

Owner: Centrum Pæle A/S  
No.: MD-22035-EN  
Issued: 11-07-2022  
Valid for: 11-07-2027

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3<sup>rd</sup> PARTY VERIFIED

**EPD**

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VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | ISO 14025 & EN 15804



**Owner of the Declaration**

Centrum Pæle A/S  
CVR: 27242561

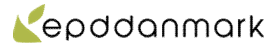


**Issued**  
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**Valid until:**  
11-07-2027

**Programme**

EPD Denmark  
www.epddanmark.dk



- Industry EPD  
 Product EPD

**Declared product**

1 conical mast foundation pile in steel reinforced concrete

Number of declared variations: 4

- MFP-C42, 3m
- MFP-C42, 4m
- MFP-C42, 5m
- MFP-C42, 6m

**Production location**

Centrum Pæle's production location in Vejle, Denmark

**Use of the product**

Mounting of masts for e.g. electrification of railway

**Declared/functional unit**

Declared unit is 1 piece of conical mast foundation pile

**Reference year**

2020

**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.

**EPD type**

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

CEN standard EN 15804 serves as the core PCR

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

- internal  external

Third party verifier:



Ninkie Bendtsen, Niras A/S



Martha Katrine Sørensen  
EPD Denmark

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

Product			Construction process		Use								End of life			Outside system boundary
Raw material supply	Transport	Manufacturing	Transport	Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/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
X	X	X	X	MND	X	MND	MND	MND	MND	MND	MND	X	X	X	X	X

# Product information

## Product description

The main materials of the mast foundation piles are listed in the table below. These represent 100% (w/w) of the declared products.

Materiale	Produkt				Unit
	MFP-C42, 3m	MFP-C42, 4m	MFP-C42, 5m	MFP-C42, 6m	
Cement	16%	16%	15%	16%	%
Crushed granite	37%	36%	36%	37%	%
Sand	29%	29%	29%	29%	%
Aggregates	6%	6%	5%	6%	%
Water	5%	5%	5%	5%	%
Additives and form oil	0%	0%	0%	0%	%
Steel	7%	7%	8%	7%	%
Stainless steel	1%	1%	0%	0%	%
Concrete spacers	0%	0%	0%	0%	%
O-rings and labels	0%	0%	0%	0%	%
Sum	100%	100%	100%	100%	%

Composition of packaging is calculated in the table below.

Materiale	Produkt				Unit
	MFP-C42, 3m	MFP-C42, 4m	MFP-C42, 5m	MFP-C42, 6m	
PVC hose	96%	96%	96%	96%	%
Foam	1%	1%	1%	1%	%
Tape	3%	3%	3%	3%	%
Sum emballage	100%	100%	100%	100%	%

## Representativeness

The declared unit is 1 piece of conical reinforced mast foundation pile in concrete.

Data for the underlying LCA are based on annual averages for the production of foundation piles in the year 2020. Background data is based on the GaBi database version 2021.2. Most data is less than 5 years old, and all data is less than 10 years old in accordance with EN15804:2012+A2:2019.

## Content of dangerous substances

The product does not contain substances from the REACH Candidate List, the "Candidate List of Substances of Very High Concern for Authorisation", in concentrations which exceeds 0.1% (<http://echa.europa.eu/candidate-list-table>).

## Essential properties

The mast foundation piles comply with the following requirements:

DS/EN 1990:2007	Eurocode 0 – Basis of structural design
DS/EN 1992-1-1	Eurocode 2: Design of concrete structures - Part 1-1 : General rules and rules for buildings
DS/EN 206:2013	Concrete - Specification, performance, production and conformity
DS/EN 13369:2018	Common rules for precast concrete products
DS/EN 12794	Precast concrete products - Foundation piles
DS/EN 10080:2006	Steel for the reinforcement of concrete - Weldable reinforcing steel - General
DS/EN 10088-1:2014	Stainless steels - Part 1: List of stainless steels

Performance declarations on each pole can be found here: <https://www.centrupaele.dk/paele.aspx>

### Life expectancy (RSL)

Lifetime is counted as 100 years (RSL) cf. Annex AA in "DS/EN 16757:2017 – "Sustainability in construction and construction – environmental product declarations – Product category rules for concrete and concrete elements".

### Photo of product



# LCA background

## Declared unit

LCI and LCIA results in this EPD relate to the declared unit 1 conical mast foundation pile in steel-reinforced concrete

The products are indicated in the tables below, with weight and a conversion factor to 1 kg.

