epddanmark

ECO PLATFORM EPD VERIFIED

Owner: Mira Byggeprodukter A/S
No.: MD-22124-EN
Issued: 17-03-2023
Valid to: 17-03-2028

3rd PARTY **VERIFIED**

EPD

VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | **ISO 14025 & EN 15804**

Owner of declaration

Mira Byggeprodukter A/S, Egegårdsvej 2, DK-4621 Gadstrup CVR-Nr. DK-39581914

Program

EPD Danmark

☐ Industry EPD
☒ Product EPD

Declared product(s)

6600 cemplan
6700 cemplan
x-plan
easyplan
6850 cemplaster
6990 betodeck
6870 fibreplaster
6998 betomix quick
6975 betomix flow

Number of declared datasets/product variations: 9

Production site

The MIRA products included in this study are manufactured in two production sites; one located in Estonia, and another located in Denmark. The locations of the production sites are:

- Estonia: Segu 8, Saue, 76505 Harju maakond, Estonia
- Denmark: Egegårdsvej 2, 4621 Gadstrup, Denmark

Product(s) use

Mira products are used as cement based, polymer reinforced, floor levelling compounds. Suitable for water based, electrical based heated floors, floor surfaces in residential areas, and light industry in wet and dry areas, indoors and outdoors.

Declared / functional unit

This EPD refers to the declared unit of 1 kg tile product with a density of 1100 - 2200 kg/m^3.

Year of production site data (A3)

2021

EPD version

The first issue.

Issued: 17-03-2023

Valid to: 17-03-2028

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 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

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

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	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**	**X**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**X**	**X**	**X**	**X**	**X**

Product information

Product description

The main product components are shown in Table 1. Values are given as intervals covering the nine products. Specific recipes are used, and the composition of input materials is 100 % in mass -% of declared products.

Table 1: Material composition of products

Product	Material / component	Weight-% of declared product
6600 cemplan	Cement	23,92
	Sand	40,22
	Calcium carbonate	23,29
	Additives	12,57
6700 cemplan	Cement	11,77
	Sand	50,43
	Calcium carbonate	10,09
	Additives	27,71
x-plan	Cement	14,17
	Sand	55,00
	Calcium carbonate	7,19
	Additives	23,66
Easyplan	Cement	25,81
	Sand	32,75
	Calcium carbonate	34,73
	Additives	6,76
6850 cemplaster	Cement	27,24
	Sand	23,79
	Calcium carbonate	33,92
	Additives	15,11
6990 betodeck	Cement	23,69
	Sand	74,02
	Calcium carbonate	0,00
	Additives	3,27
6870 fibreplaster	Cement	22,38
	Sand	66,26
	Calcium carbonate	10,33
	Additives	1,03
6998 betomix quick	Cement	16,91
	Sand	82,08
	Calcium carbonate	0,00
	Additives	1,02
6975 betomix flow	Cement	15,50
	Sand	65,35
	Calcium carbonate	4,19
	Additives	15,01

Product packaging:

The composition of the sales- and transport packaging of the product is shown in Table 2 below.

Table 2: Material composition of Sales and Transport Packaging for the final Mira product

Material	Weight-% of packaging
Paper	58,6
PE	41,4
Total	**100**

Representativity

This declaration, including data collection and the modeled foreground system including results, represents the production of 1 kg of product on the production sites located in Estonia and Denmark. Product specific data are based on average values collected in the year 2021. Background data are based on SimaPro 9.3 with database of EcoInvent 3.8 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 products do not contain hazardous substance listed in the "Candidate List of Substances of Very High Concern (SVHC) for authorization" higher than 0.1% of the weight of the product.

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

Essential characteristics

The products are designed, produced and CE marked according to EN 12004 (Adhesives for tiles. Requirements, evaluation of conformity, classification and designation).

They are classified as seen in Table 3 according to EN 12004:2007+A1:2012 for interior and exterior bonding of ceramic tiles, porcelain, natural stone and mosaics on floors and walls.

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

https://mira.eu.com/

Table 3 Technical specifications of Mira floor screeds products part 1

	6600 cemplan	6700 cemplan	x-plan	easyplan
Standard	EN 13813	EN 13813	EN 13813	EN 13813
Density	1800 kg/m^3	1900 kg/m^3	1900 kg/m^3	1900 kg/m^3
Reaction to fire	A1	A1	A1	A1
Product class acc. to EN 12004	CT C30F6	CT C25F5	CT C30F6	CT C25F5
Open time	20-30 min.	15-20 min.	15-20 min.	20-30 min.
Slip	≤0,020%	≤0,040%	≤0,025%	≤0,040%
Tensile adhesion strength Dry Water immersion Heat aging Freeze thaw cycle	C30 1,5-2 h NPD NPD -	C25F5 2-3 h NPD NPD -	C30F6 2-3 h NPD NPD -	C25F5 6 h NPD NPD -
Deformability	F6	F5	F6	F5

Table 4: Technical specifications of Mira floor screeds products part 2

	6850 cemplaster	6990 betodeck	6870 fibreplaster	6998 betomix quick	6975 betomix flow
Standard	EN 13813	EN 1504-3	EN 998-1	EN 13813	EN 13813
Density	1400 kg/m^3	1800 kg/m^3	2000 kg/m^3	2100 kg/m^3	2200 kg/m^3
Reaction to fire	A1	-	F	A1	A1
Product class acc. to EN 12004	CT C12F4	-	GP-CS IV-W2	CT C25F5	CT C30F8
Open time	-	3 h	2-3 h	Approx. 60 min.	Approx. 30 min.
Slip	≤0,020%	-	-	≤0,060%	≤0,060%
Tensile adhesion strength Dry Water immersion Heat aging Freeze thaw cycle	C12F4 3-4 h NPD NPD -	R1 1,5-2 h NPD NPD ≥0,8 MPa	IV 6-24 h NPD NPD -	C25F2 2-3 h NPD NPD -	C30F8 2-3 h NPD NPD -
Deformability	F4	-	W2	F2	F8

Reference Service Life (RSL)

The B1-B7 stage is not relevant as it is not applicable. Thus, this EPD does not include a Reference Service Life and the environmental impacts related to this stage have not been studied. Air, soil, and water impacts during the use phase have not been studied.

Picture of product(s)

Figure 1: Picture of products

LCA background

Declared unit

Declared unit is taken as the input of materials in order to produce 1 kg of product.

The LCI and LCIA results in this EPD relate to 1 kg of product from Mira for the types: 6600 cemplan, 6700 cemplan, x-plan, easyplan, 6850 cemplaster, 6990 betodeck, 6870 fibreplaster, 6998 betomix quick, and 6975 betomix flow.

Table 5: Declared unit

Name	Value	Unit
Declared unit	1	kg
Density	6600 cemplan: 1800 kg/m^3 6700 cemplan: 1900 kg/m^3 x-plan: 1900 kg/m^3 easyplan: 1900 kg/m^3 6850 cemplaster: 1100 kg/m^3 6990 betodeck: 1800 kg/m^3 6870 fibreplaster: 2000 kg/m^3 6998 betomix quick: 2100 kg/m^3 6975 betomix flow: 2200 kg/m^3	kg/m^3
Conversion factor to 1 kg.	1	-

Functional unit

Not declared.

PCR

This EPD is developed according to the core rules for the product category of construction products in EN 15804:2012+A2.

Guarantee of Origin – certificates

Foreground system:

The product is produced using country average mix for production in the sites of Estonia and Denmark respectively.

Background system:

Upstream processes are modelled using an average country mix. Downstream processes are modelled using a European mix since the product is shipped throughout Europe.

