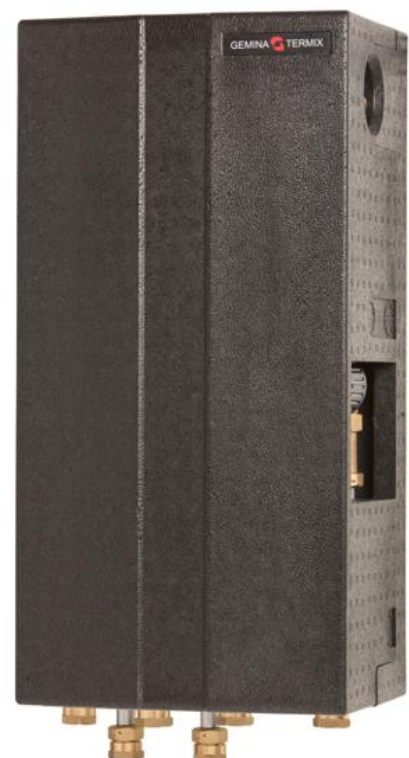


Owner: Gemina Termix  
No.: MD-22109-EN  
Issued: 23-11-2022  
Valid to: 23-11-2027

3<sup>rd</sup> PARTY VERIFIED

**EPD**

VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | ISO 14025 & EN 15804



**Owner of declaration**

Gemina Termix A/S  
 Navervej 15-17  
 DK-7451 Sunds  
 VAT: DK-11169449



**Issued:**

23-11-2022

**Valid to:**

23-11-2027

**Programme**

EPD Danmark  
[www.epddanmark.dk](http://www.epddanmark.dk)



- Industry EPD
- Product EPD

**Basis of calculation**

This EPD is developed in accordance with the European standard EN 15804+A2.

**Comparability**

EPDs of construction products may not be comparable if they do not comply with the requirements in EN 15804. EPD data may not be comparable if the datasets used are not developed in accordance with EN 15804 and if the background systems are not based on the same database.

**Validity**

This EPD has been verified in accordance with ISO 14025 and is valid for 5 years from the date of issue.

**Use**

The intended use of an EPD is to communicate scientifically based environmental information for construction products, for the purpose of assessing the environmental performance of buildings.

**Declared product(s)**

1 Termix VMTD MINI OPBL ISO district heating transfer unit

Number of declared datasets/product variations: 1

**Production site**

Navervej 15-17  
 7451 Sunds  
 Denmark

**EPD type**

- Cradle-to-gate with modules C1-C4 and D
- Cradle-to-gate with options, modules C1-C4 and D
- Cradle-to-grave and module D
- Cradle-to-gate
- Cradle-to-gate with options

**Product(s) use**

Complete district heating transfer unit with built-in mixing circuit, which is used in installations where existing pipes and radiators can withstand the direct heating supply.

**Declared/ functional unit**

1 VMTD MINI OPBL ISO district heating transfer unit

**Year of production site data (A3)**

2021

**EPD version**

First version - Version 1.0

CEN standard EN 15804 serves as the core PCR

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

internal                       external

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Third party verifier:



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Guangli Du, Aalborg University, BUILD



Martha Katrine Sørensen  
 EPD Danmark

**Life cycle stages and modules (MND = module not declared)**

Product			Construction process		Use							End of life				Beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport	Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Re-use, recovery and recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
<b>X</b>	<b>X</b>	<b>X</b>	MND	MND	MND	MND	MND	MND	MND	MND	MND	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>

# Product information

## Product description

The main product components are shown in the table below.

Material	Amount (kg)	Weight %
Brass	5,7	40%
Steel, other	2,0	14%
Stainless Steel	2,6	19%
Pump	2,3	16%
EPP	0,9	7%
Copper	0,4	3%
Electric Motor	0,0	0%
ECL	0,0	0%
Cables	0,1	1%
Other	0,0	0%
<b>Total</b>	<b>14,1</b>	<b>100%</b>

## Product packaging:

The composition of the sales- and transport packaging of the product is shown in the table below.