Name	Product				Unit
	MFP-C42, 3m	MFP-C42, 4m	MFP-C42, 5m	MFP-C42, 6m	
Declared unit	1				stk
Mass	1,75E+03	2,14E+03	2,43E+03	2,62E+03	kg
Conversion factor to 1 kg	5,723E-04	4,671E-04	4,108E-04	3,810E-04	-

## Functional unit

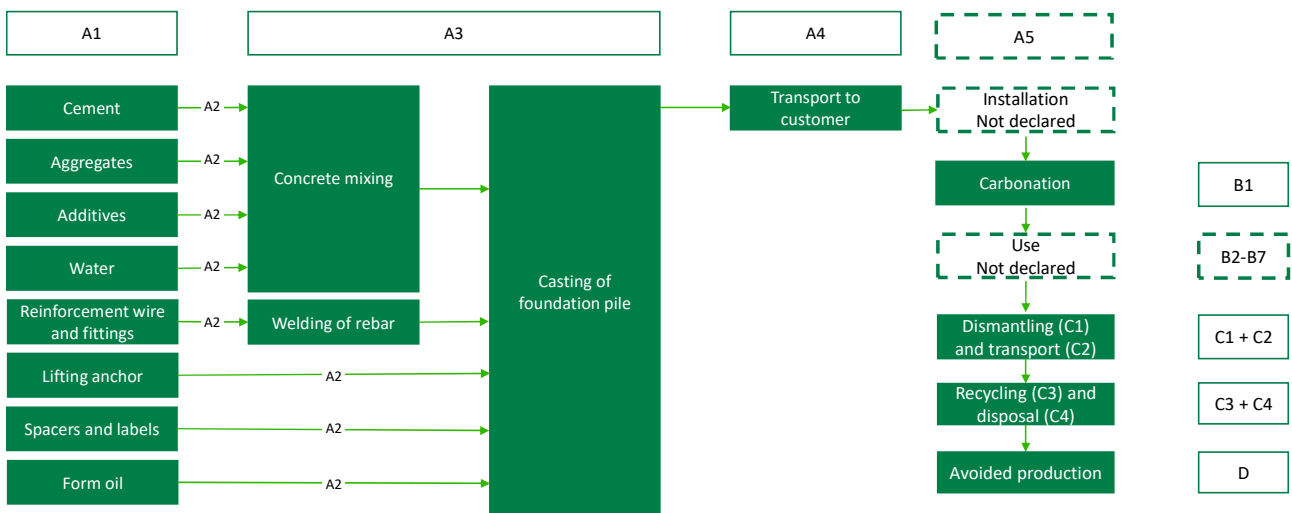
Not defined.

## PCR

This environmental product declaration is based on the requirements of EN 15804:2012+A2:2019 and the product-specific PCR: "DS/EN 16757:2017 - "Sustainability in construction and construction - environmental product declarations - Product category rules for concrete and concrete elements".

## Flow diagram

The flow diagram below covers raw materials (A1), production (A3) and outbound transport (A4) at Centrum Pæle in Vejle. Inbound and internal transport (A2) is done at the arrows. Furthermore are shown carbonation in module B1, plus dismantling (C1), transport (C2), recycling (C3), disposal (C4), and avoided production (D).





### System boundaries

The EPD is based on cradle-to-gate with options, module C1-C4 and module D. Options consist of including module A4 and B1.

All relevant processes from the modules covered are included.

The use phases (B2-B7) are of no relevance to the EPD as no contribution occurs as long as the product is installed in a given building/construction according to applicable instructions and standards.

The general rules for omitting inputs and outputs in the LCA follow the provisions of EN 15804:2012+A2:2019, 6.3.5, where the total omission of input flow per module may not exceed 5% of energy consumption and mass and a maximum of 1% per unit process.

Key assumptions are described for each life cycle stage below.

### The product phase (A1-A3):

The product phase includes the provision of all raw materials, products and energy, transport to production, mixing process, internal transport and waste treatment up to "end-of-waste" or final disposal.

The LCA results are indicated in aggregated form of the product phase, which means that modules A1, A2 and A3 are considered as a single module A1-A3.

The foundation piles are made by mixing concrete and pouring into molds where the necessary reinforcement, casting parts etc. have been laid down according to current standards.

The molds are designed in steel and applied form oil to enable reuse after cleaning. The concrete

elements are deformed the day after casting, after which they are driven to storage space. After hardening they are driven to the construction site.

### Construction process phase (A4-A5):

The construction process phase includes transport from the factory gate to the construction site in Denmark/Norther Germany (300km by truck).

Installation of foundation piles (module A5) is not included but must be including in LCA calculations on complete building or installation.

### Use phase (B1-B7):

The concrete will carbonate throughout the life of the product (B1).

Once foundation piles are installed according to applicable instructions and standards, there will be no need for maintenance, repairs, replacements, or renovation. Likewise, there is also no energy or water consumption associated with the product during the use phase.

### End of life (C1-C4):

The conical pile is pulled out of the ground and Transported 100km to the treatment site, where it is crushed.

### Potential for recycling, recycling and energy recovery (D):

When using crushed concrete in connection with the construction of roads and squares, the concrete will most often replace the use of gravel from gravel pits. The recycling of crushed concrete thereby reduces the consumption of gravel. Recycling of steel and stainless steel avoids the production of primarily metal.

# LCA results

For the calculation of LCIA results, the characterization model listed in the GaBi software as EN15804+A2 is used, together with database version 2021.2 for classifying and characterizing input and output flows.