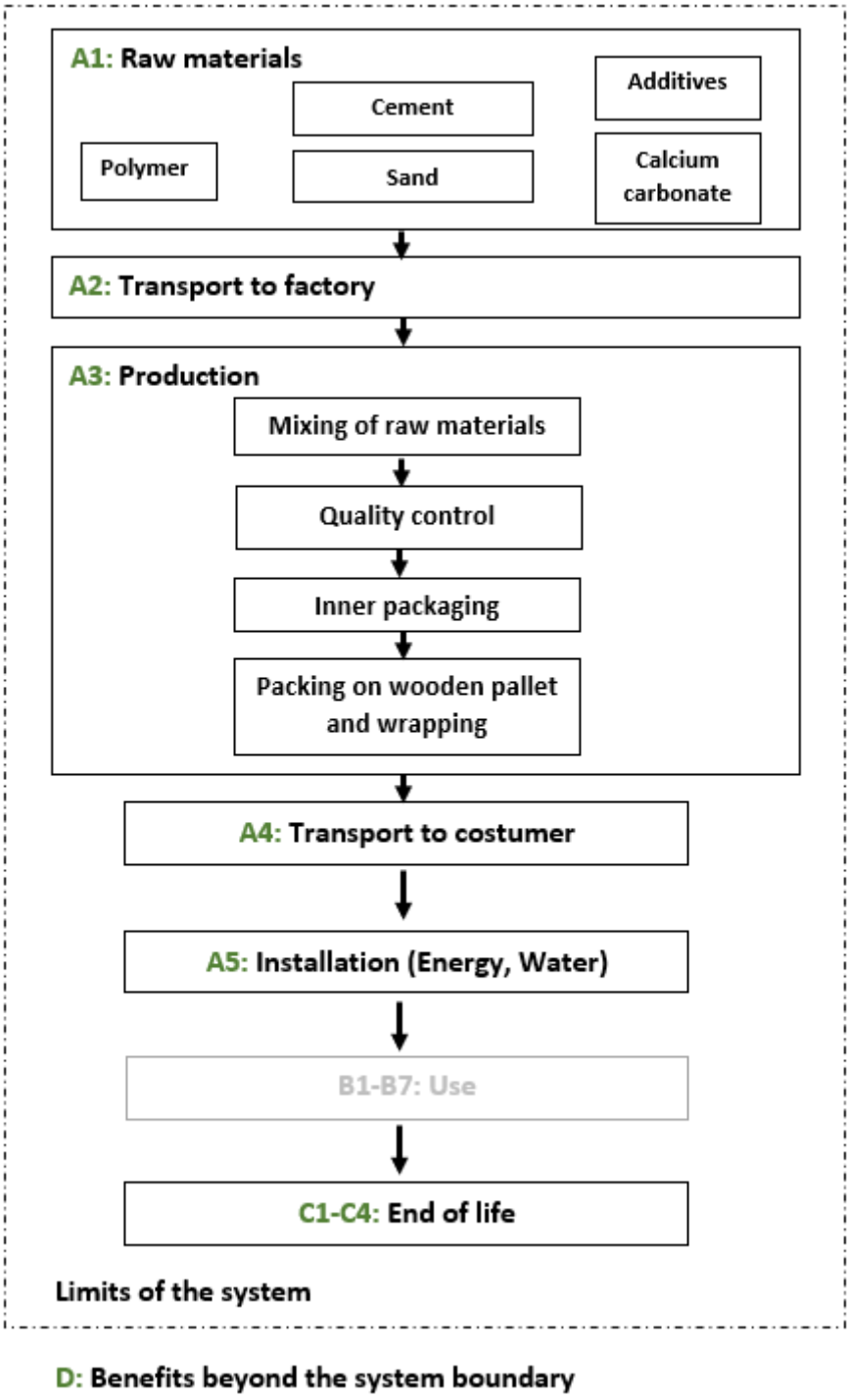

Figure 2: Flow diagram of product system with modules A1-D. B1-B7 modules are not included in the declaration.

The Flow diagram (**Figure 2Error! Reference source not found.**) conforms with the requirements of the modular approach and shows all phases. All phases are described below. Use phase B1-B7 is not declared in this EPD.

System boundary

This EPD is based on a cradle-to-gate with options modules A4-A5 and C1-C4, in which 100 weight-% has been accounted for.

The general rules for cut-off of inputs and outputs follow 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.

The system boundaries of this EPD include Module A1, A2, A3, A4, A5, C1, C2, C3, C4, and Module D.

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.

A1: The extraction and production of raw materials and their packaging. Raw materials are purchased from European suppliers.

All semifinished products are represented as primary materials. Components from polymers, cement additives, and calcium carbonate are preproduced from suppliers. The materials that are used to pack all raw materials are cardboard, paper, wood, and plastic big bags. Cement and sand materials are delivered in bulk form due to the considerable amounts transported. Thus, no packaging is considered for these materials.

A2: The raw materials are transported to the manufacturing sites at Gadstrup, Denmark, and Saue, Estonia. The modelling includes road and/or maritime transportation of each raw material.

A3: The production of sales packaging is taken into account at this stage. The processing of any waste arising from this stage is also included. The main raw material is sand, cement, and calcium carbonate. These materials constitute 80-90 % of the total product. Cement is received in different types: white cement, aluminate cement, and Portland cement. The remaining 10-20 % of the products consists of additives.

The rest of the components are mainly different kinds of additives of inorganic nature but in a much smaller amount.

Construction process stage (A4-A5) includes:

A4: The product is sold directly to customers or stores where the product is sold to others. The distance is calculated by finding the distance between the production site and the customer on the European market for each product. For products produced in Estonia the costumers are primarily located in Estonia, Finland, Latvia, Sweden and Germany. For all products produced in Denmark, the costumers are primarily located in Denmark, Sweden, Norway, Poland, and a portion of the production is sent to the production facility in Estonia. These distances are then averaged to produce a representative value.

A5: The installation of the product into the building requires water and energy for blending the raw materials. Mixing electricity consumption is estimated as 0,216 MJ/kg. This is equivalent to the use of a 1200-Watt handheld mixer for 3 minutes.

Apart from the waste of sales and transport packaging for the final Mira product (paper, plastics), there is a 2% loss of the product generated during installation. All these materials for packaging the final product go directly to the incineration station, with the potential benefits reported in module D. The waste will be treated according to the local requirement. The distance to waste treatment is by default estimated to be 50 km by a lorry.

Use stage (B1-B7) includes:

B1 to B7 are not declared as they are not applicable: the product does not need maintenance or replacement during its RSL. Thus, this EPD does not include the product use and maintenance stage (B1-B7) and the environmental impacts related to this stage have not been studied. Air, soil, and water impacts during the use phase have not been studied.

End of Life (C1-C4) includes:

The end-of-life stage analyses the impacts related to the disposal of self-levelling compounds on a surface when that surface reaches the end of its service life, see Table 53. The consumption of energy and natural resources is considered negligible for disassembling end-of-life products. Therefore, the impact of demolition is considered zero in Module (C1). Module (C2) includes the transport of the product waste to the closest disposal facilities. All end-of-life product is sent to the closest disposal facilities, estimating a transportation distance equal to 50 km via road transport by a Euro 5 lorry of 16-32 metric ton. Module (C3) is considered zero, as no further waste processing for incineration, reuse, recovery or recycling takes place in this analysis.

Module (C4) is the disposal of end-of-life of the product including physical pre-treatment. In this case, the landfill is considered the final disposal method.

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

Module D includes energy recovery due to incineration of materials in modules A5.

The packaging is intended to be incinerated at the end-of-life stage in module A5, whereas an energy recovery (75 % heat, 25 % electricity) and energy efficiency (80 % for heat, 25 % for electricity) from the incineration process is accounted for in module D.

LCA results

Results per declared unit

6600 cemplan

Table 6: Core environmental impact indicators

ENVIRONMENTAL IMPACTS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP- total	kg CO_2-eq.	4,23E-01	2,15E-01	4,48E-02	0,00E+00	8,32E-03	0,00E+00	5,28E-03	-7,26E-03
GWP-fossil	kg CO_2-eq.	4,24E-01	2,14E-01	3,72E-02	0,00E+00	8,31E-03	0,00E+00	5,27E-03	-7,21E-03
GWP-biogenic	kg CO_2-eq.	-1,59E-03	2,18E-04	7,51E-03	0,00E+00	7,08E-06	0,00E+00	5,22E-06	-4,28E-05
GWP- luluc	kg CO_2-eq.	2,94E-04	1,28E-04	5,88E-05	0,00E+00	3,26E-06	0,00E+00	4,97E-06	-3,28E-06
ODP	kg CFC 11 -eq.	4,71E-08	4,67E-08	1,39E-09	0,00E+00	1,92E-09	0,00E+00	2,13E-09	-9,76E-10
AP	mol H^+-eq.	1,98E-03	8,37E-04	1,50E-04	0,00E+00	3,37E-05	0,00E+00	4,95E-05	-1,29E-05
EP-freshwater	kg P-eq.	6,75E-05	1,99E-05	2,44E-05	0,00E+00	5,35E-07	0,00E+00	4,82E-07	-1,37E-06
EP- marine	kg N-eq.	4,69E-04	1,97E-03	2,68E-05	0,00E+00	1,02E-05	0,00E+00	1,72E-05	-2,83E-06
EP-terrestrial	mol N-eq.	5,16E-03	3,00E-06	2,44E-04	0,00E+00	1,11E-04	0,00E+00	1,88E-04	-2,82E-05
POCP	kg NMVOC-eq.	1,50E-03	7,81E-04	6,71E-05	0,00E+00	3,40E-05	0,00E+00	5,48E-05	-8,89E-06
ADPE	kg Sb-eq.	1,70E-06	1,33E-06	2,39E-07	0,00E+00	2,89E-08	0,00E+00	1,20E-08	-1,41E-08
ADPF	MJ	5,49E+00	3,19E+00	5,51E-01	0,00E+00	1,26E-01	0,00E+00	1,47E-01	-1,27E-01
WDP	m^3	8,02E-02	1,24E-02	1,75E-02	0,00E+00	3,76E-04	0,00E+00	6,62E-03	-4,74E-04
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 = Acidifcation; 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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								
Disclaimer	- 1 The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.								

