator@tyrens.se">support.epdgenerator@tyrens.se</a>
<b>Verification</b>
External and independent ('third-party') verification of the declaration and data, according to ISO 14025:2006, via EPD verification through:
<input checked="" type="checkbox"/> Fully pre-verified EPD tool
Third-party verifier: Accountable for the tool and EPD verification: Marcus Wendin, Miljögiraff AB, Fully pre-verified tool: Tyréns EPD-generator 3.1.0 – LK Systems
Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier:
<input checked="" type="checkbox"/> Yes <input 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 programs, 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 characterization 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:

LK Systems AB, Johannesfredsvägen 7, 168 69 Bromma, Sweden

### Contact:

info@lksystems.se

<https://www.lksystems.se/>

### Description of the organisation:

**LK Systems** is the leading manufacturer of easy-to-install systems for heating and tap water distribution in the Nordics. Through our prefabrication factory, we also provide tailor-made solutions that simplify the installation process even further. From idea to final solution, you can be sure of the smartest answers for your everyday challenges, today and tomorrow.

### Name and location of production site(s):

Production: Sweden. See product description.

Construction site: Sweden

## Product information

Product name: LK Joint nipple f/f and f/m

Product identification: 2418159 & 2418160

### Product description:

LK Joint Nipple can be used when LK OptiFlow Evo II will be installed. Joint Nipple is also suitable for LK Single Zone Manifold Control.

Production takes place in Gnosjö, Sweden, and includes brass stamping and machining. The products are then assembled and packaged for delivery. The reported values refer to product number 2418160, selected as the representative product due to its higher sales volume.

Recycled materials:

Brass - 90%

Climate impact from recycled material is 2,04 kg CO<sub>2</sub> eq. per kg (GWP-GHG).

Climate impact from the energy mix in production is 0,07 kg CO<sub>2</sub> eq. per kWh (GWP-GHG).

UN CPC code: 41516

### Geographical scope:

Module A1 and A2 Material suppliers are Global

Module A3 production is Sweden

Module A5, C and D scenarios are for Sweden

## LCA information

Functional unit / declared unit: 1 kg

Conversion factor for the product is 1 kg per kg

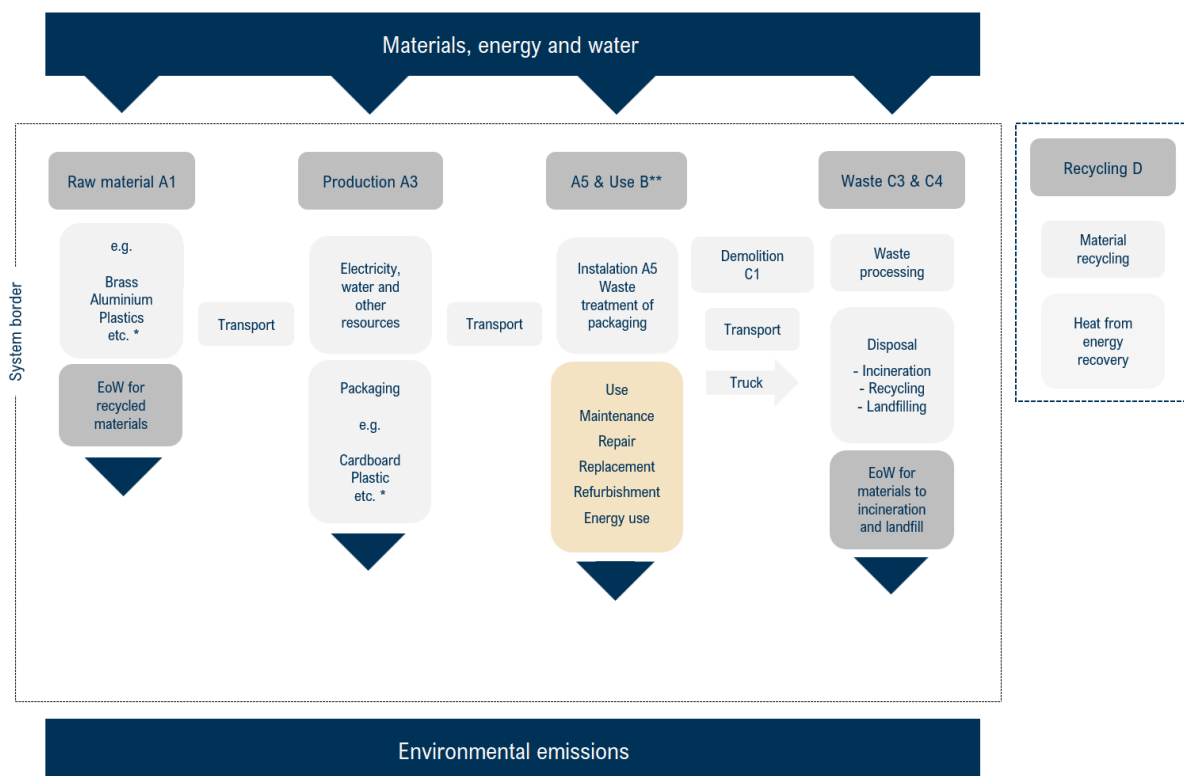
Time representativeness: The LCA is based on production data from 2022/2023 but is deemed to be representative of an average year of production.