## MFP-C42, 3m MFP-C42, 3m

ENVIRONMENTAL EFFECTS PER PRODUCT									
Parameter	Unit	A1-A3	A4	B1	C1	C2	C3	C4	D
GWP-total	[kg CO <sub>2</sub> eq.]	2,96E+02	2,40E+01	-3,85E+00	5,14E+00	1,60E+01	3,62E+00	0,00E+00	-1,81E+01
GWP-fossil	[kg CO <sub>2</sub> eq.]	2,96E+02	2,38E+01	-3,85E+00	5,33E+00	1,58E+01	3,76E+00	0,00E+00	-1,81E+01
GWP-bio	[kg CO <sub>2</sub> eq.]	4,49E-01	-2,83E-02	0,00E+00	-2,31E-01	-1,89E-02	-1,63E-01	0,00E+00	1,14E-01
GWP-luluc	[kg CO <sub>2</sub> eq.]	3,36E-01	1,94E-01	0,00E+00	4,19E-02	1,29E-01	2,95E-02	0,00E+00	-5,16E-02
ODP	[kg CFC 11 eq.]	1,03E-08	4,69E-15	0,00E+00	1,01E-15	3,13E-15	7,13E-16	0,00E+00	-3,18E-14
AP	[mol H <sup>+</sup> eq.]	8,32E-01	2,53E-02	0,00E+00	2,57E-02	1,68E-02	1,81E-02	0,00E+00	-1,12E-01
EP-fw	[kg P eq.]	3,04E-04	7,06E-05	0,00E+00	1,52E-05	4,70E-05	1,07E-05	0,00E+00	-3,23E-05
EP-mar	[kg N eq.]	2,31E-01	8,07E-03	0,00E+00	1,21E-02	5,37E-03	8,49E-03	0,00E+00	-2,02E-02
EP-ter	[mol N eq.]	2,51E+00	9,59E-02	0,00E+00	1,33E-01	6,38E-02	9,39E-02	0,00E+00	-2,19E-01
POCP	[kg NMVOC eq.]	6,89E-01	2,19E-02	0,00E+00	3,38E-02	1,46E-02	2,38E-02	0,00E+00	-6,03E-02
ADP-mm <sup>1</sup>	[kg Sb eq.]	1,32E-03	2,11E-06	0,00E+00	4,55E-07	1,40E-06	3,20E-07	0,00E+00	-2,36E-05
ADP-fos <sup>1</sup>	[MJ]	2,75E+03	3,17E+02	0,00E+00	6,83E+01	2,11E+02	4,81E+01	0,00E+00	-2,27E+02
WDP <sup>1</sup>	[m <sup>3</sup> ]	2,94E+01	2,21E-01	0,00E+00	4,76E-02	1,47E-01	3,35E-02	0,00E+00	-6,65E+00
Caption	GWP-total = Globale Warming Potential - total; GWP-fossil = Global Warming Potential - fossil fuels; GWP-bio = 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								
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.								

## MFP-C42, 3m

ADDITIONAL ENVIRONMENTAL EFFECTS PER PRODUCT									
Parameter	Unit	A1-A3	A4	B1	C1	C2	C3	C4	D
PM	[Disease incidence]	1,16E-05	1,73E-07	0,00E+00	2,92E-07	1,15E-07	2,06E-07	0,00E+00	-2,85E-06
IRP2	[kBq U235 eq.]	2,41E+01	8,43E-02	0,00E+00	1,82E-02	5,61E-02	1,28E-02	0,00E+00	-4,94E-01
ETP-fw1	[CTUe]	1,07E+03	2,35E+02	0,00E+00	5,07E+01	1,56E+02	3,57E+01	0,00E+00	-1,35E+02
HTP-c1	[CTUh]	1,76E-05	4,75E-09	0,00E+00	1,02E-09	3,16E-09	7,22E-10	0,00E+00	-2,37E-07
HTP-nc1	[CTUh]	5,12E-06	2,47E-07	0,00E+00	6,15E-08	1,64E-07	4,33E-08	0,00E+00	-2,62E-07
SQP1	-	4,67E+02	1,09E+02	0,00E+00	2,35E+01	7,25E+01	1,65E+01	0,00E+00	-3,56E+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)								
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.								

**MFP-C42, 3m**

RESSOURCE CONSUMPTION PER PRODUCT									
Parameter	Unit	A1-A3	A4	B1	C1	C2	C3	C4	D
PERE	[MJ]	5,31E+02	1,82E+01	0,00E+00	3,93E+00	1,21E+01	2,77E+00	0,00E+00	-4,50E+01
PERM	[MJ]	9,67E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	[MJ]	5,41E+02	1,82E+01	0,00E+00	3,93E+00	1,21E+01	2,77E+00	0,00E+00	-4,50E+01
PENRE	[MJ]	2,56E+03	3,18E+02	0,00E+00	6,86E+01	2,12E+02	4,83E+01	0,00E+00	-2,27E+02
PENRM	[MJ]	1,96E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	[MJ]	2,75E+03	3,18E+02	0,00E+00	6,86E+01	2,12E+02	4,83E+01	0,00E+00	-2,27E+02
SM	[kg]	1,35E+02	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> ]	1,05E+00	2,09E-02	0,00E+00	4,50E-03	1,39E-02	3,17E-03	0,00E+00	-2,74E-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								