Material	Weight-% of packaging
Return Pallet	53,6%
Single-use pallet	3,7%
Pallet Box	1,7%
Single-use pallet Box	0,5%
Plastic	0,1%
Masonite board	1,5%
Cardboard	39,0%
<b>Total in-going packaging</b>	<b>100%</b>

## Representativity

This declaration, including data collection and the modeled foreground system including results, represents the production of one Termix VMTD MINI OPBL ISO district heating transfer unit on the production site located in Sunds in Denmark. Product specific data are based on average values collected in 2021. Background data are based on datasets from the GaBi 10.6 databases and are less than 10 years old. Generally, the used background datasets are of high quality, and the majority of the datasets are only a couple of years old.

## Hazardous substances

The product contains brass parts in which lead is present (CAS No: 7439-92-1) at a concentration above 0.1% w/w. Furthermore, the products contain Gaskets containing the antioxidant 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol (CAS No. 119-47-1) at a concentration above 0.1% w/w.

Both Lead (CAS no: 7439-92-1) and 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol (CAS No. 119-47-1) are found on REACH "Candidate List of Substances of Very High Concern for authorization".

(<http://echa.europa.eu/candidate-list-table>)

Substance	Weight % of declared product
6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol	<0,2%
Lead	<1,5%

## Essential characteristics

The district heating transfer unit must comply with the following legislation and specifications:

1. Machinery Directive 2006/42/EF - EN ISO 12100:2011: Safety of machinery – General principles for design – Risk assessment and risk reduction
2. RoHS Directive 2011/65/EU - including amendment Directive 2015/863 DS / EN IEC 63000: 2018

Further technical information can be obtained by contacting the manufacturer or on the manufacturer's website:

<https://termix.dk/produkter/vandvarmer-med-direkte-anlaegsregulering-vmt/d/>

### Reference Service Life (RSL)

The reference service life of the product is 20 years.

The pump is however expected to have a shorter lifespan and may thus need to be replaced during the lifetime of the main unit itself. The Pump has an expected lifetime of 12 years.

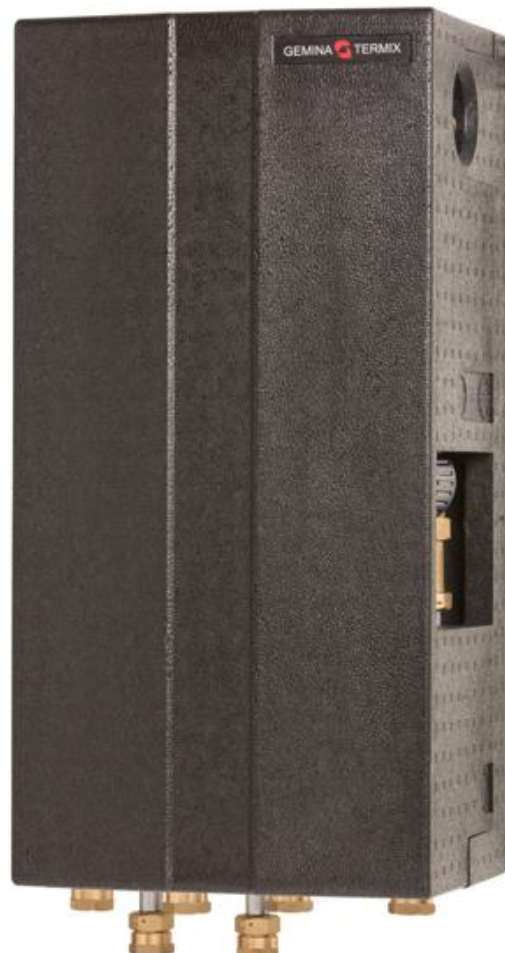
### Key assumptions and estimates for interpretations

A lot of components consist of several materials, and in cases where separation of the parts is deemed impossible or impractical, the component has been modelled as consisting of one of the materials, based on a conservative approach, by using the material with the largest environmental impact as a proxy.

The total production mass in 2021 was calculated based on the number of heating units being manufactured.

### Picture of product(s)

The following pictures show the district heating transfer unit from the inside and from the outside:



# LCA background

## Declared unit

The LCI and LCIA results in this EPD relates to one VMTD MINI OPBL ISO district heating transfer unit.

Name	Value	Unit
Declared unit	1	piece
Density	14,07	kg/piece
Conversion factor to 1 kg.	0,07	-

## PCR

This EPD is developed according to the core rules for the product category of construction products in EN 15804.