Table 7: Environmental impact indicators

ADDITIONAL ENVIRONMENTAL IMPACTS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM	Disease Incidence	2,62E-08	1,35E-08	6,72E-10	0,00E+00	7,17E-10	0,00E+00	9,97E-10	-4,05E-11
IRP	kBq U235 eq	3,71E-02	1,78E-02	1,40E-02	0,00E+00	6,46E-04	0,00E+00	6,53E-04	-8,07E-04
ETP-fw	CTUe	5,18E+00	7,58E-05	3,82E-01	0,00E+00	5,46E-04	0,00E+00	8,79E-04	-2,37E-02
HTP-c	CTUh	1,77E-10	1,18E-10	1,18E-11	0,00E+00	3,18E-12	0,00E+00	2,36E-12	-1,01E-12
HTP-nc	CTUh	4,12E-09	2,78E-09	3,83E-10	0,00E+00	1,03E-10	0,00E+00	6,15E-11	-2,33E-11
SQP	-	3,51E+00	2,22E-04	1,04E-01	0,00E+00	8,70E-04	0,00E+00	1,05E-03	-6,58E-03
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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								
Disclaimers	- 1 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.								

	- 2 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.

Table 8: Parameters describing resource use

RESOURCE USE PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	4,39E-01	6,77E-02	1,06E-01	0,00E+00	1,77E-03	0,00E+00	1,25E-03	-5,93E-03
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	5,84E-01	6,77E-02	1,06E-01	0,00E+00	1,77E-03	0,00E+00	1,25E-03	-5,93E-03
PENRE	MJ	5,15E+00	3,38E+00	5,79E-01	0,00E+00	1,33E-01	0,00E+00	1,56E-01	-1,39E-01
PENRM	MJ	6,87E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	5,84E+00	3,38E+00	5,79E-01	0,00E+00	1,33E-01	0,00E+00	1,56E-01	-1,39E-01
SM	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
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^3	7,82E-02	1,23E-02	1,69E-02	0,00E+00	3,78E-04	0,00E+00	6,63E-03	-4,67E-04
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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								

Table 9: End-of-life (waste categories and output flows)

WASTE CATEGORIES AND OUTPUT FLOWS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	kg	7,49E-06	8,81E-06	4,23E-07	0,00E+00	3,28E-07	0,00E+00	2,22E-07	-1,50E-07
NHWD	kg	1,07E-01	1,04E-01	2,12E-03	0,00E+00	6,46E-03	0,00E+00	1,00E+00	-1,38E-04
RWD	kg	2,74E-05	2,10E-05	3,87E-06	0,00E+00	8,50E-07	0,00E+00	9,64E-07	-2,59E-07
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	2,24E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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	7,44E-03	0,00E+00	1,19E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EET	MJ	7,15E-02	0,00E+00	1,14E-01	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								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								

Table 10: Biogenic carbon content at factory gate

BIOGENIC CARBON CONTENT PER 1 KG		
Parameter	**Unit**	**At the factory gate**
Biogenic carbon content in a product	kg C	0
Biogenic carbon content in accompanying packaging	kg C	2,13E-03
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO_2	

6700 cemplan

Table 11: Core environmental impact indicators

ENVIRONMENTAL IMPACTS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP- total	kg CO_2-eq.	3,62E-01	1,14E-01	4,30E-02	0,00E+00	8,32E-03	0,00E+00	5,28E-03	-7,26E-03
GWP-fossil	kg CO_2-eq.	3,63E-01	1,14E-01	3,54E-02	0,00E+00	8,31E-03	0,00E+00	5,27E-03	-7,21E-03
GWP-biogenic	kg CO_2-eq.	-1,88E-03	1,16E-04	7,49E-03	0,00E+00	7,08E-06	0,00E+00	5,22E-06	-4,28E-05
GWP- luluc	kg CO_2-eq.	4,61E-04	6,82E-05	6,20E-05	0,00E+00	3,26E-06	0,00E+00	4,97E-06	-3,28E-06
ODP	kg CFC 11 -eq.	5,23E-08	2,49E-08	1,34E-09	0,00E+00	1,92E-09	0,00E+00	2,13E-09	-9,76E-10
AP	mol H^+eq.	2,05E-03	4,49E-04	1,47E-04	0,00E+00	3,37E-05	0,00E+00	4,95E-05	-1,29E-05
EP-freshwater	kg P-eq.	5,51E-05	1,06E-05	2,42E-05	0,00E+00	5,35E-07	0,00E+00	4,82E-07	-1,37E-06
EP- marine	kg N-eq.	4,31E-04	1,97E-03	2,57E-05	0,00E+00	1,02E-05	0,00E+00	1,72E-05	-2,83E-06
EP-terrestrial	mol N-eq.	4,70E-03	3,00E-06	2,32E-04	0,00E+00	1,11E-04	0,00E+00	1,88E-04	-2,82E-05
POCP	kg NMVOC-eq.	1,41E-03	4,18E-04	6,37E-05	0,00E+00	3,40E-05	0,00E+00	5,48E-05	-8,89E-06
ADPE	kg Sb-eq.	1,48E-06	7,08E-07	2,33E-07	0,00E+00	2,89E-08	0,00E+00	1,20E-08	-1,41E-08
ADPF	MJ	4,94E+00	1,70E+00	5,31E-01	0,00E+00	1,26E-01	0,00E+00	1,47E-01	-1,27E-01
WDP	m^3	5,55E-02	6,58E-03	1,53E-02	0,00E+00	3,76E-04	0,00E+00	6,62E-03	-4,74E-04
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 = Acidifcation; 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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								
Disclaimer	- 1The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.								

Table 12: Additional environmental impact indicators

ADDITIONAL ENVIRONMENTAL IMPACTS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM	Disease Incidence	2,60E-08	7,21E-09	5,99E-10	0,00E+00	7,17E-10	0,00E+00	9,97E-10	-4,05E-11
IRP	kBq U235 eq	3,48E-02	9,46E-03	1,39E-02	0,00E+00	6,46E-04	0,00E+00	6,53E-04	-8,07E-04
ETP-fw	CTUe	5,41E+00	7,58E-05	3,80E-01	0,00E+00	9,81E-02	0,00E+00	9,29E-02	-2,37E-02
HTP-c	CTUh	2,21E-10	6,27E-11	1,14E-11	0,00E+00	3,18E-12	0,00E+00	2,36E-12	-1,01E-12
HTP-nc	CTUh	3,60E-09	1,48E-09	3,69E-10	0,00E+00	1,03E-10	0,00E+00	6,15E-11	-2,33E-11
SQP	-	3,94E+00	2,22E-04	1,12E-01	0,00E+00	8,63E-02	0,00E+00	3,09E-01	-6,58E-03
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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								
Disclaimers	- 1 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.								
	- 2 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.								

Table 13: Parameters describing resource use

RESOURCE USE PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	4,12E-01	3,60E-02	1,05E-01	0,00E+00	1,77E-03	0,00E+00	1,25E-03	-5,93E-03
PERM	MJ	1,02E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	5,14E-01	3,60E-02	1,05E-01	0,00E+00	1,77E-03	0,00E+00	1,25E-03	-5,93E-03
PENRE	MJ	4,88E+00	1,80E+00	5,58E-01	0,00E+00	1,33E-01	0,00E+00	1,56E-01	-1,39E-01
PENRM	MJ	3,68E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	5,25E+00	1,80E+00	5,58E-01	0,00E+00	1,33E-01	0,00E+00	1,56E-01	-1,39E-01
SM	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
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^3	5,45E-02	6,56E-03	1,48E-02	0,00E+00	3,78E-04	0,00E+00	6,63E-03	-4,67E-04
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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								

Table 14: End-of-life (waste categories and output flows)

WASTE CATEGORIES AND OUTPUT FLOWS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	kg	7,48E-06	4,69E-06	4,17E-07	0,00E+00	3,28E-07	0,00E+00	2,22E-07	-1,50E-07
NHWD	kg	1,10E-01	5,55E-02	2,13E-03	0,00E+00	6,46E-03	0,00E+00	1,00E+00	-1,38E-04
RWD	kg	2,72E-05	1,12E-05	3,79E-06	0,00E+00	8,50E-07	0,00E+00	9,64E-07	-2,59E-07
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	1,03E-02	0,00E+00	0,00E+00	1,95E-02	0,00E+00	0,00E+00	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	3,32E-03	0,00E+00	1,19E-02	1,51E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EET	MJ	3,19E-02	0,00E+00	1,14E-01	1,45E-02	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								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								

Table 15: Biogenic carbon content at factory gate

BIOGENIC CARBON CONTENT PER 1 KG		
Parameter	**Unit**	**At the factory gate**
Biogenic carbon content in a product	kg C	0
Biogenic carbon content in accompanying packaging	kg C	2,13E-03
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO_2	