**MFP-C42, 3m**

WASTE CATEGORIES AND OUTPUT FLOWS PER PRODUCT									
Parameter	Unit	A1-A3	A4	B1	C1	C2	C3	C4	D
HWD	[kg]	2,19E-04	1,67E-08	0,00E+00	3,61E-09	1,12E-08	2,54E-09	0,00E+00	-1,77E-03
NHWD	[kg]	2,39E+01	4,99E-02	0,00E+00	1,08E-02	3,32E-02	7,57E-03	0,00E+00	-4,43E+01
RWD	[kg]	1,51E-01	5,76E-04	0,00E+00	1,24E-04	3,84E-04	8,76E-05	0,00E+00	-3,48E-03
CRU	[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
MFR	[kg]	4,59E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,20E+03	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	0,00E+00	0,00E+00
EEE	[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
EET	[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
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 = Exported electrical energy; EET = Exported thermal energy								

**MFP-C42, 3m**

BIOGENIC CARBON CONTENT PER PER PRODUCT		
Parameter	Unit	At the factory gate
Biogenic carbon content in product	kg C	1,02E-01
Biogenic carbon content in accompanying packaging	kg C	0,00E+00



**MFP-C42, 4m**  
**MFP-C42, 4m**

ENVIRONMENTAL EFFECTS PER PRODUCT									
Parameter	Unit	A1-A3	A4	B1	C1	C2	C3	C4	D
GWP-total	[kg CO <sub>2</sub> eq.]	3,21E+02	2,47E+01	-4,66E+00	5,30E+00	1,65E+01	3,74E+00	0,00E+00	-1,81E+01
GWP-fossil	[kg CO <sub>2</sub> eq.]	3,20E+02	2,45E+01	-4,66E+00	5,50E+00	1,63E+01	3,87E+00	0,00E+00	-1,81E+01
GWP-bio	[kg CO <sub>2</sub> eq.]	5,46E-01	-2,92E-02	0,00E+00	-2,38E-01	-1,94E-02	-1,68E-01	0,00E+00	1,14E-01
GWP-luluc	[kg CO <sub>2</sub> eq.]	3,85E-01	2,00E-01	0,00E+00	4,32E-02	1,33E-01	3,04E-02	0,00E+00	-5,16E-02
ODP	[kg CFC 11 eq.]	1,03E-08	4,84E-15	0,00E+00	1,04E-15	3,22E-15	7,35E-16	0,00E+00	-3,19E-14
AP	[mol H <sup>+</sup> eq.]	8,83E-01	2,61E-02	0,00E+00	2,65E-02	1,74E-02	1,87E-02	0,00E+00	-1,12E-01
EP-fw	[kg P eq.]	3,57E-04	7,28E-05	0,00E+00	1,57E-05	4,85E-05	1,11E-05	0,00E+00	-3,23E-05
EP-mar	[kg N eq.]	2,44E-01	8,32E-03	0,00E+00	1,24E-02	5,54E-03	8,75E-03	0,00E+00	-2,02E-02
EP-ter	[mol N eq.]	2,65E+00	9,88E-02	0,00E+00	1,38E-01	6,58E-02	9,68E-02	0,00E+00	-2,19E-01
POCP	[kg NMVOC eq.]	7,36E-01	2,26E-02	0,00E+00	3,48E-02	1,51E-02	2,45E-02	0,00E+00	-6,03E-02
ADP-mm <sup>1</sup>	[kg Sb eq.]	1,32E-03	2,17E-06	0,00E+00	4,69E-07	1,45E-06	3,30E-07	0,00E+00	-2,36E-05
ADP-fos <sup>1</sup>	[MJ]	3,13E+03	3,26E+02	0,00E+00	7,04E+01	2,17E+02	4,96E+01	0,00E+00	-2,27E+02
WDP <sup>1</sup>	[m <sup>3</sup> ]	3,33E+01	2,27E-01	0,00E+00	4,91E-02	1,51E-01	3,46E-02	0,00E+00	-6,65E+00
Caption	GWP-total = Globale Warming Potential - total; GWP-fossil = Global Warming Potential - fossil fuels; GWP-bio = 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								
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.								

**MFP-C42, 4m**

ADDITIONAL ENVIRONMENTAL EFFECTS PER PRODUCT									
Parameter	Unit	A1-A3	A4	B1	C1	C2	C3	C4	D
PM	[Disease incidence]	1,23E-05	1,79E-07	0,00E+00	3,01E-07	1,19E-07	2,12E-07	0,00E+00	-2,85E-06
IRP2	[kBq U235 eq.]	2,87E+01	8,69E-02	0,00E+00	1,88E-02	5,79E-02	1,32E-02	0,00E+00	-4,94E-01
ETP-fw1	[CTUe]	1,20E+03	2,42E+02	0,00E+00	5,23E+01	1,61E+02	3,68E+01	0,00E+00	-1,35E+02
HTP-c1	[CTUh]	1,76E-05	4,90E-09	0,00E+00	1,06E-09	3,26E-09	7,44E-10	0,00E+00	-2,37E-07
HTP-nc1	[CTUh]	5,81E-06	2,54E-07	0,00E+00	6,34E-08	1,69E-07	4,47E-08	0,00E+00	-2,62E-07
SQP1	-	5,49E+02	1,12E+02	0,00E+00	2,42E+01	7,47E+01	1,70E+01	0,00E+00	-3,56E+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)								
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.								