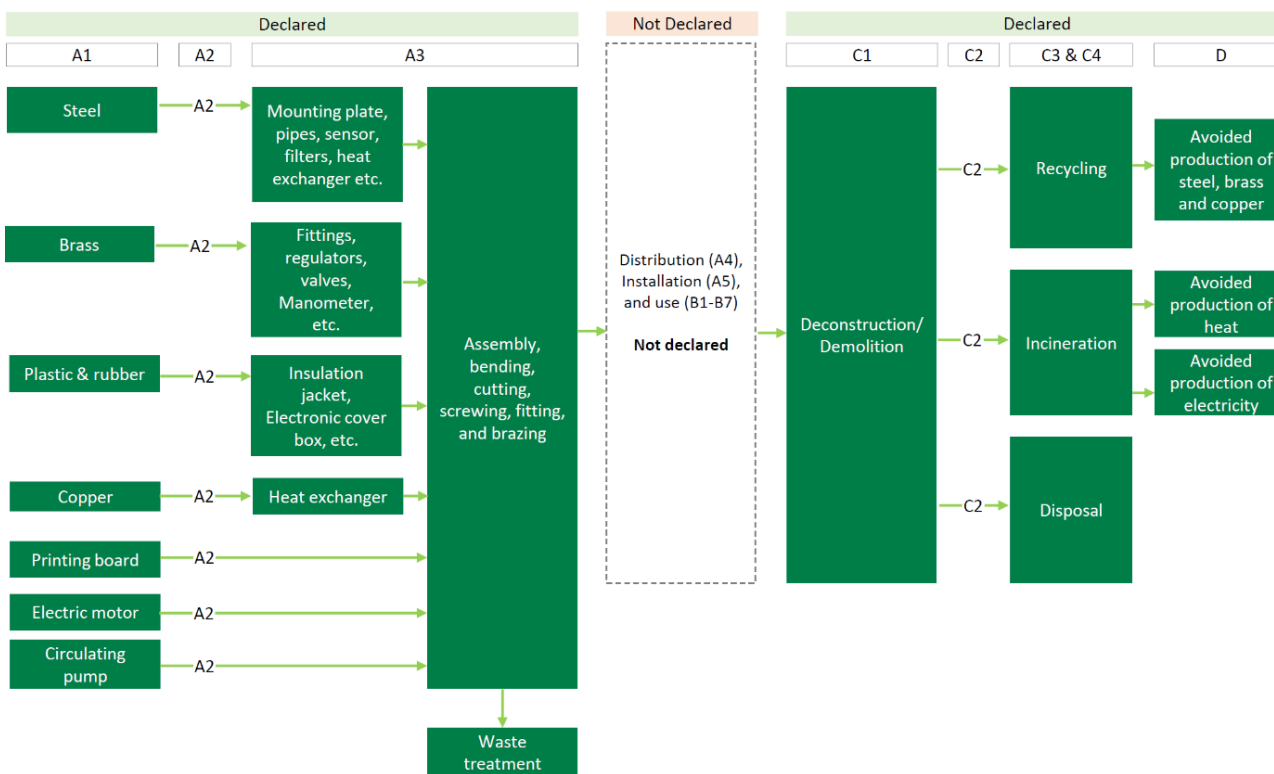
## Guarantee of Origin – certificates

No certificates are relevant in relation of this product.

## Functional unit

“Not defined”

## Flowdiagram



### System boundary

This EPD is based on a "Cradle to gate with options, modules C1–C4, and module D" LCA, in which 100 weight-% has been accounted for.

The general rules for the exclusion of inputs and outputs follows the requirements in EN 15804, 6.3.5, where the total of neglected input flows per module shall be a maximum of 5 % of energy usage and mass and 1 % of energy usage and mass for unit processes.

Allocation of energy, water, auxiliary materials, and waste during production is done on a mass basis, per kg of product being manufactured at the site in Sunds.

### Product stage (A1-A3) includes:

A1 – Extraction and processing of raw materials

A2 – Transport to the production site

A3 – Manufacturing processes

The product stage comprises the acquisition of all raw materials, products and energy, transport to the production site, packaging and waste processing up to the "end-of-waste" state or final disposal. The LCA results are declared in aggregated form for the product stage, which means, that the sub-modules A1, A2 and A3 are declared as one module A1-A3.