Database(s) and LCA software used: The LCA software is Simapro Flow version 2.47 and the database is Ecoinvent 3.10. When modelling in Simapro, Ecoinvent data (updated November 2023) has been used for secondary data.

Description of system boundaries:  
This is a Cradle to Grave with modules A+C+D

Fully pre-verified EPD tool: This EPD is generated by Tyréns EPD-generator 3.1.0 – LK Systems. The tool is verified by Marcus Wendin, Miljögraff AB

System diagram:



\*Detailed material list in "Content information"

\*\*B-modules are outside of system boundaries

**Production**

The manufacturing process includes the manufacturing of the raw materials used for the final product. After the manufacturing of the product is completed, it is packed in product specific packaging, which is then stacked on a pallet and then transported to the warehouse. The production process flow contains the same or similar steps in all manufacturing locations for each material.

See product information for detailed production process.

#### More information:

This EPD is generated with a fully pre-verified EPD tool. All processes are fixed and variable input data for each material/component is governed by a menu. The results of the EPD are checked for plausibility. The review of the EPD-generator and its constituent processes and the fixed content of the EPD is accepted based on the verification of the tool and the first EPD generated by the tool. Identification name and version number of the EPD-generator: LK Systems EPD-generator 3.1.0. Results for the additional impact categories particulate matter, ionising radiation, ecotoxicity (freshwater), human toxicity (cancer), human toxicity (non-cancer) and land use is not declared.

EN 15804 reference package based on EF 3.1 has been used.

#### **Electricity data**

The electricity used is residual mix for the production country.

Climate impact from the energy mix: See product description.

#### **Estimates and assumptions**

The declared unit values for 1 kg of the product used in this study are calculated based on the total weight of the product produced during the year under study. Data is allocated for the energy use of the declared unit based on regular production rate. The raw materials necessary for manufacturing and the amount of packaging allocated to the product are based on the amount of material used to manufacture the declared unit, including waste. The used product is assumed to be transported to a waste treatment site with a distance of 80 km for material recovery and landfill and 130 km for incineration. The waste treatment assumption has led to the product being either incinerated for energy recovery, recycled for material use, or disposed of in a landfill. The waste treatment assumes that the product is installed in the building and deconstructed when the building is demolished. Processes for waste management in Switzerland are comparable to those in Sweden.

The following assumptions have been made:

- Cardboard is material recycled at 78% and the rest is incinerated for energy recovery.
- Plastics are material recycled at 13% and the rest are incinerated for energy recovery.
- Metals are material recycled at 95% and the rest are disposed of in a landfill.
- Other materials are either incinerated for energy recovery or disposed of in a landfill at 100%.
- Energy efficiency in municipal incinerator is 61%.
- No environmental impact during installation and demolition due to only hand tools being used.
- A wooden pallet is used 25 times.

For calculations in Module D following assumptions have been made:

The recycled materials are replacing production of primary materials.

Module D also contains benefits from exported energy from waste incineration declared in module C.

Exported energy assumed to be 77 % heat and 23 % electricity from incineration.