X-plan

Table 16: Core environmental impact indicators

ENVIRONMENTAL IMPACTS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP- total	kg CO_2-eq.	3,12E-01	1,97E-01	4,34E-02	0,00E+00	8,32E-03	0,00E+00	5,28E-03	-7,26E-03
GWP-fossil	kg CO_2-eq.	3,13E-01	1,96E-01	3,59E-02	0,00E+00	8,31E-03	0,00E+00	5,27E-03	-7,21E-03
GWP-biogenic	kg CO_2-eq.	-2,04E-03	2,00E-04	7,49E-03	0,00E+00	7,08E-06	0,00E+00	5,22E-06	-4,28E-05
GWP- luluc	kg CO_2-eq.	3,40E-04	1,17E-04	6,01E-05	0,00E+00	3,26E-06	0,00E+00	4,97E-06	-3,28E-06
ODP	kg CFC 11 -eq.	3,60E-08	4,28E-08	1,35E-09	0,00E+00	1,92E-09	0,00E+00	2,13E-09	-9,76E-10
AP	mol H^+eq.	1,63E-03	7,68E-04	1,47E-04	0,00E+00	3,37E-05	0,00E+00	4,95E-05	-1,29E-05
EP-freshwater	kg P-eq.	5,41E-05	1,82E-05	2,42E-05	0,00E+00	5,35E-07	0,00E+00	4,82E-07	-1,37E-06
EP- marine	kg N-eq.	3,53E-04	1,97E-03	2,59E-05	0,00E+00	1,02E-05	0,00E+00	1,72E-05	-2,83E-06
EP-terrestrial	mol N-eq.	3,85E-03	3,00E-06	2,34E-04	0,00E+00	1,11E-04	0,00E+00	1,88E-04	-2,82E-05
POCP	kg NMVOC-eq.	1,15E-03	7,16E-04	6,47E-05	0,00E+00	3,40E-05	0,00E+00	5,48E-05	-8,89E-06
ADPE	kg Sb-eq.	1,39E-06	1,22E-06	2,35E-07	0,00E+00	2,89E-08	0,00E+00	1,20E-08	-1,41E-08
ADPF	MJ	4,49E+00	2,34E-04	1,01E-04	0,00E+00	2,09E-05	0,00E+00	3,05E-05	-8,42E-06
WDP	m^3	7,47E-02	1,13E-02	1,44E-02	0,00E+00	3,76E-04	0,00E+00	6,62E-03	-4,74E-04
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 = Acidifcation; 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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								
Disclaimer	- 1The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.								

Table 17: Additional environmental impact indicators

ADDITIONAL ENVIRONMENTAL IMPACTS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM	Disease Incidence	1,83E-08	1,24E-08	5,78E-10	0,00E+00	7,17E-10	0,00E+00	9,97E-10	-4,05E-11
IRP	kBq U235 eq	2,92E-02	1,63E-02	1,39E-02	0,00E+00	6,46E-04	0,00E+00	6,53E-04	-8,07E-04
ETP-fw	CTUe	4,39E+00	7,58E-05	3,75E-01	0,00E+00	9,81E-02	0,00E+00	9,29E-02	-2,37E-02
HTP-c	CTUh	1,56E-10	1,08E-10	1,15E-11	0,00E+00	3,18E-12	0,00E+00	2,36E-12	-1,01E-12
HTP-nc	CTUh	3,05E-09	2,54E-09	3,71E-10	0,00E+00	1,03E-10	0,00E+00	6,15E-11	-2,33E-11
SQP	-	3,10E+00	2,22E-04	1,07E-01	0,00E+00	8,63E-02	0,00E+00	3,09E-01	-6,58E-03
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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								
Disclaimers	- 1 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.								
	- 2 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.								

Table 18: Parameters describing resource use

RESOURCE USE PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	4,11E-01	6,37E-02	1,05E-01	0,00E+00	1,77E-03	0,00E+00	1,25E-03	-5,93E-03
PERM	MJ	1,13E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	5,24E-01	6,37E-02	1,05E-01	0,00E+00	1,77E-03	0,00E+00	1,25E-03	-5,93E-03
PENRE	MJ	4,16E+00	3,19E+00	5,71E-01	0,00E+00	1,33E-01	0,00E+00	1,56E-01	-1,39E-01
PENRM	MJ	6,26E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	4,78E+00	3,19E+00	5,71E-01	0,00E+00	1,33E-01	0,00E+00	1,56E-01	-1,39E-01
SM	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
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^3	7,31E-02	1,16E-02	1,40E-02	0,00E+00	3,78E-04	0,00E+00	6,63E-03	-4,67E-04
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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								

Table 19: End-of-life (waste categories and output flows)

WASTE CATEGORIES AND OUTPUT FLOWS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	kg	5,58E-06	8,30E-06	4,19E-07	0,00E+00	3,28E-07	0,00E+00	2,22E-07	-1,50E-07
NHWD	kg	7,32E-02	9,82E-02	2,11E-03	0,00E+00	6,46E-03	0,00E+00	1,00E+00	-1,38E-04
RWD	kg	2,12E-05	1,98E-05	3,82E-06	0,00E+00	8,50E-07	0,00E+00	9,64E-07	-2,59E-07
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	1,37E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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	4,37E-03	0,00E+00	1,19E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EET	MJ	4,20E-02	0,00E+00	1,14E-01	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								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								

Table 20: Biogenic carbon content at factory gate

BIOGENIC CARBON CONTENT PER 1 KG		
Parameter	**Unit**	**At the factory gate**
Biogenic carbon content in a product	kg C	0
Biogenic carbon content in accompanying packaging	kg C	2,13E-03
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO_2	

Table 21: Core environmental impact indicators

ENVIRONMENTAL IMPACTS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	kg CO_2-eq.	3,80E-01	2,55E-01	4,52E-02	0,00E+00	8,32E-03	0,00E+00	5,28E-03	-7,26E-03
GWP-fossil	kg CO_2-eq.	3,79E-01	2,55E-01	3,76E-02	0,00E+00	8,31E-03	0,00E+00	5,27E-03	-7,21E-03
GWP-biogenic	kg CO_2-eq.	5,99E-04	2,59E-04	7,53E-03	0,00E+00	7,08E-06	0,00E+00	5,22E-06	-4,28E-05
GWP-luluc	kg CO_2-eq.	1,88E-04	1,52E-04	5,72E-05	0,00E+00	3,26E-06	0,00E+00	4,97E-06	-3,28E-06
ODP	kg CFC 11 - eq.	3,39E-08	5,56E-08	1,39E-09	0,00E+00	1,92E-09	0,00E+00	2,13E-09	-9,76E-10
AP	mol H^+-eq.	1,32E-03	9,93E-04	1,49E-04	0,00E+00	3,37E-05	0,00E+00	4,95E-05	-1,29E-05
EP-freshwater	kg P-eq.	6,95E-05	2,37E-05	2,45E-05	0,00E+00	5,35E-07	0,00E+00	4,82E-07	-1,37E-06
EP- marine	kg N-eq.	3,44E-04	1,97E-03	2,68E-05	0,00E+00	1,02E-05	0,00E+00	1,72E-05	-2,83E-06
EP-terrestrial	mol N-eq.	3,80E-03	3,00E-06	2,45E-04	0,00E+00	1,11E-04	0,00E+00	1,88E-04	-2,82E-05
POCP	kg NMVOC-eq.	1,06E-03	9,28E-04	6,65E-05	0,00E+00	3,40E-05	0,00E+00	5,48E-05	-8,89E-06
ADPE	kg Sb-eq.	1,38E-06	1,58E-06	2,35E-07	0,00E+00	2,89E-08	0,00E+00	1,20E-08	-1,41E-08
ADPF	MJ	3,75E+00	3,79E+00	5,34E-01	0,00E+00	1,26E-01	0,00E+00	1,47E-01	-1,27E-01
WDP	m^3	6,55E-02	1,47E-02	1,56E-02	0,00E+00	3,76E-04	0,00E+00	6,62E-03	-4,74E-04
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 = Acidifcation; 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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								
Disclaimer	- 1 The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.								

Table 22: Additional environmental impact indicators

ADDITIONAL ENVIRONMENTAL IMPACTS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM	Disease Incidence	2,30E-08	1,61E-08	7,09E-10	0,00E+00	7,17E-10	0,00E+00	9,97E-10	-4,05E-11
IRP	kBq U235 eq	3,25E-02	2,11E-02	1,41E-02	0,00E+00	6,46E-04	0,00E+00	6,53E-04	-8,07E-04
ETP-fw	CTUe	4,55E+00	7,58E-05	3,82E-01	0,00E+00	9,81E-02	0,00E+00	9,29E-02	-2,37E-02
HTP-c	CTUh	1,07E-10	1,40E-10	1,17E-11	0,00E+00	3,18E-12	0,00E+00	2,36E-12	-1,01E-12
HTP-nc	CTUh	3,66E-09	3,30E-09	3,83E-10	0,00E+00	1,03E-10	0,00E+00	6,15E-11	-2,33E-11
SQP	-	2,67E+00	2,22E-04	9,81E-02	0,00E+00	8,63E-02	0,00E+00	3,09E-01	-6,58E-03
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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								
Disclaimers	- 1 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.								
	- 2 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.								