The manufacturing at Gemina Termix mainly consists of assembling the heat transfer unit, however it also includes bending, cutting, screwing, fitting, and brazing processes.

Several parts, such as the pump, pipes and fittings are transported to Gemina Termix from different suppliers and delivered as prefabricated components. Other parts such as the heat exchanging unit are manufactured or brazed on site.

The components are mounted onto a solid steel back plate, and the actual assembly takes place manually at a table. After assembly, the district heating transfer unit is covered in an insulation jacket made from Expanded polypropylene (EPP). The final product ready for use is packed in cardboard and plastic packaging for transport.

### Construction process stage (A4-A5)

#### includes:

Not declared

#### Use stage (B1-B7) includes:

Not declared

#### End of Life (C1-C4) includes:

Module C1 covers the deconstruction and removal of the district heating transfer unit from the building where it is installed. This study does not include any environmental impacts occurring in C1, since the deconstruction/removal of district heating transfer units will typically be done manually, and the energy required for e.g. running a drill to loosen screws and brackets is considered below the cut-off limits.

Module C2 covers the transport to the nearest waste treatment facility that receives this type of waste for sorting. An average distance of 40 km between the deconstruction site and the treatment facility is assumed in this study, as treatment facilities are located many places throughout Denmark.

Module C3 covers the material sorting and shredding of the metals at the waste treatment facility as well as the incineration of the materials which are not recycled. The pump, Metals and electrical components are separated and sent for recycling. The remaining materials including plastic parts are sorted as mixed waste, and sent for either incineration or disposal on a landfill. It is assumed that 96% of the waste which is not recycled is sent for incineration with energy recovery in Denmark, while the remaining 4% is sent for landfilling. These values are based on the average amount of industry waste sent for disposal in Denmark.

Module C4 covers the part of the waste which is sent to landfill, including treatment of waste and collection of gas, which is utilized on site resulting in exported electrical energy.

#### Re-use, recovery and recycling potential (D) includes:

Module D includes the potential environmental savings from substitution of virgin materials caused by recycling of materials as well as energy recovery arising from either incineration or landfilling.

# LCA results

ENVIRONMENTAL IMPACTS PER VMTD MINI OPBL ISO							
Parameter	Unit	A1-A3	C1	C2	C3	C4	D
GWP-total	[kg CO <sub>2</sub> eq.]	4,70E+01	0,00E+00	3,58E-02	2,21E+00	2,99E-01	-1,02E+01
GWP-fossil	[kg CO <sub>2</sub> eq.]	4,69E+01	0,00E+00	3,59E-02	2,20E+00	3,17E-02	-1,03E+01
GWP-biogenic	[kg CO <sub>2</sub> eq.]	1,07E-01	0,00E+00	-3,53E-04	5,34E-03	2,67E-01	2,88E-02
GWP-luluc	[kg CO <sub>2</sub> eq.]	6,10E-02	0,00E+00	2,43E-04	2,18E-04	6,74E-06	-1,65E-02
ODP	[kg CFC 11 eq.]	3,63E-10	0,00E+00	3,54E-15	1,16E-11	1,65E-14	-1,95E-10
AP	[mol H <sup>+</sup> eq.]	2,78E-01	0,00E+00	4,27E-05	1,89E-03	6,33E-05	-4,81E-02
EP-freshwater	[kg P eq.]	1,33E-04	0,00E+00	1,29E-07	3,00E-06	5,10E-06	-1,32E-05
EP-marine	[kg N eq.]	3,82E-02	0,00E+00	1,42E-05	7,14E-04	5,96E-05	-6,85E-03
EP-terrestrial	[mol N eq.]	4,06E-01	0,00E+00	1,69E-04	7,74E-03	2,33E-04	-7,17E-02
POCP	[kg NMVOC eq.]	1,43E-01	0,00E+00	3,70E-05	1,81E-03	1,47E-04	-2,23E-02
ADPm <sup>1</sup>	[kg Sb eq.]	5,98E-03	0,00E+00	3,64E-09	2,90E-07	7,91E-10	-3,56E-04
ADPF <sup>1</sup>	[MJ]	6,38E+02	0,00E+00	4,74E-01	8,78E+00	1,54E-01	-1,13E+02
WDP <sup>1</sup>	[m <sup>3</sup> world eq. deprived]	1,66E+01	0,00E+00	4,04E-04	2,18E-01	8,40E-04	-3,24E+00
Caption	GWP-total = Globale Warming Potential - total; 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 = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPF = Abiotic Depletion Potential – fossil fuels; WDP = water use						
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 <sup>2</sup> or 195, while 1,12E-11 is the same as 1,12*10 <sup>-11</sup> or 0,0000000000112.						
Disclaimer	<sup>1</sup> The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.						