**MFP-C42, 4m**

RESSOURCE CONSUMPTION PER PRODUCT									
Parameter	Unit	A1-A3	A4	B1	C1	C2	C3	C4	D
PERE	[MJ]	6,20E+02	1,88E+01	0,00E+00	4,05E+00	1,25E+01	2,85E+00	0,00E+00	-4,50E+01
PERM	[MJ]	1,18E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	[MJ]	6,31E+02	1,88E+01	0,00E+00	4,05E+00	1,25E+01	2,85E+00	0,00E+00	-4,50E+01
PENRE	[MJ]	2,90E+03	3,28E+02	0,00E+00	7,07E+01	2,18E+02	4,98E+01	0,00E+00	-2,27E+02
PENRM	[MJ]	2,34E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	[MJ]	3,13E+03	3,28E+02	0,00E+00	7,07E+01	2,18E+02	4,98E+01	0,00E+00	-2,27E+02
SM	[kg]	1,74E+02	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> ]	1,19E+00	2,15E-02	0,00E+00	4,64E-03	1,43E-02	3,27E-03	0,00E+00	-2,74E-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								

**MFP-C42, 4m**

<b>WASTE CATEGORIES AND OUTPUT FLOWS PER PRODUCT</b>									
<b>Parameter</b>	<b>Unit</b>	<b>A1-A3</b>	<b>A4</b>	<b>B1</b>	<b>C1</b>	<b>C2</b>	<b>C3</b>	<b>C4</b>	<b>D</b>
HWD	[kg]	2,19E-04	1,73E-08	0,00E+00	3,72E-09	1,15E-08	2,62E-09	0,00E+00	-1,77E-03
NHWD	[kg]	2,42E+01	5,14E-02	0,00E+00	1,11E-02	3,42E-02	7,81E-03	0,00E+00	-4,43E+01
RWD	[kg]	1,79E-01	5,94E-04	0,00E+00	1,28E-04	3,96E-04	9,03E-05	0,00E+00	-3,48E-03
CRU	[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
MFR	[kg]	4,92E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,24E+03	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	0,00E+00	0,00E+00
EEE	[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
EET	[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
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 = Exported electrical energy; EET = Exported thermal energy								

**MFP-C42, 4m**

<b>BIOGENIC CARBON CONTENT PER PER PRODUCT</b>		
<b>Parameter</b>	<b>Unit</b>	<b>At the factory gate</b>
Biogenic carbon content in product	kg C	1,24E-01
Biogenic carbon content in accompanying packaging	kg C	0,00E+00

**MFP-C42, 5m**  
**MFP-C42, 5m**

ENVIRONMENTAL EFFECTS PER PRODUCT									
Parameter	Unit	A1-A3	A4	B1	C1	C2	C3	C4	D
GWP-total	[kg CO <sub>2</sub> eq.]	3,42E+02	2,53E+01	-5,47E+00	5,44E+00	1,69E+01	3,83E+00	0,00E+00	-1,81E+01
GWP-fossil	[kg CO <sub>2</sub> eq.]	3,41E+02	2,52E+01	-5,47E+00	5,64E+00	1,68E+01	3,97E+00	0,00E+00	-1,81E+01
GWP-bio	[kg CO <sub>2</sub> eq.]	6,29E-01	-2,99E-02	0,00E+00	-2,44E-01	-1,99E-02	-1,72E-01	0,00E+00	1,14E-01
GWP-luluc	[kg CO <sub>2</sub> eq.]	4,27E-01	2,05E-01	0,00E+00	4,43E-02	1,37E-01	3,12E-02	0,00E+00	-5,17E-02
ODP	[kg CFC 11 eq.]	1,03E-08	4,96E-15	0,00E+00	1,07E-15	3,30E-15	7,54E-16	0,00E+00	-3,19E-14
AP	[mol H <sup>+</sup> eq.]	9,27E-01	2,67E-02	0,00E+00	2,72E-02	1,78E-02	1,92E-02	0,00E+00	-1,12E-01
EP-fw	[kg P eq.]	4,02E-04	7,47E-05	0,00E+00	1,61E-05	4,97E-05	1,13E-05	0,00E+00	-3,23E-05
EP-mar	[kg N eq.]	2,55E-01	8,53E-03	0,00E+00	1,27E-02	5,68E-03	8,97E-03	0,00E+00	-2,02E-02
EP-ter	[mol N eq.]	2,77E+00	1,01E-01	0,00E+00	1,41E-01	6,75E-02	9,93E-02	0,00E+00	-2,19E-01
POCP	[kg NMVOC eq.]	7,76E-01	2,32E-02	0,00E+00	3,57E-02	1,55E-02	2,51E-02	0,00E+00	-6,03E-02
ADP-mm <sup>1</sup>	[kg Sb eq.]	1,32E-03	2,23E-06	0,00E+00	4,81E-07	1,48E-06	3,39E-07	0,00E+00	-2,36E-05
ADP-fos <sup>1</sup>	[MJ]	3,45E+03	3,35E+02	0,00E+00	7,22E+01	2,23E+02	5,09E+01	0,00E+00	-2,27E+02
WDP <sup>1</sup>	[m <sup>3</sup> ]	3,67E+01	2,33E-01	0,00E+00	5,03E-02	1,55E-01	3,54E-02	0,00E+00	-6,65E+00
Caption	GWP-total = Globale Warming Potential - total; GWP-fossil = Global Warming Potential - fossil fuels; GWP-bio = 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								
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.								