#### Allocation for recycled materials

Recycled brass contain recycled copper (preconsumer scrap from copper anode). This copper is allocated as a by-product. Recycled bronze is post-consumer and all activities treating the products is

included as well as transport to the treating facility or losses. Recycled PE contain recycled granulate. All activities treating the products is included as well as transport to the treating facility or losses are also accounted. Used Ecoinvent processes 3.10, Cut off: “ Metal part of electronics scrap, in copper, anode, market for metal part of electronics scrap, in copper, anode, Global” , “Bronze scrap, post-consumer, market for bronze scrap, post-consumer, Global and “market for polyethylene, high density, granulate, recycled, India”

### **Background data**

The data quality of the background data is considered good. The assessment considers all available data from the production process, including all raw materials and auxiliary materials used as well as the energy consumption in relation to available Ecoinvent datasets and EPD's.

The infrastructure or capital goods used in the product system for underlying processes are included for upstream and downstream processes, as infrastructure or capital goods can NOT be excluded in Simapro FLOW. Therefore results of the impact categories abiotic depletion of minerals and metals, land use, human toxicity (cancer), human toxicity, noncancer and ecotoxicity (freshwater) may be highly uncertain in LCAs that include capital goods/infrastructure in secondary datasets, in case infrastructure/capital goods contribute greatly to the total results. This is because the LCI data of infrastructure/capital goods used to quantify these indicators in currently available secondary datasets sometimes lack temporal, technological and geographical representativeness. Caution should be exercised when using the results of these indicators for decision-making purposes. For core module infrastructure or capital goods are excluded.

### **Data quality**

When modeling in Simapro, Ecoinvent data (updated November 2023) has been used for secondary data. The database is considered to be of high quality.

Primary data are related to amount of energy, transportation and direct emission used throughout module A1-A3.

Other Indata gathered from the actual manufacturing plant with product-specific processes, specific amounts, specific waste, and spillage %, specific energy mix, specific transportation distances and transportation type and EPD's from some of the suppliers are primary data.

Primary data are collected directly from supplier and production site.

Modules declared, geographical scope, share of primary 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	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO	GLO	SE	SE	SE	ND	ND	ND	ND	ND	ND	ND	SE	SE	SE	SE	SE
Primary data used	8% *			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	<10%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

*\*The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more primary data, to increase the representativeness of and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories. See also data quality for more information*

Process	Source type and Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1- A3
Manufacturing of product, inclusive generation of electricity used in manufacturing of product	Collected production data (EPD owner) & Electricity data from Ecoinvent v 3.10	2023	Primary data	8%
Transport of materials & packaging to manufacturing site	Databases Ecoinvent v3.10	2023	Primary data	0%
Production of ingoing materials and packaging	EPDs & Databases Ecoinvent v3.10	< 5 years old	Primary data, secondary data	0%
Total share of primary data, of GWP-GHG results for A1-A3				8%

## Content information

Product components	Weight, kg*	Post-consumer material, weight-%	Biogenic material, weight % and kg C/declared unit
Brass	0.99 (0.99-0.99)	0.00 %	0.00 %
Plastic	0.01 (0.01-0.01)	0.00 %	0.00 %
TOTAL	1.00	0.00 %	0.00 %
Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/declared unit
Plastic	<0.01	0.10 %	0.00
Cardboard box	0.01	1.00 %	<0.01
Pallet	<0.01	0.10 %	<0.01
TOTAL	0.01	1.20 %	<0.01

\*The values in parentheses indicate the range of material content for included products, from lowest to highest.