ADDITIONAL ENVIRONMENTAL IMPACTS PER VMTD MINI OPBL ISO							
Parameter	Unit	A1-A3	C1	C2	C3	C4	D
PM	[Disease incidence]	3,18E-06	0,00E+00	2,84E-10	1,32E-08	6,27E-10	-8,58E-07
IRP <sup>2</sup>	[kBq U235 eq.]	3,78E+00	0,00E+00	1,33E-04	6,80E-02	2,82E-04	-2,76E-02
ETP-fw <sup>1</sup>	[CTUe]	4,67E+02	0,00E+00	3,36E-01	3,11E+00	3,09E-01	-5,09E+01
HTP-c <sup>1</sup>	[CTUh]	5,70E-07	0,00E+00	6,92E-12	3,51E-10	8,76E-12	-6,21E-08
HTP-nc <sup>1</sup>	[CTUh]	1,03E-06	0,00E+00	3,75E-10	7,20E-09	9,69E-10	-2,34E-07
SQP <sup>1</sup>	-	3,95E+02	0,00E+00	2,01E-01	6,89E+00	1,37E-02	-1,52E+01
Caption	PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Soil Quality (dimensionless)						
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 <sup>2</sup> or 195, while 1,12E-11 is the same as 1,12*10 <sup>-11</sup> or 0,0000000000112.						
Disclaimers	<sup>1</sup> The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.						
	<sup>2</sup> This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.						



RESSOURCE CONSUMPTION PER VMTD MINI OPBL ISO							
Parameter	Unit	A1-A3	C1	C2	C3	C4	D
PERE	[MJ]	1,76E+02	0,00E+00	3,28E-02	9,94E+00	1,40E-02	-1,70E+01
PERM	[MJ]	6,03E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	[MJ]	2,36E+02	0,00E+00	3,28E-02	9,94E+00	1,40E-02	-1,70E+01
PENRE	[MJ]	5,96E+02	0,00E+00	4,76E-01	8,78E+00	1,54E-01	-1,14E+02
PENRM	[MJ]	4,31E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	[MJ]	6,39E+02	0,00E+00	4,76E-01	8,78E+00	1,54E-01	-1,14E+02
SM	[kg]	7,95E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	[MJ]	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
NRSF	[MJ]	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
FW	[m <sup>3</sup> ]	4,73E-01	0,00E+00	3,79E-05	8,04E-03	2,47E-05	-1,19E-01
Caption	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 resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Net use of fresh water						
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 <sup>2</sup> or 195, while 1,12E-11 is the same as 1,12*10 <sup>-11</sup> or 0,0000000000112.						

WASTE CATEGORIES AND OUTPUT FLOWS PER VMTD MINI OPBL ISO							
Parameter	Unit	A1-A3	C1	C2	C3	C4	D
HWD	[kg]	1,47E-03	0,00E+00	2,52E-12	1,25E-09	2,05E-11	-4,93E-04
NHWD	[kg]	4,45E+00	0,00E+00	7,75E-05	2,12E-01	1,76E-01	3,78E-01
RWD	[kg]	2,38E-02	0,00E+00	8,83E-07	6,38E-04	1,93E-06	-8,03E-04
CRU	[kg]	2,27E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	[kg]	1,62E+00	0,00E+00	0,00E+00	1,24E+01	0,00E+00	0,00E+00
MER	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,44E+00
EET	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,56E+00
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Eksporteret elektrisk energi; EET = Eksporteret termisk energi						
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 <sup>2</sup> or 195, while 1,12E-11 is the same as 1,12*10 <sup>-11</sup> or 0,0000000000112.						