**MFP-C42, 5m**

ADDITIONAL ENVIRONMENTAL EFFECTS PER PRODUCT									
Parameter	Unit	A1-A3	A4	B1	C1	C2	C3	C4	D
PM	[Disease incidence]	1,28E-05	1,83E-07	0,00E+00	3,09E-07	1,22E-07	2,18E-07	0,00E+00	-2,86E-06
IRP2	[kBq U235 eq.]	3,25E+01	8,91E-02	0,00E+00	1,92E-02	5,94E-02	1,35E-02	0,00E+00	-4,94E-01
ETP-fw1	[CTUe]	1,31E+03	2,48E+02	0,00E+00	5,36E+01	1,65E+02	3,78E+01	0,00E+00	-1,35E+02
HTP-c1	[CTUh]	1,76E-05	5,02E-09	0,00E+00	1,08E-09	3,35E-09	7,63E-10	0,00E+00	-2,37E-07
HTP-nc1	[CTUh]	6,39E-06	2,61E-07	0,00E+00	6,50E-08	1,74E-07	4,58E-08	0,00E+00	-2,62E-07
SQP1	-	6,20E+02	1,15E+02	0,00E+00	2,48E+01	7,66E+01	1,75E+01	0,00E+00	-3,56E+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)								
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.								

**MFP-C42, 5m**

RESSOURCE CONSUMPTION PER PRODUCT									
Parameter	Unit	A1-A3	A4	B1	C1	C2	C3	C4	D
PERE	[MJ]	6,95E+02	1,93E+01	0,00E+00	4,16E+00	1,28E+01	2,93E+00	0,00E+00	-4,50E+01
PERM	[MJ]	1,34E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	[MJ]	7,08E+02	1,93E+01	0,00E+00	4,16E+00	1,28E+01	2,93E+00	0,00E+00	-4,50E+01
PENRE	[MJ]	3,19E+03	3,36E+02	0,00E+00	7,25E+01	2,24E+02	5,11E+01	0,00E+00	-2,27E+02
PENRM	[MJ]	2,62E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	[MJ]	3,45E+03	3,36E+02	0,00E+00	7,25E+01	2,24E+02	5,11E+01	0,00E+00	-2,27E+02
SM	[kg]	2,08E+02	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> ]	1,31E+00	2,21E-02	0,00E+00	4,76E-03	1,47E-02	3,35E-03	0,00E+00	-2,74E-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								

**MFP-C42, 5m**

<b>WASTE CATEGORIES AND OUTPUT FLOWS PER PRODUCT</b>									
<b>Parameter</b>	<b>Unit</b>	<b>A1-A3</b>	<b>A4</b>	<b>B1</b>	<b>C1</b>	<b>C2</b>	<b>C3</b>	<b>C4</b>	<b>D</b>
HWD	[kg]	2,19E-04	1,77E-08	0,00E+00	3,82E-09	1,18E-08	2,69E-09	0,00E+00	-1,77E-03
NHWD	[kg]	2,45E+01	5,27E-02	0,00E+00	1,14E-02	3,51E-02	8,01E-03	0,00E+00	-4,44E+01
RWD	[kg]	2,03E-01	6,09E-04	0,00E+00	1,32E-04	4,06E-04	9,26E-05	0,00E+00	-3,48E-03
CRU	[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
MFR	[kg]	5,21E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,27E+03	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	0,00E+00	0,00E+00
EEE	[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
EET	[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
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 = Exported electrical energy; EET = Exported thermal energy								

**MFP-C42, 5m**

<b>BIOGENIC CARBON CONTENT PER PER PRODUCT</b>		
<b>Parameter</b>	<b>Unit</b>	<b>At the factory gate</b>
Biogenic carbon content in product	kg C	1,41E-01
Biogenic carbon content in accompanying packaging	kg C	0,00E+00