Table 23: Parameters describing resource use

RESOURCE USE PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	4,75E-01	8,05E-02	1,06E-01	0,00E+00	1,77E-03	0,00E+00	1,25E-03	-5,93E-03
PERM	MJ	8,91E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	5,64E-01	8,05E-02	1,06E-01	0,00E+00	1,77E-03	0,00E+00	1,25E-03	-5,93E-03
PENRE	MJ	3,68E+00	4,02E+00	5,60E-01	0,00E+00	1,33E-01	0,00E+00	1,56E-01	-1,39E-01
PENRM	MJ	3,03E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	3,98E+00	4,02E+00	5,60E-01	0,00E+00	1,33E-01	0,00E+00	1,56E-01	-1,39E-01
SM	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
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^3	6,39E-02	1,47E-02	1,50E-02	0,00E+00	3,78E-04	0,00E+00	6,63E-03	-4,67E-04
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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								

Table 24: End-of-life (waste categories and output flows)

WASTE CATEGORIES AND OUTPUT FLOWS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	kg	5,88E-06	1,05E-05	4,15E-07	0,00E+00	3,28E-07	0,00E+00	2,22E-07	-1,50E-07
NHWD	kg	8,71E-02	1,24E-01	2,08E-03	0,00E+00	6,46E-03	0,00E+00	1,00E+00	-1,38E-04
RWD	kg	1,95E-05	2,50E-05	3,83E-06	0,00E+00	8,50E-07	0,00E+00	9,64E-07	-2,59E-07
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	6,36E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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	2,04E-03	0,00E+00	1,19E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EET	MJ	1,96E-02	0,00E+00	1,14E-01	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								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								

Table 25: Biogenic carbon content at factory gate

BIOGENIC CARBON CONTENT PER 1 KG		
Parameter	**Unit**	**At the factory gate**
Biogenic carbon content in a product	kg C	0
Biogenic carbon content in accompanying packaging	kg C	2,13E-03
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO_2	

Table 26: Core environmental impact indicators

ENVIRONMENTAL IMPACTS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP- total	kg CO_2-eq.	3,21E-01	4,16E-01	4,55E-02	0,00E+00	8,32E-03	0,00E+00	5,28E-03	-7,26E-03
GWP-fossil	kg CO_2-eq.	3,23E-01	4,15E-01	3,79E-02	0,00E+00	8,31E-03	0,00E+00	5,27E-03	-7,21E-03
GWP-biogenic	kg CO_2-eq.	-2,83E-03	4,22E-04	7,49E-03	0,00E+00	7,08E-06	0,00E+00	5,22E-06	-4,28E-05
GWP- luluc	kg CO_2-eq.	1,43E-04	2,48E-04	5,68E-05	0,00E+00	3,26E-06	0,00E+00	4,97E-06	-3,28E-06
ODP	kg CFC 11 -eq.	1,69E-08	9,05E-08	1,39E-09	0,00E+00	1,92E-09	0,00E+00	2,13E-09	-9,76E-10
AP	mol H^+eq.	1,37E-03	1,62E-03	1,52E-04	0,00E+00	3,37E-05	0,00E+00	4,95E-05	-1,29E-05
EP-freshwater	kg P-eq.	5,39E-05	3,86E-05	2,42E-05	0,00E+00	5,35E-07	0,00E+00	4,82E-07	-1,37E-06
EP- marine	kg N-eq.	3,38E-04	1,97E-03	2,74E-05	0,00E+00	1,02E-05	0,00E+00	1,72E-05	-2,83E-06
EP-terrestrial	mol N-eq.	3,70E-03	3,00E-06	2,51E-04	0,00E+00	1,11E-04	0,00E+00	1,88E-04	-2,82E-05
POCP	kg NMVOC-eq.	1,03E-03	1,51E-03	6,87E-05	0,00E+00	3,40E-05	0,00E+00	5,48E-05	-8,89E-06
ADPE	kg Sb-eq.	1,19E-06	2,58E-06	2,37E-07	0,00E+00	2,89E-08	0,00E+00	1,20E-08	-1,41E-08
ADPF	MJ	3,75E+00	6,17E+00	5,56E-01	0,00E+00	1,26E-01	0,00E+00	1,47E-01	-1,27E-01
WDP	m^3	2,47E-01	2,39E-02	2,18E-02	0,00E+00	3,76E-04	0,00E+00	6,62E-03	-4,74E-04
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 = Acidifcation; 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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								
Disclaimer	- 1 The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.								

Table 27: Additional environmental impact indicators

ADDITIONAL ENVIRONMENTAL IMPACTS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM	Disease Incidence	8,85E-09	2,62E-08	5,58E-10	0,00E+00	7,17E-10	0,00E+00	9,97E-10	-4,05E-11
IRP	kBq U235 eq	6,18E-02	3,44E-02	1,48E-02	0,00E+00	6,46E-04	0,00E+00	6,53E-04	-8,07E-04
ETP-fw	CTUe	3,21E+00	7,58E-05	3,73E-01	0,00E+00	9,81E-02	0,00E+00	9,29E-02	-2,37E-02
HTP-c	CTUh	8,43E-11	2,28E-10	1,18E-11	0,00E+00	3,18E-12	0,00E+00	2,36E-12	-1,01E-12
HTP-nc	CTUh	2,83E-09	5,37E-09	3,87E-10	0,00E+00	1,03E-10	0,00E+00	6,15E-11	-2,33E-11
SQP	-	2,08E+00	2,22E-04	9,87E-02	0,00E+00	8,63E-02	0,00E+00	3,09E-01	-6,58E-03
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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								
Disclaimers	- 1 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.								
	- 2 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.								

Table 28: Parameters describing resource use

RESOURCE USE PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	4,50E-01	1,31E-01	1,06E-01	0,00E+00	1,77E-03	0,00E+00	1,25E-03	-5,93E-03
PERM	MJ	1,51E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	6,01E-01	1,31E-01	1,06E-01	0,00E+00	1,77E-03	0,00E+00	1,25E-03	-5,93E-03
PENRE	MJ	3,32E+00	6,55E+00	5,84E-01	0,00E+00	1,33E-01	0,00E+00	1,56E-01	-1,39E-01
PENRM	MJ	6,79E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	4,00E+00	6,55E+00	5,84E-01	0,00E+00	1,33E-01	0,00E+00	1,56E-01	-1,39E-01
SM	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
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^3	2,45E-01	2,39E-02	2,12E-02	0,00E+00	3,78E-04	0,00E+00	6,63E-03	-4,67E-04
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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								

Table 29: End-of-life (waste categories and output flows)

WASTE CATEGORIES AND OUTPUT FLOWS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	kg	2,99E-06	1,71E-05	4,19E-07	0,00E+00	3,28E-07	0,00E+00	2,22E-07	-1,50E-07
NHWD	kg	2,45E-02	2,02E-01	2,09E-03	0,00E+00	6,46E-03	0,00E+00	1,00E+00	-1,38E-04
RWD	kg	1,31E-05	4,07E-05	3,85E-06	0,00E+00	8,50E-07	0,00E+00	9,64E-07	-2,59E-07
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	2,44E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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	8,10E-03	0,00E+00	1,19E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EET	MJ	7,78E-02	0,00E+00	1,14E-01	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								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								

Table 30: Biogenic carbon content at factory gate

BIOGENIC CARBON CONTENT PER 1 KG		
Parameter	**Unit**	**At the factory gate**
Biogenic carbon content in a product	kg C	0
Biogenic carbon content in accompanying packaging	kg C	2,13E-03
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO_2	

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Table 31: Core environmental impact indicators

ENVIRONMENTAL IMPACTS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP- total	kg CO_2-eq.	2,71E-01	2,43E-01	4,49E-02	0,00E+00	8,32E-03	0,00E+00	5,28E-03	-7,26E-03
GWP-fossil	kg CO_2-eq.	2,74E-01	2,43E-01	3,73E-02	0,00E+00	8,31E-03	0,00E+00	5,27E-03	-7,21E-03
GWP-biogenic	kg CO_2-eq.	-3,13E-03	2,47E-04	7,51E-03	0,00E+00	7,08E-06	0,00E+00	5,22E-06	-4,28E-05
GWP- luluc	kg CO_2-eq.	1,25E-04	1,45E-04	5,66E-05	0,00E+00	3,26E-06	0,00E+00	4,97E-06	-3,28E-06
ODP	kg CFC 11 -eq.	1,19E-08	5,30E-08	1,39E-09	0,00E+00	1,92E-09	0,00E+00	2,13E-09	-9,76E-10
AP	mol H^+eq.	7,93E-04	9,46E-04	1,48E-04	0,00E+00	3,37E-05	0,00E+00	4,95E-05	-1,29E-05
EP-freshwater	kg P-eq.	5,10E-05	2,26E-05	2,42E-05	0,00E+00	5,35E-07	0,00E+00	4,82E-07	-1,37E-06
EP- marine	kg N-eq.	1,99E-04	2,59E-04	2,65E-05	0,00E+00	1,02E-05	0,00E+00	1,72E-05	-2,83E-06
EP-terrestrial	mol N-eq.	2,20E-03	2,83E-03	2,42E-04	0,00E+00	1,11E-04	0,00E+00	1,88E-04	-2,82E-05
POCP	kg NMVOC-eq.	6,25E-04	8,84E-04	6,64E-05	0,00E+00	3,40E-05	0,00E+00	5,48E-05	-8,89E-06
ADPE	kg Sb-eq.	9,65E-07	1,51E-06	2,33E-07	0,00E+00	2,89E-08	0,00E+00	1,20E-08	-1,41E-08
ADPF	MJ	2,67E+00	3,61E+00	5,39E-01	0,00E+00	1,26E-01	0,00E+00	1,47E-01	-1,27E-01
WDP	m^3	9,44E-02	1,40E-02	1,41E-02	0,00E+00	3,76E-04	0,00E+00	6,62E-03	-4,74E-04
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 = Acidifcation; 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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								
Disclaimer	- 1 The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.								

