

Owner: Novafix ApS
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3rd PARTY VERIFIED

EPD

VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | ISO 14025 & EN 15804



Owner of declaration

Novafix
Tinvej 11
4100 Ringsted
Denmark
CVR: 45233804

NOVAFIX®

Issued

09-04-2025

Valid to:

09-04-2030

Published by

EPD Denmark
www.epddanmark.dk


☐ Industry EPD☒ Product EPD**Declared product(s)**

Wedges and brackets

Number of declared data sets: 9 data sets for 9 products.

Production site

Tinvej 11
4100 Ringsted
Denmark

Use of green energy certificates☒ No use of certificates☐ Electricity covered by certificates☐ Biogas covered by certificates**Declared/functional unit**

1 kg

Year of production site data (A3)

2023

EPD version

EPD nr. 1

Basis of calculation

This EPD is developed and verified 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:



Guangli Du Aalborg University



Martha Katrine Sorensen
EPD Denmark

Life cycle stages and modules (ND = module not declared)

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

Product information

Product description

This EPD includes 9 individual wedges and brackets, as shown in the table below. 4 types of wedges and 5 types of brackets are declared. In Table 1 you can see the material compositions of 1 kg of product (amount of polypropylene (PP) kg/kg, masterbatch (MB) kg/kg and foaming agent kg/kg).

Table 1– Overview of the material composition of 1 kg of the declared products.

Product	Polypropylene (kg/kg)	Masterbatch (kg/kg)	Foaming agent (kg/kg)
Wedge 1	9.68E-01	3.19E-02	0.00E+00
Wedge 2	9.68E-01	3.19E-02	0.00E+00
Wedge 3	9.68E-01	3.19E-02	0.00E+00
Wedge 4	9.68E-01	3.19E-02	0.00E+00
Universal Multi-bracket (UMB)	9.49E-01	3.13E-02	1.95E-02
Right Multi-bracket (RMB)	9.49E-01	3.13E-02	1.95E-02
Left Multi-bracket (LMB)	9.49E-01	3.13E-02	1.95E-02
Adapter Universal Multi-bracket (ABU)	9.68E-01	3.19E-02	0.00E+00
Adapter left/right Multi- bracket (ABRL)	9.68E-01	3.19E-02	0.00E+00

The composition of the product's sales and transport packaging is listed in Table 2.

Table 2– Material composition of packaging for all declared groups.

Product	Euro pallet (pcs/kg)	Cardboard box (kg/kg)	Handle for box (kg/kg)	Box and lid (kg/kg)
Wedge 1	9.76E-03	0.00E+00	1.48E-02	9.71E-01
Wedge 2	5.21E-03	0.00E+00	5.84E-03	3.85E-01
Wedge 3	1.91E-03	5.29E-02	2.42E-03	1.59E-01
Wedge 4	2.35E-03	5.16E-02	2.38E-03	1.57E-01
Multi-bracket (UMB)	3.19E-03	4.36E-02	1.74E-03	1.15E-01
Right Multi-bracket (RMB)	3.77E-03	4.73E-02	1.89E-03	1.25E-01
Left Multi-bracket (LMB)	3.77E-03	4.73E-02	1.89E-03	1.25E-01
Adapter Universal Multi-bracket (ABU)	1.98E-03	2.59E-02	1.04E-03	6.83E-02
Adapter left/right Multi- bracket (ABRL)	2.88E-03	9.33E-02	4.27E-03	2.81E-01

Representativeness

The declared unit is 1 kg. Data covers production of injection-molded plastic elements such as wedges and brackets at the factory in Ringsted.

Data for the underlying LCA is based on annual averages for 2023. Background data is based on the ecoinvent v. 3.10 database.

The data used is less than 10 years old in accordance with EN15804:2012+A2:2019.

Content of hazardous substances

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

Use of the product(s)

Wedges and brackets play an important role in construction as tools for assembly, stabilization and joining of building components. Together, wedges and brackets contribute to creating precision and structural integrity in construction projects.

Wedges are typically used to adjust and level structural elements such as doors, windows and floors so that they sit correctly and avoid skewing during installation.

Brackets are used to connect or fasten building components, such as wooden frames, rafters, and wall elements, and they are often made of metal to ensure stability, strength, and durability in the structure.