BIOGENIC CARBON CONTENT PER VMTD MINI OPBL ISO		
Parameter	Unit	At the factory gate
Biogenic carbon content in product	[kg C]	0,00E+00
Biogenic carbon content in accompanying packaging	[kg C]	6,73E-01
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO <sub>2</sub>	



# Additional information

## LCA interpretation

The contributions (in %) are relative to the total impacts, which is a result of both the impacts (positive numbers) and the savings from recycling and energy recovery (negative values). In some cases, the total impacts from the system can thus be lower than the impacts from a specific process, since the total impacts also include the savings (negative values) from e.g., recycling. In cases where the impact from a specific process is larger than the net impact from whole the system, the contribution will be larger than 100%.

**Table 1 – Results from the process contribution analysis for the core environmental impact indicators for VMTD MINI OPBL ISO**

ENVIRONMENTAL IMPACTS				
Impact Category	Unit	Maximum contribution on category	Process	Percentage of category
Climate Change - total	[kg CO <sub>2</sub> eq.]	9,78E+00	A1: Pump	28%
Climate Change, fossil	[kg CO <sub>2</sub> eq.]	9,73E+00	A1: Pump	26%
Climate Change, biogenic	[kg CO <sub>2</sub> eq.]	-2,07E+00	Packaging, outgoing	-76%
Climate Change, land use and land use change	[kg CO <sub>2</sub> eq.]	1,66E-02	A1: Steel 316	38%
Ozone depletion	[kg CFC 11 eq.]	-1,91E-10	D: Electronics	-114%
Acidification	[mol H <sup>+</sup> eq.]	6,44E-02	A1: Brass	28%
Eutrophication, freshwater	[kg P eq.]	2,39E-05	Packaging, outgoing	20%
Eutrophication, marine	[kg N eq.]	9,32E-03	A1: Steel 316	30%
Eutrophication, terrestrial	[mol N eq.]	1,01E-01	A1: Steel 316	30%
Photochemical ozone formation, human health	[kg NMVOC eq.]	2,99E-02	A1: EPS	25%
Resource use, mineral and metals	[kg Sb eq.]	2,56E-03	A1: Brass	45%
Resource use, fossils	[MJ]	1,35E+02	A1: Pump	26%
Water use	[m <sup>3</sup> ]	5,57E+00	A1: Steel 316	42%

**Table 2 - Results from the process contribution analysis for the additional environmental impact indicators for VMTD MINI OPBL ISO**

ADDITIONAL ENVIRONMENTAL IMPACTS				
Impact Category	Unit	Maximum contribution on category	Process	Percentage of category
Particulate matter	[Disease incidence]	9,36E-07	A1: Steel 316	41%
Ionising radiation, human health	[kBq U235 eq.]	1,20E+00	A1: Brass	32%
Ecotoxicity, freshwater	[CTUe]	1,88E+02	A1: EPS	45%
Human toxicity, cancer	[CTUh]	2,98E-07	A1: Pump	59%
Human toxicity, non-cancer	[CTUh]	2,56E-07	A1: Brass	33%
Soil Quality	-	2,69E+02	Packaging, outgoing	71%

**Table 3 - Results from the process contribution analysis for the resource consumption indicators for VMTD MINI OPBL ISO.**

RESSOURCE CONSUMPTION				
Impact Category	Unit	Maximum contribution on category	Process	Percentage of category
Use of renewable primary energy	[MJ]	7,21E+01	A3: Electricity	33%
Primary energy resources used as raw materials	[MJ]	4,09E+01	A1: EPP	15%
Total use of renewable primary energy resources	[MJ]	7,21E+01	A3: Electricity	33%
Use of non-renewable primary energy	[MJ]	1,35E+02	A1: Pump	26%
Non-renewable primary energy resources used as raw materials	[MJ]	#N/A	#N/A	#N/A
Total use of non-renewable primary energy resources	[MJ]	1,35E+02	A1: Pump	26%
Input of secondary material	[kg]	5,10E+00	A1:Brass	64%
Use of renewable secondary fuels	[MJ]	#N/A	#N/A	#N/A
Use of non renewable secondary fuels	[MJ]	#N/A	#N/A	#N/A
Use of net fresh water	[m <sup>3</sup> ]	1,72E-01	A1: Steel 316	49%