Table 32: Additional environmental impact indicators

ADDITIONAL ENVIRONMENTAL IMPACTS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM	Disease Incidence	6,10E-09	1,53E-08	5,23E-10	0,00E+00	7,17E-10	0,00E+00	9,97E-10	-4,05E-11
IRP	kBq U235 eq	1,79E-02	2,01E-02	1,39E-02	0,00E+00	6,46E-04	0,00E+00	6,53E-04	-8,07E-04
ETP-fw	CTUe	2,46E+00	3,17E+00	3,61E-01	0,00E+00	9,81E-02	0,00E+00	9,29E-02	-2,37E-02
HTP-c	CTUh	7,36E-11	1,33E-10	1,17E-11	0,00E+00	3,18E-12	0,00E+00	2,36E-12	-1,01E-12
HTP-nc	CTUh	2,36E-09	3,15E-09	3,78E-10	0,00E+00	1,03E-10	0,00E+00	6,15E-11	-2,33E-11
SQP	-	2,05E+00	1,76E+00	9,74E-02	0,00E+00	8,63E-02	0,00E+00	3,09E-01	-6,58E-03
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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								
Disclaimers	- 1 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.								
	- 2 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.								

Table 33: Parameters describing resource use

RESOURCE USE PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	3,38E-01	7,67E-02	1,04E-01	0,00E+00	1,77E-03	0,00E+00	1,25E-03	-5,93E-03
PERM	MJ	2,19E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	5,57E-01	7,67E-02	1,04E-01	0,00E+00	1,77E-03	0,00E+00	1,25E-03	-5,93E-03
PENRE	MJ	5,57E-01	7,67E-02	1,04E-01	0,00E+00	1,77E-03	0,00E+00	1,25E-03	-5,93E-03
PENRM	MJ	4,15E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	2,85E+00	3,83E+00	5,67E-01	0,00E+00	1,33E-01	0,00E+00	1,56E-01	-1,39E-01
SM	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
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^3	9,26E-02	1,40E-02	1,36E-02	0,00E+00	3,78E-04	0,00E+00	6,63E-03	-4,67E-04
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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								

Table 34: End-of-life (waste categories and output flows)

WASTE CATEGORIES AND OUTPUT FLOWS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	kg	2,10E-06	9,98E-06	4,12E-07	0,00E+00	3,28E-07	0,00E+00	2,22E-07	-1,50E-07
NHWD	kg	1,48E-02	1,18E-01	2,06E-03	0,00E+00	6,46E-03	0,00E+00	1,00E+00	-1,38E-04
RWD	kg	8,75E-06	2,38E-05	3,80E-06	0,00E+00	8,50E-07	0,00E+00	9,64E-07	-2,59E-07
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	2,26E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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	1,57E-02	0,00E+00	1,19E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EET	MJ	1,51E-01	0,00E+00	1,14E-01	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								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								

Table 35: Biogenic carbon content at factory gate

BIOGENIC CARBON CONTENT PER 1 KG		
Parameter	**Unit**	**At the factory gate**
Biogenic carbon content in a product	kg C	0
Biogenic carbon content in accompanying packaging	kg C	2,13E-03
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO_2	

6870 Fibreplaster

Table 36: Core environmental impact indicators

ENVIRONMENTAL IMPACTS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP- total	kg CO_2-eq.	2,70E-01	3,46E-01	4,47E-02	0,00E+00	8,32E-03	0,00E+00	5,28E-03	-7,26E-03
GWP-fossil	kg CO_2-eq.	2,71E-01	3,45E-01	3,71E-02	0,00E+00	8,31E-03	0,00E+00	5,27E-03	-7,21E-03
GWP-biogenic	kg CO_2-eq.	-5,77E-04	3,51E-04	7,50E-03	0,00E+00	7,08E-06	0,00E+00	5,22E-06	-4,28E-05
GWP- luluc	kg CO_2-eq.	1,13E-04	2,06E-04	5,64E-05	0,00E+00	3,26E-06	0,00E+00	4,97E-06	-3,28E-06
ODP	kg CFC 11 -eq.	1,23E-08	7,53E-08	1,36E-09	0,00E+00	1,92E-09	0,00E+00	2,13E-09	-9,76E-10
AP	mol H^+eq.	7,82E-04	1,35E-03	1,48E-04	0,00E+00	3,37E-05	0,00E+00	4,95E-05	-1,29E-05
EP-freshwater	kg P-eq.	4,73E-05	3,21E-05	2,41E-05	0,00E+00	5,35E-07	0,00E+00	4,82E-07	-1,37E-06
EP- marine	kg N-eq.	2,01E-04	1,97E-03	2,65E-05	0,00E+00	1,02E-05	0,00E+00	1,72E-05	-2,83E-06
EP-terrestrial	mol N-eq.	2,22E-03	3,00E-06	2,42E-04	0,00E+00	1,11E-04	0,00E+00	1,88E-04	-2,82E-05
POCP	kg NMVOC-eq.	6,12E-04	1,26E-03	6,59E-05	0,00E+00	3,40E-05	0,00E+00	5,48E-05	-8,89E-06
ADPE	kg Sb-eq.	8,50E-07	2,15E-06	2,31E-07	0,00E+00	2,89E-08	0,00E+00	1,20E-08	-1,41E-08
ADPF	MJ	2,40E+00	5,14E+00	5,33E-01	0,00E+00	1,26E-01	0,00E+00	1,47E-01	-1,27E-01
WDP	m^3	1,32E-01	1,99E-02	1,83E-02	0,00E+00	3,76E-04	0,00E+00	6,62E-03	-4,74E-04
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 = Acidifcation; 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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								
Disclaimer	- 1The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.								

Table 37: Additional environmental impact indicators

ADDITIONAL ENVIRONMENTAL IMPACTS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM	Disease Incidence	6,03E-09	2,18E-08	5,21E-10	0,00E+00	7,17E-10	0,00E+00	9,97E-10	-4,05E-11
IRP	kBq U235 eq	2,90E-02	2,86E-02	1,41E-02	0,00E+00	6,46E-04	0,00E+00	6,53E-04	-8,07E-04
ETP-fw	CTUe	2,35E+00	7,58E-05	3,59E-01	0,00E+00	9,81E-02	0,00E+00	9,29E-02	-2,37E-02
HTP-c	CTUh	6,37E-11	1,90E-10	1,16E-11	0,00E+00	3,18E-12	0,00E+00	2,36E-12	-1,01E-12
HTP-nc	CTUh	2,32E-09	4,47E-09	3,79E-10	0,00E+00	1,03E-10	0,00E+00	6,15E-11	-2,33E-11
SQP	-	1,73E+00	2,22E-04	9,81E-02	0,00E+00	8,63E-02	0,00E+00	3,09E-01	-6,58E-03
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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								
Disclaimers	- 1 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.								
	- 2 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.								