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit
-	-	-	0.00

## Environmental Information

### LCA results of the product- main environmental performance results

#### Mandatory impact category indicators according to EN 15804

Results per 1 kg									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-fossil	kg CO <sub>2</sub> eq.	4.24E+00	8.57E-02	3.37E-03	3.97E-04	3.05E-01	6.08E-02	3.09E-04	-4.97E-01
GWP-biogenic	kg CO <sub>2</sub> eq.	2.68E-01	5.93E-05	1.63E-01	4.34E-08	2.12E-04	2.87E-02	4.25E-08	0.00E+00
GWP-luluc	kg CO <sub>2</sub> eq.	1.01E-02	2.84E-05	7.81E-08	3.45E-08	1.01E-04	1.08E-05	1.59E-07	-1.03E-03
GWP-total	kg CO <sub>2</sub> eq.	4.52E+00	8.57E-02	1.66E-01	3.97E-04	3.06E-01	8.95E-02	3.09E-04	-4.97E-01
ODP	kg CFC 11 eq.	4.91E-08	1.70E-09	4.58E-12	6.07E-12	6.07E-09	2.31E-10	8.93E-12	-4.95E-09
AP	mol H <sup>+</sup> eq.	7.58E-02	1.78E-04	1.80E-06	3.58E-06	6.36E-04	1.16E-04	2.19E-06	-3.14E-02
EP-freshwater	kg P eq.	6.31E-03	5.80E-06	1.14E-07	1.16E-08	2.07E-05	5.44E-06	2.56E-08	-2.52E-03
EP-marine	kg N eq.	8.45E-03	4.29E-05	9.04E-07	1.66E-06	1.53E-04	3.51E-05	8.33E-07	-1.75E-03
EP-terrestrial	mol N eq.	9.59E-02	4.62E-04	8.38E-06	1.82E-05	1.65E-03	3.83E-04	9.10E-06	-2.35E-02
POCP	kg NMVOC eq.	2.75E-02	2.96E-04	2.42E-06	5.42E-06	1.06E-03	1.13E-04	3.26E-06	-6.59E-03
ADP-minerals&metals*	kg Sb eq.	1.70E-03	2.79E-07	6.98E-10	1.42E-10	9.94E-07	4.11E-07	4.82E-10	-4.53E-04
ADP-fossil*	MJ	5.09E+01	1.00E-01	3.89E-04	2.10E-04	3.57E-01	8.26E-02	4.68E-04	-3.39E+00
WDP*	m <sup>3</sup>	3.76E+00	6.78E-03	2.23E-04	1.52E-05	2.42E-02	1.43E-02	3.37E-04	-6.03E-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 modules A1-A3 should not be used without considering the results of module C. 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.*

*\*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									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-GHG <sup>1</sup>	kg CO <sub>2</sub> eq.	4.36E+00	8.57E-02	3.37E-03	3.97E-04	3.06E-01	6.11E-02	3.09E-04	-5.00E-01

*Disclaimer: The results of modules A1-A3 should not be used without considering the results of module C. 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.*

## Resource use indicators

Results per 1 kg									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1.06E+01	2.07E-02	1.12E-04	3.19E-05	7.38E-02	8.23E-02	7.03E-05	-1.57E+00
PERM*	MJ	1.62E-01	0.00E+00	-1.45E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	1.08E+01	2.07E-02	-1.45E-01	3.19E-05	7.38E-02	8.23E-02	7.03E-05	-1.57E+00
PENRE	MJ	5.18E+01	1.05E-01	4.05E-04	2.20E-04	3.73E-01	8.46E-02	4.91E-04	-3.54E+00
PENRM*	MJ.	6.26E-01	0.00E+00	-4.00E-02	0.00E+00	0.00E+00	-5.83E-01	0.00E+00	0.00E+00
PENRT	MJ	5.25E+01	1.05E-01	-3.96E-02	2.20E-04	3.73E-01	-4.98E-01	4.91E-04	-3.54E+00
SM	kg	1.45E+00	0.00E+00	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	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	0.00E+00	0.00E+00
FW	m <sup>3</sup>	6.01E+01	2.45E-04	1.09E-05	6.20E-07	8.75E-04	5.15E-04	8.40E-06	-2.22E-02
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 modules A1-A3 should not be used without considering the results of module C.*

*\*For the PERM and PENRM the new "GUIDANCE TO CALCULATING THE PRIMARY ENERGY USE INDICATORS" in Annex 3 of the PCR is followed and calculated according to option A.*

<sup>1</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

## Waste indicators

Results per 1 kg									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-hazardous waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Radioactive waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

*Disclaimer: The results of modules A1-A3 should not be used without considering the results of module C*

## Output flow indicators

Results per 1 kg									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	0.00E+00	0.00E+00	7.93E-03	0.00E+00	0.00E+00	9.39E-01	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, electricity	MJ	0.00E+00	0.00E+00	9.60E-03	0.00E+00	0.00E+00	7.12E-02	0.00E+00	0.00E+00
Exported energy, thermal	MJ	0.00E+00	0.00E+00	3.21E-02	0.00E+00	0.00E+00	2.38E-01	0.00E+00	0.00E+00

*Disclaimer: The results of modules A1-A3 should not be used without considering the results of module C*

## Additional information

ID: EPD Calculation LK Systems v3 14-11-2025 14:35

Results for module C is based on a mixed disposal scenario. The table below shows the results for each module if 100 % of the product would be recycled or 100 % landfilled.