Table 4 - Results from the process contribution analysis for the End-of-life (waste categories and output flows) for VMTD MINI OPBL ISO

WASTE CATEGORIES AND OUTPUT FLOWS				
Impact Category	Unit	Maximum contribution on category	Process	Percentage of category
Hazardous waste disposed	[kg]	8,83E-04	A1: EPS	94%
Non-hazardous waste disposed	[kg]	1,67E+00	A1: Brass	33%
Radioactive waste disposed	[kg]	7,39E-03	A1: Brass	32%
Components for re-use	[kg]	2,27E+00	A3: Return Pallet	100%
Materials for Recycling	[kg]	5,70E+00	C3: Brass	38%
Material for Energy Recovery	[kg]	#N/A	#N/A	#N/A
Exported electrical energy	[MJ]	1,36E+00	D: Incineration, elec	63%
Exported thermal energy	[MJ]	2,56E+00	D: Incineration, thermal	64%

**Technical information on scenarios**

**Reference service life**

RSL information	Unit
Reference service Life	20 Years
Declared product properties	Information for all topics can be found on the company's website, by using the following link: <a href="https://termix.dk/">https://termix.dk/</a>
Design application parameters	
Assumed quality of work	
Outdoor environment	
Indoor environment	
Usage conditions	
Maintenance	

**End of life (C1-C4)**

The following table provides an overview of the total amount of material being collected for waste treatment, as well as how the material is subsequently treated. As described earlier the whole unit is collected at end of life, and most materials are sent for recycling, since the unit is mainly made from different types of metal.

Scenario information	Value	Unit
Collected separately	14,1	kg
Collected with mixed waste	0	kg
For reuse	0	kg
For recycling	12,2	kg
For energy recovery	0,98	kg
For final disposal	0,72	kg
Assumptions for scenario development		As appropriate

**Re-use, recovery and recycling potential (D)**

The following table provides an overview of the amount of each material fraction being sent for recycling, as well as the amount of material subsequently being credited when recycled. The amount of credited material is calculated based on the virgin content in the input materials.

Scenario information/Materiel	Amount sent for recycling	Amount being credited when sent for recycling	Unit
Brass recycling	5,3	0,53	kg
Steel recycling	4,3	2,6	kg
Copper Recycling	0,45	0,23	kg
Circulation Pump recycling	2,3	2,30	kg

**Indoor air**

*The EPD does not give information on release of dangerous substances to indoor air because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.1.*

**Soil and water**

*The EPD does not give information on release of dangerous substances to soil and water because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.2.*

## References

<b>Publisher</b>	 epddanmark <a href="http://www.epddanmark.dk">www.epddanmark.dk</a>
<b>Programme operator</b>	Danish Technological Institute Buildings & Environment Gregersensvej DK-2630 Taastrup <a href="http://www.teknologisk.dk">www.teknologisk.dk</a>
<b>LCA-practitioner</b>	Danish Technological Institute Buildings & Environment Gregersensvej DK-2630 Taastrup <a href="http://www.teknologisk.dk">www.teknologisk.dk</a>
<b>LCA software /background data</b>	Thinkstep GaBi version 10.6.1.35, 2022 including databases <a href="http://www.gabi-software.com">www.gabi-software.com</a>
<b>3<sup>rd</sup> party verifier</b>	Guangli Du BUILD – The Department of the Built Environment, Aalborg University

### General programme instructions

General Programme Instructions, version 2.0, spring 2020  
[www.epddanmark.dk](http://www.epddanmark.dk)

### EN 15804

DS/EN 15804 + A2:2019 - "Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products"

### EN 15942

DS/EN 15942:2011 – " Sustainability of construction works – Environmental product declarations – Communication format business-to-business"

### ISO 14025

DS/EN ISO 14025:2010 – " Environmental labels and declarations – Type III environmental declarations – Principles and procedures"

### ISO 14040

DS/EN ISO 14040:2008 – " Environmental management – Life cycle assessment – Principles and framework"

### ISO 14044

DS/EN ISO 14044:2008 – " Environmental management – Life cycle assessment – Requirements and guidelines"