Table 38: Parameters describing resource use

RESOURCE USE PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	4,22E-01	1,09E-01	1,05E-01	0,00E+00	1,77E-03	0,00E+00	1,25E-03	-5,93E-03
PERM	MJ	7,28E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	4,95E-01	1,09E-01	1,05E-01	0,00E+00	1,77E-03	0,00E+00	1,25E-03	-5,93E-03
PENRE	MJ	2,25E+00	5,45E+00	5,59E-01	0,00E+00	1,33E-01	0,00E+00	1,56E-01	-1,39E-01
PENRM	MJ	3,03E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	2,56E+00	5,45E+00	5,59E-01	0,00E+00	1,33E-01	0,00E+00	1,56E-01	-1,39E-01
SM	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
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^3	1,30E-01	1,99E-02	1,77E-02	0,00E+00	3,78E-04	0,00E+00	6,63E-03	-4,67E-04
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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								

Table 39: End-of-life (waste categories and output flows)

WASTE CATEGORIES AND OUTPUT FLOWS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	kg	2,21E-06	1,42E-05	4,09E-07	0,00E+00	3,28E-07	0,00E+00	2,22E-07	-1,50E-07
NHWD	kg	1,89E-02	1,68E-01	2,05E-03	0,00E+00	6,46E-03	0,00E+00	1,00E+00	-1,38E-04
RWD	kg	8,31E-06	3,39E-05	3,79E-06	0,00E+00	8,50E-07	0,00E+00	9,64E-07	-2,59E-07
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	1,24E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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	3,78E-04	0,00E+00	1,19E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EET	MJ	3,62E-03	0,00E+00	1,14E-01	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								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								

Table 40: Biogenic carbon content at factory gate

BIOGENIC CARBON CONTENT PER 1 KG		
Parameter	**Unit**	**At the factory gate**
Biogenic carbon content in a product	kg C	0
Biogenic carbon content in accompanying packaging	kg C	2,13E-03
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO_2	

6998 Betomix quick

Table 41: Core environmental impact indicators

ENVIRONMENTAL IMPACTS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP- total	kg CO_2-eq.	2,33E-01	2,04E-01	4,33E-02	0,00E+00	8,32E-03	0,00E+00	5,28E-03	-7,26E-03
GWP-fossil	kg CO_2-eq.	2,34E-01	2,03E-01	3,57E-02	0,00E+00	8,31E-03	0,00E+00	5,27E-03	-7,21E-03
GWP-biogenic	kg CO_2-eq.	-9,99E-04	2,07E-04	7,50E-03	0,00E+00	7,08E-06	0,00E+00	5,22E-06	-4,28E-05
GWP- luluc	kg CO_2-eq.	2,81E-04	1,22E-04	5,95E-05	0,00E+00	3,26E-06	0,00E+00	4,97E-06	-3,28E-06
ODP	kg CFC 11 -eq.	1,76E-08	4,44E-08	1,32E-09	0,00E+00	1,92E-09	0,00E+00	2,13E-09	-9,76E-10
AP	mol H^+eq.	1,09E-03	7,95E-04	1,45E-04	0,00E+00	3,37E-05	0,00E+00	4,95E-05	-1,29E-05
EP-freshwater	kg P-eq.	4,08E-05	1,89E-05	2,40E-05	0,00E+00	5,35E-07	0,00E+00	4,82E-07	-1,37E-06
EP- marine	kg N-eq.	2,37E-04	2,18E-04	2,57E-05	0,00E+00	1,02E-05	0,00E+00	1,72E-05	-2,83E-06
EP-terrestrial	mol N-eq.	2,61E-03	2,37E-03	2,33E-04	0,00E+00	1,11E-04	0,00E+00	1,88E-04	-2,82E-05
POCP	kg NMVOC-eq.	7,39E-04	7,42E-04	6,35E-05	0,00E+00	3,40E-05	0,00E+00	5,48E-05	-8,89E-06
ADPE	kg Sb-eq.	8,11E-07	1,26E-06	2,28E-07	0,00E+00	2,89E-08	0,00E+00	1,20E-08	-1,41E-08
ADPF	MJ	2,31E+00	3,03E+00	5,22E-01	0,00E+00	1,26E-01	0,00E+00	1,47E-01	-1,27E-01
WDP	m^3	6,45E-02	1,17E-02	1,00E-02	0,00E+00	3,76E-04	0,00E+00	6,62E-03	-4,74E-04
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 = Acidifcation; 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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								
Disclaimer	- 1 The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.								

Table 42: Additional environmental impact indicators

ADDITIONAL ENVIRONMENTAL IMPACTS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM	Disease Incidence	9,14E-09	1,29E-08	5,21E-10	0,00E+00	7,17E-10	0,00E+00	9,97E-10	-4,05E-11
IRP	kBq U235 eq	1,79E-02	1,69E-02	1,38E-02	0,00E+00	6,46E-04	0,00E+00	6,53E-04	-8,07E-04
ETP-fw	CTUe	2,46E+00	2,65E+00	3,53E-01	0,00E+00	9,81E-02	0,00E+00	9,29E-02	-2,37E-02
HTP-c	CTUh	1,10E-10	1,12E-10	1,12E-11	0,00E+00	3,18E-12	0,00E+00	2,36E-12	-1,01E-12
HTP-nc	CTUh	2,01E-09	2,63E-09	3,66E-10	0,00E+00	1,03E-10	0,00E+00	6,15E-11	-2,33E-11
SQP	-	2,34E+00	1,48E+00	1,07E-01	0,00E+00	8,63E-02	0,00E+00	3,09E-01	-6,58E-03
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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								
Disclaimers	- 1 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.								
	- 2 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.								

Table 43: Parameters describing resource use

RESOURCE USE PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	3,57E-01	6,42E-02	1,04E-01	0,00E+00	1,77E-03	0,00E+00	1,25E-03	-5,93E-03
PERM	MJ	9,09E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	4,48E-01	6,42E-02	1,04E-01	0,00E+00	1,77E-03	0,00E+00	1,25E-03	-5,93E-03
PENRE	MJ	2,22E+00	3,21E+00	5,48E-01	0,00E+00	1,33E-01	0,00E+00	1,56E-01	-1,39E-01
PENRM	MJ	2,26E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	2,45E+00	3,21E+00	5,48E-01	0,00E+00	1,33E-01	0,00E+00	1,56E-01	-1,39E-01
SM	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
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^3	6,33E-02	1,17E-02	9,75E-03	0,00E+00	3,78E-04	0,00E+00	6,63E-03	-4,67E-04
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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								

Table 44: End-of-life (waste categories and output flows)

WASTE CATEGORIES AND OUTPUT FLOWS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	kg	2,49E-06	8,36E-06	4,09E-07	0,00E+00	3,28E-07	0,00E+00	2,22E-07	-1,50E-07
NHWD	kg	2,10E-02	9,90E-02	2,07E-03	0,00E+00	6,46E-03	0,00E+00	1,00E+00	-1,38E-04
RWD	kg	1,12E-05	2,00E-05	3,77E-06	0,00E+00	8,50E-07	0,00E+00	9,64E-07	-2,59E-07
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	7,76E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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	2,35E-03	0,00E+00	1,19E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EET	MJ	2,25E-02	0,00E+00	1,14E-01	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								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								

Table 45: Biogenic carbon content at factory gate

BIOGENIC CARBON CONTENT PER 1 KG		
Parameter	**Unit**	**At the factory gate**
Biogenic carbon content in a product	kg C	0
Biogenic carbon content in accompanying packaging	kg C	2,13E-03
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO_2	

6975 Betomix flow quick

Table 46: Core environmental impact indicators

ENVIRONMENTAL IMPACTS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP- total	kg CO_2-eq.	2,69E-01	2,46E-01	4,35E-02	0,00E+00	8,32E-03	0,00E+00	5,28E-03	-7,26E-03
GWP-fossil	kg CO_2-eq.	2,70E-01	2,45E-01	3,60E-02	0,00E+00	8,31E-03	0,00E+00	5,27E-03	-7,21E-03
GWP-biogenic	kg CO_2-eq.	-1,51E-03	2,49E-04	7,49E-03	0,00E+00	7,08E-06	0,00E+00	5,22E-06	-4,28E-05
GWP- luluc	kg CO_2-eq.	3,02E-04	1,47E-04	5,97E-05	0,00E+00	3,26E-06	0,00E+00	4,97E-06	-3,28E-06
ODP	kg CFC 11 -eq.	2,42E-08	5,35E-08	1,35E-09	0,00E+00	1,92E-09	0,00E+00	2,13E-09	-9,76E-10
AP	mol H^+-eq.	1,28E-03	9,57E-04	1,47E-04	0,00E+00	3,37E-05	0,00E+00	4,95E-05	-1,29E-05
EP-freshwater	kg P-eq.	4,63E-05	2,28E-05	2,41E-05	0,00E+00	5,35E-07	0,00E+00	4,82E-07	-1,37E-06
EP- marine	kg N-eq.	2,74E-04	2,62E-04	2,59E-05	0,00E+00	1,02E-05	0,00E+00	1,72E-05	-2,83E-06
EP-terrestrial	mol N-eq.	3,00E-03	2,86E-03	2,35E-04	0,00E+00	1,11E-04	0,00E+00	1,88E-04	-2,82E-05
POCP	kg NMVOC-eq.	8,76E-04	8,93E-04	6,44E-05	0,00E+00	3,40E-05	0,00E+00	5,48E-05	-8,89E-06
ADPE	kg Sb-eq.	1,07E-06	1,52E-06	2,32E-07	0,00E+00	2,89E-08	0,00E+00	1,20E-08	-1,41E-08
ADPF	MJ	3,21E+00	3,64E+00	5,32E-01	0,00E+00	1,26E-01	0,00E+00	1,47E-01	-1,27E-01
WDP	m^3	8,89E-02	1,41E-02	1,26E-02	0,00E+00	3,76E-04	0,00E+00	6,62E-03	-4,74E-04
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 = Acidifcation; 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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								
Disclaimer	- [1] The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.								