### Scenario: 100% of product go to energy or material recycling

Indicator	Unit	C1	C2	C3	C4	D
GWP-fossil	kg CO <sub>2</sub> eq.	3.97E-04	1.52E-02	4.00E-02	0.00E+00	-5.08E+00
GWP-biogenic	kg CO <sub>2</sub> eq.	4.34E-08	1.05E-05	3.02E-02	0.00E+00	0.00E+00
GWP-luluc	kg CO <sub>2</sub> eq.	3.45E-08	5.05E-06	1.38E-05	0.00E+00	-1.04E-02
GWP-total	kg CO <sub>2</sub> eq.	3.97E-04	1.52E-02	7.02E-02	0.00E+00	-5.13E+00
ODP	kg CFC 11 eq.	6.07E-12	3.02E-10	2.88E-10	0.00E+00	-5.19E-08
AP	mol H <sup>+</sup> eq.	3.58E-06	3.17E-05	1.28E-04	0.00E+00	-3.30E-01
EP-freshwater	kg P eq.	1.16E-08	1.03E-06	6.25E-06	0.00E+00	-2.65E-02
EP-marine	kg N eq.	1.66E-06	7.61E-06	3.83E-05	0.00E+00	-1.81E-02
EP-terrestrial	mol N eq.	1.82E-05	8.21E-05	4.12E-04	0.00E+00	-2.45E-01
POCP	kg NMVOC eq.	5.42E-06	5.26E-05	1.27E-04	0.00E+00	-6.90E-02
ADP-minerals&metals*	kg Sb eq.	1.42E-10	4.95E-08	4.50E-07	0.00E+00	-4.76E-03
ADP-fossil*	MJ	2.10E-04	1.78E-02	9.62E-02	0.00E+00	-3.52E+01
WDP*	m <sup>3</sup>	1.52E-05	1.20E-03	1.44E-02	0.00E+00	-6.17E+00
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				

Scenario: 100% of product go to landfill						
Indicator	Unit	C1	C2	C3	C4	D
GWP-fossil	kg CO <sub>2</sub> eq.	3.97E-04	1.52E-02	0.00E+00	6.88E-03	0.00E+00
GWP-biogenic	kg CO <sub>2</sub> eq.	4.34E-08	1.05E-05	0.00E+00	1.64E-05	0.00E+00
GWP-luluc	kg CO <sub>2</sub> eq.	3.45E-08	5.05E-06	0.00E+00	9.53E-07	0.00E+00
GWP-total	kg CO <sub>2</sub> eq.	3.97E-04	1.52E-02	0.00E+00	6.90E-03	0.00E+00
ODP	kg CFC 11 eq.	6.07E-12	3.02E-10	0.00E+00	2.21E-10	0.00E+00
AP	mol H <sup>+</sup> eq.	3.58E-06	3.17E-05	0.00E+00	3.71E-05	0.00E+00
EP-freshwater	kg P eq.	1.16E-08	1.03E-06	0.00E+00	2.73E-07	0.00E+00
EP-marine	kg N eq.	1.66E-06	7.61E-06	0.00E+00	4.44E-05	0.00E+00
EP-terrestrial	mol N eq.	1.82E-05	8.21E-05	0.00E+00	1.73E-04	0.00E+00
POCP	kg NMVOC eq.	5.42E-06	5.26E-05	0.00E+00	7.01E-05	0.00E+00
ADP-minerals&metals*	kg Sb eq.	1.42E-10	4.95E-08	0.00E+00	7.58E-09	0.00E+00
ADP-fossil*	MJ	2.10E-04	1.78E-02	0.00E+00	5.78E-03	0.00E+00
WDP*	m <sup>3</sup>	1.52E-05	1.20E-03	0.00E+00	4.51E-03	0.00E+00
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					