**MFP-C42, 6m**  
**MFP-C42, 6m**

ENVIRONMENTAL EFFECTS PER PRODUCT									
Parameter	Unit	A1-A3	A4	B1	C1	C2	C3	C4	D
GWP-total	[kg CO <sub>2</sub> eq.]	3,45E+02	2,53E+01	-6,28E+00	5,44E+00	1,69E+01	3,83E+00	0,00E+00	-1,81E+01
GWP-fossil	[kg CO <sub>2</sub> eq.]	3,44E+02	2,52E+01	-6,28E+00	5,64E+00	1,68E+01	3,97E+00	0,00E+00	-1,81E+01
GWP-bio	[kg CO <sub>2</sub> eq.]	6,25E-01	-2,99E-02	0,00E+00	-2,44E-01	-1,99E-02	-1,72E-01	0,00E+00	1,14E-01
GWP-luluc	[kg CO <sub>2</sub> eq.]	4,42E-01	2,05E-01	0,00E+00	4,43E-02	1,37E-01	3,12E-02	0,00E+00	-5,17E-02
ODP	[kg CFC 11 eq.]	1,03E-08	4,96E-15	0,00E+00	1,07E-15	3,30E-15	7,54E-16	0,00E+00	-3,19E-14
AP	[mol H <sup>+</sup> eq.]	9,30E-01	2,67E-02	0,00E+00	2,72E-02	1,78E-02	1,92E-02	0,00E+00	-1,12E-01
EP-fw	[kg P eq.]	4,07E-04	7,47E-05	0,00E+00	1,61E-05	4,97E-05	1,13E-05	0,00E+00	-3,23E-05
EP-mar	[kg N eq.]	2,56E-01	8,53E-03	0,00E+00	1,27E-02	5,68E-03	8,97E-03	0,00E+00	-2,02E-02
EP-ter	[mol N eq.]	2,78E+00	1,01E-01	0,00E+00	1,41E-01	6,75E-02	9,93E-02	0,00E+00	-2,19E-01
POCP	[kg NMVOC eq.]	7,79E-01	2,32E-02	0,00E+00	3,57E-02	1,55E-02	2,51E-02	0,00E+00	-6,03E-02
ADP-mm <sup>1</sup>	[kg Sb eq.]	1,32E-03	2,23E-06	0,00E+00	4,81E-07	1,48E-06	3,39E-07	0,00E+00	-2,36E-05
ADP-fos <sup>1</sup>	[MJ]	3,50E+03	3,35E+02	0,00E+00	7,22E+01	2,23E+02	5,09E+01	0,00E+00	-2,27E+02
WDP <sup>1</sup>	[m <sup>3</sup> ]	3,67E+01	2,33E-01	0,00E+00	5,03E-02	1,55E-01	3,54E-02	0,00E+00	-6,65E+00
Caption	GWP-total = Globale Warming Potential - total; GWP-fossil = Global Warming Potential - fossil fuels; GWP-bio = 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								
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.								

**MFP-C42, 6m**

ADDITIONAL ENVIRONMENTAL EFFECTS PER PRODUCT									
Parameter	Unit	A1-A3	A4	B1	C1	C2	C3	C4	D
PM	[Disease incidence]	1,28E-05	1,83E-07	0,00E+00	3,09E-07	1,22E-07	2,18E-07	0,00E+00	-2,86E-06
IRP2	[kBq U235 eq.]	3,25E+01	8,91E-02	0,00E+00	1,92E-02	5,94E-02	1,35E-02	0,00E+00	-4,94E-01
ETP-fw1	[CTUe]	1,33E+03	2,48E+02	0,00E+00	5,36E+01	1,65E+02	3,78E+01	0,00E+00	-1,35E+02
HTP-c1	[CTUh]	1,76E-05	5,02E-09	0,00E+00	1,08E-09	3,35E-09	7,63E-10	0,00E+00	-2,37E-07
HTP-nc1	[CTUh]	6,41E-06	2,61E-07	0,00E+00	6,50E-08	1,74E-07	4,58E-08	0,00E+00	-2,62E-07
SQP1	-	6,28E+02	1,15E+02	0,00E+00	2,48E+01	7,66E+01	1,75E+01	0,00E+00	-3,56E+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)								
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.								

**MFP-C42, 6m**

RESSOURCE CONSUMPTION PER PRODUCT									
Parameter	Unit	A1-A3	A4	B1	C1	C2	C3	C4	D
PERE	[MJ]	6,95E+02	1,93E+01	0,00E+00	4,16E+00	1,28E+01	2,93E+00	0,00E+00	-4,50E+01
PERM	[MJ]	1,45E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	[MJ]	7,10E+02	1,93E+01	0,00E+00	4,16E+00	1,28E+01	2,93E+00	0,00E+00	-4,50E+01
PENRE	[MJ]	3,22E+03	3,36E+02	0,00E+00	7,25E+01	2,24E+02	5,11E+01	0,00E+00	-2,27E+02
PENRM	[MJ]	2,83E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	[MJ]	3,50E+03	3,36E+02	0,00E+00	7,25E+01	2,24E+02	5,11E+01	0,00E+00	-2,27E+02
SM	[kg]	2,08E+02	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> ]	1,31E+00	2,21E-02	0,00E+00	4,76E-03	1,47E-02	3,35E-03	0,00E+00	-2,74E-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								