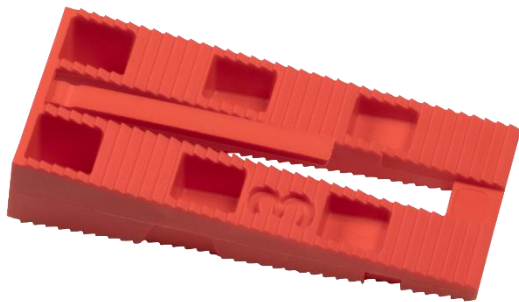
Product images**Wedges:****Figure 1- Wedge 1 (green) from Novafix****Figure 2- Wedge 2 (orange) from Novafix****Figure 3- Wedge 3 (red) from Novafix****Figure 4- Wedge (black) from Novafix****Brackets:****Figure 5- Universal Multi-bracket (UMB) from Novafix****Figure 6- Right multi-bracket (RMB) from Novafix**



Figure 7– Left multi-bracket (LMB) from Novafix



Figure 8- Adapter Universal Multi-bracket (ABU) from Novafix



Figure 9- Adapter Multi-bracket Right/left (ABRL) from Novafix

Essential characteristics

For information about essential properties and performance of Novafix' products, please refer to their website: <https://novafix.dk/>

Lifespan (RSL)

A reference service life (RSL) has not been defined for the product, as the use phase (B1-B7) has not been declared.

LCA background

Declared unit

LCI and LCIA results in this EPD relate to 1 kg with density and a conversion factor to pcs. given in Table 3.

Table 3– Overview of the weight per piece of each declared product and the densities.

Product	Weight per piece (kg)	Density (g/ cm ³)
Wedge 1	3.80E-03	9.30E-01
Wedge 2	9.60E-03	9.30E-01
Wedge 3	1.72E-02	9.30E-01
Wedge 4	3.50E-02	9.30E-01
Universal Multi-bracket (UMB)	1.75E-01	9.48E-01
Right Multi-bracket (RMB)	8.98E-02	9.48E-01
Left Multi-bracket (LMB)	8.98E-02	9.48E-01
Adapter Universal Multi-bracket (ABU)	1.23E-01	9.30E-01
Adapter left/right Multi- bracket (ABRL)	5.85E-02	9.30E-01

Functional unit

Not defined

PCR

This environmental product declaration is based on the requirements of EN 15804:2012+A2:2019.

Energy modeling

Foreground system:

Novafix does not use green electricity in their production and therefore a Danish residual mix has been chosen in module A3. In addition, Novafix also uses natural gas to heat their premises.

Information about energy mix in the foreground system:

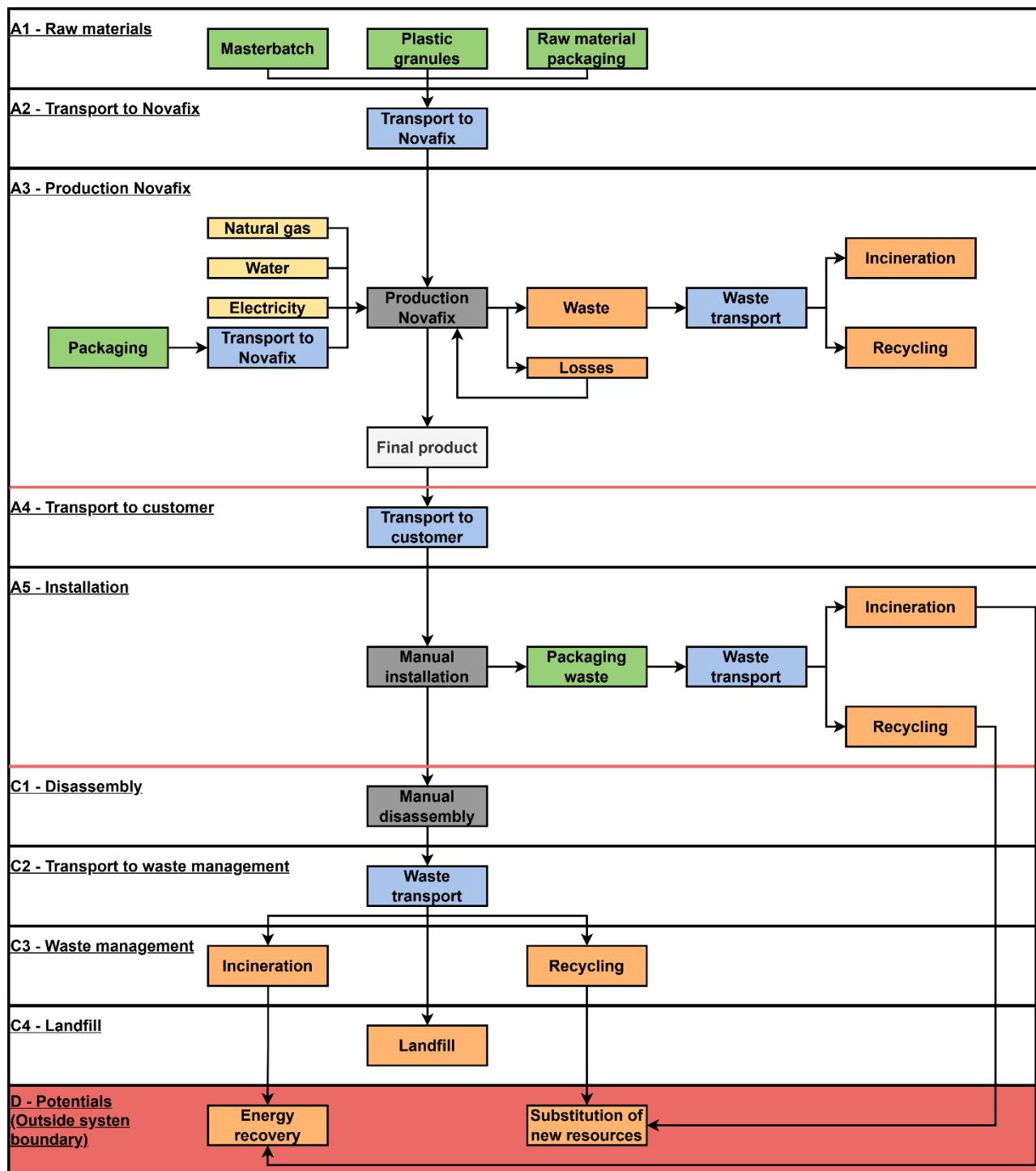
Background dataset	Emission (fossil)
Electricity, medium voltage {DK} electricity, medium voltage, residual mix Cut-off, U	0.18 kg CO ₂ e / MJ
Heat, central or small-scale, natural gas {Europe without Switzerland} market for heat, central or small-scale, natural gas Cut-off, U	0.08 kg CO ₂ e / MJ