## Version history

Original Version of the EPD, 2025-11-14

## ABBREVIATIONS

Abbreviation	Definition
<b>General Abbreviations</b>	
EN	European Norm (Standard)
EPD	Environmental Product Declaration
EF	Environmental Footprint
GPI	General Programme Instructions
ISO	International Organization for Standardization
LCA	Life Cycle Assessment
PCR	Product Category Rules
c-PCR	Complementary Product Category Rules
CEN	European Committee for Standardization
CLC	Co-location centre
CPC	Central product classification
GHS	Globally harmonized system of classification and labelling of chemicals
GRI	Global Reporting Initiative
<b>Environmental Impact Indicators (EN 15804)</b>	
GHG	Greenhouse gas
GWP	Global Warming Potential (kg CO <sub>2</sub> eq.)
GWP-fossil	Global Warming Potential from fossil sources (kg CO <sub>2</sub> eq.)
GWP-biogenic	Global Warming Potential from biogenic sources (kg CO <sub>2</sub> eq.)
GWP-luluc	Global Warming Potential from land use and land use change (kg CO <sub>2</sub> eq.)
GWP-total	Total Global Warming Potential (kg CO <sub>2</sub> eq.)
GWP-GHG	Global Warming Potential for greenhouse gases (kg CO <sub>2</sub> eq.)
ODP	Ozone Depletion Potential (kg CFC-11 eq.)
AP	Acidification Potential (mol H <sup>+</sup> eq.)
EP	Eutrophication Potential
EP-freshwater	Freshwater eutrophication potential (kg P eq.)
EP-marine	Marine eutrophication potential (kg N eq.)
EP-terrestrial	Terrestrial eutrophication potential (mol N eq.)
POCP	Photochemical Ozone Creation Potential (kg NMVOC eq.)
ADP	Abiotic Depletion Potential
ADP-minerals&metals	Abiotic depletion potential for non-fossil resources (kg Sb eq.)
ADP-fossil	Abiotic depletion potential for fossil resources (MJ)
WDP	Water Deprivation Potential (m <sup>3</sup> )
<b>Resource Use Indicators</b>	
PERE	Use of renewable primary energy excluding renewable primary energy resources used as raw materials (MJ)
PERM	Use of renewable primary energy resources used as raw materials (MJ)
PERT	Total use of renewable primary energy resources (MJ)
PENRE	Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials (MJ)
PENRM	Use of non-renewable primary energy resources used as raw materials (MJ)
PENRT	Total use of non-renewable primary energy resources (MJ)
SM	Use of secondary material (kg)
RSF	Use of renewable secondary fuels (MJ)
NRSF	Use of non-renewable secondary fuels (MJ)

FW	Use of net fresh water (m <sup>3</sup> )
<b>Waste Indicators</b>	
HW	Hazardous Waste (disposed) (kg)
NHW	Non-Hazardous Waste (disposed) (kg)
RW	Radioactive Waste (disposed) (kg)
<b>Output Flow Indicators</b>	
CFR	Components for Reuse (kg)
MR	Material for Recycling (kg)
MER	Materials for Energy Recovery (kg)
EEE	Exported Energy, Electricity (MJ)
EET	Exported Energy, Thermal (MJ)
<b>Lifecycle Stages / Modules</b>	
A1	Raw material supply
A2	Transport
A3	Manufacturing
A4	Transport to site
A5	Construction/Installation
B1	Use
B2	Maintenance
B3	Repair
B4	Replacement
B5	Refurbishment
B6	Operational energy use
B7	Operational water use
C1	Deconstruction/Demolition
C2	Transport to waste processing
C3	Waste processing
C4	Disposal
D	Reuse-Recovery-Recycling potential
<b>Other Relevant Terms</b>	
SVHC	Substances of Very High Concern
EC No.	European Community Number
CAS No.	Chemical Abstracts Service Number
MJ	Megajoule
kg	Kilogram
m <sup>3</sup>	Cubic Meter
NMVOG	Non-Methane Volatile Organic Compounds
Sb eq.	Antimony Equivalents
P eq.	Phosphorus Equivalents
N eq.	Nitrogen Equivalents
CFC-11 eq.	Chlorofluorocarbon-11 Equivalents
CO <sub>2</sub> eq.	Carbon Dioxide Equivalents
kg C	Kilograms of Carbon
kg CO <sub>2</sub> eq.	Kilograms of Carbon Dioxide Equivalent
ND	Not Declared

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