**MFP-C42, 6m**

<b>WASTE CATEGORIES AND OUTPUT FLOWS PER PRODUCT</b>									
<b>Parameter</b>	<b>Unit</b>	<b>A1-A3</b>	<b>A4</b>	<b>B1</b>	<b>C1</b>	<b>C2</b>	<b>C3</b>	<b>C4</b>	<b>D</b>
HWD	[kg]	2,19E-04	1,77E-08	0,00E+00	3,82E-09	1,18E-08	2,69E-09	0,00E+00	-1,77E-03
NHWD	[kg]	2,45E+01	5,27E-02	0,00E+00	1,14E-02	3,51E-02	8,01E-03	0,00E+00	-4,44E+01
RWD	[kg]	2,03E-01	6,09E-04	0,00E+00	1,32E-04	4,06E-04	9,26E-05	0,00E+00	-3,48E-03
CRU	[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
MFR	[kg]	5,21E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,27E+03	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	0,00E+00	0,00E+00
EEE	[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
EET	[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
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 = Exported electrical energy; EET = Exported thermal energy								

**MFP-C42, 6m**

<b>BIOGENIC CARBON CONTENT PER PER PRODUCT</b>		
<b>Parameter</b>	<b>Unit</b>	<b>At the factory gate</b>
Biogenic carbon content in product	kg C	1,53E-01
Biogenic carbon content in accompanying packaging	kg C	0,00E+00



# Additional information

## LCA interpretation

The biggest environmental impact is related to the production of cement, and to a minor extent to the production of steel and stainless steel.

## Technical information on underlying scenarios

### Transport to the construction site (A4)

Name	Value	Unit
Fuel quantity and type (alternatively: type of transport)	Diesel	-
Transport types	Truck trailer, Euro 6, 28 - 34t gross weight / 22t payload capacity	
Transport distance	300	km
Capacity utilisation (including empty return journey)	61	%
Gross mass fill of transported product	2,4E02	kg/m <sup>3</sup>
Capacity utilisation, volume factor	1	-

### Reference service life

Name	Value	Unit
Reference Service Life - Lifetime RSL	100	Year
Declared product characteristics (at port) etc.	<a href="https://www.centrumpaele.dk/paele.aspx">https://www.centrumpaele.dk/paele.aspx</a>	-
Instructions for use (if given by the manufacturer)	<a href="https://www.centrumpaele.dk/statiske-beregninger.aspx">https://www.centrumpaele.dk/statiske-beregninger.aspx</a>	-
Presumed quality of installation work, according to manufacturer instructions	<a href="https://www.centrumpaele.dk/statiske-beregninger.aspx">https://www.centrumpaele.dk/statiske-beregninger.aspx</a>	-
Outdoor environment (outdoor use) – e.g. weather resistance, wind, pollution, UV, etc.	<a href="https://www.centrumpaele.dk/paele.aspx">https://www.centrumpaele.dk/paele.aspx</a>	-
Indoor environment (indoor use), e.g. temperature, humidity, etc.	Not applicable	-
Conditions of use - e.g. mechanical influences, frequency of use, etc.	<a href="https://www.centrumpaele.dk/statiske-beregninger.aspx">https://www.centrumpaele.dk/statiske-beregninger.aspx</a>	-
Maintain (frequency, type, quality, parts replacement)	Not applicable	-

½meter extensions of mast foundation piles are left in the ground and disposal (C1-C4) and avoided production (D) are not modelled.

### End of life/Disposal (C1-C4)

Materiale	Product				Unit
	MFP-C42, 3m	MFP-C42, 4m	MFP-C42, 5m	MFP-C42, 6m	
Sorted construction waste	1.747	2.141	2.434	2.426	kg
Mixed construction waste	0	0	0	0	kg
For reuse	0	0	0	0	kg
For recycling	1.747	2.141	2.434	2.426	kg
For energy recovery	0	0	0	0	kg
For landfill	0	0	0	0	kg
Prerequisites for end-of-life scenarios	Koniske fundamentspæle kan trækkes op af jorden				kg

### Genanvendelse, genvinding og/eller genbrugspotentiale (D)

Materiale	Produkt				Unit
	MFP-C42, 3m	MFP-C42, 4m	MFP-C42, 5m	MFP-C42, 6m	
Avoid production of gravel	1.618	1.974	2.236	2.426	kg
Avoid production of steel	0	0	0	0	kg
Avoid production of stainless steel	2,8	2,8	2,8	2,8	kg

Note in the table above that avoided production is only considered from virgin material input to the production. Recycled material as product input is not considered to displace primary materials.

### Indoor air

Not applicable.

### Soil and water

The EPD does not indicate anything about the release of hazardous substances to soil and water, as the horizontal standards for measuring the release of regulated hazardous substances from construction products using harmonised testing methods under the provisions of the respective Technical Committees for European Product Standards are not available.

## References

<b>Publisher</b>	 <a href="http://www.epddanmark.dk">www.epddanmark.dk</a>
<b>Program operator</b>	Danish Technological Institute 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 10.6 Database version 2021.2 <a href="http://www.gabi-software.com">www.gabi-software.com</a>
<b>3<sup>rd</sup> Party Verifier</b>	Ninkie Bendtsen NIRAS A/S Sortemosevej 19 DK-3450 Allerød <a href="http://www.niras.dk">www.niras.dk</a>

### General program instructions

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

#### EN 15804

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

#### EN 16757

DS/EN 16757:2017. Sustainability of construction works – Environmental product declarations – Product Category Rules for concrete and concrete elements.

#### EN 15942

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

#### ISO 14025

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

#### ISO 14040

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

#### ISO 14044

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