Table 47: Additional environmental impact indicators

ADDITIONAL ENVIRONMENTAL IMPACTS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM	Disease Incidence	1,18E-08	1,55E-08	5,34E-10	0,00E+00	7,17E-10	0,00E+00	9,97E-10	-4,05E-11
IRP	kBq U235 eq	2,67E-02	2,03E-02	1,40E-02	0,00E+00	6,46E-04	0,00E+00	6,53E-04	-8,07E-04
ETP-fw	CTUe	3,35E+00	3,20E+00	3,66E-01	0,00E+00	9,81E-02	0,00E+00	9,29E-02	-2,37E-02
HTP-c	CTUh	1,28E-10	1,35E-10	1,13E-11	0,00E+00	3,18E-12	0,00E+00	2,36E-12	-1,01E-12
HTP-nc	CTUh	2,44E-09	3,17E-09	3,70E-10	0,00E+00	1,03E-10	0,00E+00	6,15E-11	-2,33E-11
SQP	-	2,58E+00	1,78E+00	1,07E-01	0,00E+00	8,63E-02	0,00E+00	3,09E-01	-6,58E-03
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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								
Disclaimers	- 1 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.								
	- 2 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.								

Table 48: Parameters describing resource use

RESOURCE USE PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	3,92E-01	7,74E-02	1,05E-01	0,00E+00	1,77E-03	0,00E+00	1,25E-03	-5,93E-03
PERM	MJ	9,36E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	4,86E-01	7,74E-02	1,05E-01	0,00E+00	1,77E-03	0,00E+00	1,25E-03	-5,93E-03
PENRE	MJ	3,00E+00	3,87E+00	5,59E-01	0,00E+00	1,33E-01	0,00E+00	1,56E-01	-1,39E-01
PENRM	MJ	4,14E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	3,41E+00	3,87E+00	5,59E-01	0,00E+00	1,33E-01	0,00E+00	1,56E-01	-1,39E-01
SM	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
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^3	8,76E-02	1,41E-02	1,23E-02	0,00E+00	3,78E-04	0,00E+00	6,63E-03	-4,67E-04
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*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								

Table 49: End-of-life (waste categories and output flows)

WASTE CATEGORIES AND OUTPUT FLOWS PER 1 KG									
Parameter	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	kg	3,55E-06	1,01E-05	4,13E-07	0,00E+00	3,28E-07	0,00E+00	2,22E-07	-1,50E-07
NHWD	kg	3,80E-02	1,19E-01	2,09E-03	0,00E+00	6,46E-03	0,00E+00	1,00E+00	-1,38E-04
RWD	kg	1,42E-05	2,41E-05	3,78E-06	0,00E+00	8,50E-07	0,00E+00	9,64E-07	-2,59E-07
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	7,48E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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	2,38E-03	0,00E+00	1,19E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EET	MJ	2,29E-02	0,00E+00	1,14E-01	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								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*102 or 195, while 1,12E-11 is the same as 1,12*10-11 or 0,0000000000112.								

Table 50: Biogenic carbon content at factory gate

BIOGENIC CARBON CONTENT PER 1 KG		
Parameter	**Unit**	**At the factory gate**
Biogenic carbon content in a product	kg C	0
Biogenic carbon content in accompanying packaging	kg C	2,13E-03
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO_2	

Additional information

LCA interpretation

The majority of the impacts are associated with the production phase (A1-A3). The most significant contribution to the production phase impacts is the upstream production of raw materials as the main driver. The majority of life cycle energy consumption takes place during the production phase (A1-A3). Besides the cement also the dispersion powder influences the results significantly, although this is only used up to 5 %. The highest contribution of raw materials comes from cement and ethylene.

Technical information on scenarios

Table 51: Information related to module A4 - weighted average of Danish and Estonia factory.

Scenario information	Value	Unit
Fuel type	Diesel (for road transport), Marine Diesel Oil (for sea transport)	-
Vehicle type	Euro 5 (for road transport) and freight, sea, tanker for liquid goods other than petroleum and liquefied natural gas with average load capacity (for sea transport)	-
Average transport distance for each product	6600 cemplan: 420,3 km (by road) + 10,3 km (by ship) 6700 cemplan: 223,5 km (by road) + 22,7 km (by ship) x-plan: 385,1 km (by road) + 12,6 km (by ship) Easyplan: 500,0 km (by road) + 0 km (by ship) 6850 cemplaster: 813,8 km (by road) + 0 km (by ship) 6990 betodeck: 813,8 km (by road) + 0 km (by ship) 6870 fibreplaster: 813,8 km (by road) + 0 km (by ship) 6998 betomix quick: 813,8 km (by road) + 0 km (by ship) 6975 betomix flow: 813,8 km (by road) + 0 km (by ship)	km
Capacity utilization (including empty runs)	85 % for trucks	%
Gross density of products transported	930 kg/m^3 (with lorry)	kg/m^3
Capacity utilization volume factor	1	-

Table 51: Information related to module A5, part 1

Scenario information		Value					Unit
		6600 cemplan	6700 cemplan	X-plan	Easyplan	6850 Cemplaster	
Ancillary materials		-	-	-	-	-	kg
Water use		0,00024	0,00020	0,00017	0,00020	0,00026	m^3
Other resource use		-	-	-	-	-	kg
Energy type and consumption		0,06	0,06	0,06	0,06	0,06	kWh
Waste materials for incineration	Packaging, paper	0,004	0,004	0,004	0,004	0,004	kg
	Packaging, plastic	0,003	0,003	0,003	0,003	0,003	
Product for landfill		0,02	0,02	0,02	0,02	0,02	kg
Output materials for incineration		0,007	0,007	0,007	0,007	0,007	kg
Output materials for landfill		0,02	0,02	0,02	0,02	0,02	kg
Direct emissions to air, soil, or water		-	-	-	-	-	kg

Table 52: Information related to module A5, part 2 (All values are based on 1 kg of final product)

Scenario information		Value				Unit
		6990 Cemplaster	6870 Betodesk	6998 Betomix quick	6975 Betomix flow	
Ancillary materials		-	-	-	-	kg
Water use		0,00015	0,00023	0,00007	0,00012	m^3
Other resource use		-	-	-	-	kg
Energy type and consumption		0,06	0,06	0,06	0,06	kWh
Waste materials for incineration	Packaging, paper	0,004	0,004	0,004	0,004	kg
	Packaging, plastic	0,003	0,003	0,003	0,003	
Product for landfill		0,02	0,02	0,02	0,02	kg
Output materials for incineration		0,007	0,007	0,007	0,007	kg
Output materials for landfill		0,02	0,02	0,02	0,02	kg
Direct emissions to air, soil, or water		-	-	-	-	kg

Use (B1-B7)

Modules not declared.

Table 53: End of life (C1-C4)

Scenario information	Value	Unit
Collected separately	-	kg
Collected with mixed waste	1	kg
For reuse	-	kg
For recycling	-	kg
For energy recovery	-	kg
For final disposal	1	kg
Assumptions for scenario development	Sent to landfill	As appropriate

Table 54: Information related to module D (1 of 2)

Scenario information/Material	Value					Unit
	6600 cemplan	6700 cemplan	X-plan	Easyplan	6850 Cemplaster	
Electricity recovery	1,19E-02	1,19E-02	1,19E-02	1,19E-02	1,19E-02	MJ
Thermal energy recovery	1,14E-01	1,14E-01	1,14E-01	1,14E-01	1,14E-01	MJ
Materials recovery	0	0	0	0	0	Kg

Table 55: Information related to module D (2 of 2)

Scenario information/Material	Value					Unit
	6990 Cemplaster	6870 Betodesk	6998 Betomix quick	6975 Betomix flow	6990 Cemplaster	
Electricity recovery	1,19E-02	1,19E-02	1,19E-02	1,19E-02	1,19E-02	MJ
Thermal energy recovery	1,14E-01	1,14E-01	1,14E-01	1,14E-01	1,14E-01	MJ
Materials recovery	0	0	0	0	0	Kg

Indoor air

The EPD does not give information on release of dangerous substances to indoor air because the horizontal standards on measurement of release of regulated dangerous substances from construction products using harmonised test methods according to the provisions of the respective technical committees for European product standards are not available.

Soil and water

The EPD does not give information on release of dangerous substances to soil and water because the horizontal standards on measurement of release of regulated dangerous substances from construction products using harmonised test methods according to the provisions of the respective technical committees for European product standards are not available.

References

Publisher	epddanmark www.epddanmark.dk
Program operator	Danish Technological Institute Buildings & Environment Gregersensvej DK-2630 Taastrup www.teknologisk.dk
LCA-practitioner	Odyssefs Papagiannidis Bureau Veritas, HSE Danmark Oldenborggade 25-31 7000 Fredericia Denmark Julie M. Vejsgaard Larsen Bureau Veritas, HSE Danmark Oldenborggade 25-31 7000 Fredericia Denmark
LCA software /background data	SimaPro 9.3/ Ecoinvent 3.8 Generic data are primarily based on life cycle inventory data from SimaPro 9.3 Professional Database 2020 and Ecoinvent version 3.8
3rd party verifier	Ninkie Bendtsen Niras A/S Sortemosevej 19 3450 Allerød Denmark www.niras.dk

General program instructions

General Programme Instructions, version 2.0, spring 2020

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"

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"