Background system:

Upstream processes are modeled with the average European electricity mix.

Downstream processes are also modeled with the average European electricity mix from the ecoinvent v. 3.10 database.

Flowchart



System limit

The EPD is based on a cradle-to-grave LCA, where all relevant and crucial processes are included.

The general rules for omitting inputs and outputs in the LCA follow the provisions of EN 15804:2012+A2:2019, 6.3.6, where the total omission of input flow per module may not exceed 5% of energy consumption and mass and max 1% per unit process.

A1 – Raw materials

Novafix purchases raw materials from external manufacturers, who are responsible for the production of materials such as additives (masterbatch/MB and foaming agent), PP plastic granules and packaging for the raw materials (e.g. plastic bags and cardboard boxes). The masterbatch consists primarily of virgin polyethylene, which provides a robust plastic base. Pigments are added to give the desired color. In addition, fillers, such as calcium carbonate, and UV stabilizers are added in white, black and gray masterbatches to protect against sunlight. The foaming agent consists of PP and a number of active substances that can "foam" the plastic during the injection molding process.

The plastic granules, which are also part of the raw materials, include PP (polypropylene). Cardboard boxes and LDPE plastic are used to package the raw materials to ensure safe transport and storage.

A2 – Transport to Novafix

Module A2 covers the transport of purchased raw materials from producers within the EU to Novafix. All transport is assumed to be by trucks (>32 tons, EURO4).

A3 – Production at Novafix

The actual production takes place at Novafix. The PP plastic granules that have been purchased are injection molded into wedges and brackets. The injection molding machines use electricity to shape the plastic. Once the plastic is molded, it is cooled down without any additional energy consumption.

After the production process, the products are packed in plastic boxes and cardboard boxes and placed on pallets. Novafix injection moulds the plastic boxes themselves, which consist of PP granules. The boxes and lid are clear, but the handle contains black MB. The electricity consumption for the injection moulding of the plastic boxes and the production of PP granules is included in A3.

For operations at Novafix, natural gas is used to heat premises and water for, for example, sinks and toilets.

The waste consists primarily of LDPE plastic, cardboard boxes and residual waste. Cardboard and plastic are sent for recycling, while residual waste is incinerated. Waste fractions such as biowaste, metal and paper are excluded due to cut-off rules, which means that their environmental impact is not included in the assessment.

At Novafix, electricity consumption is measured separately for each machine, so that energy consumption can be linked directly to the respective products. Natural gas and water are allocated according to total volume in 2023, and weight (kg) is used as the allocation parameter, as resource consumption and waste volume follow the total production volumes. Since Novafix's plastic products are not interdependent, there is no co-production, and the economic 25% rule does not apply.

A4 – Transport to customer

After production, the finished products are transported to Novafix's customers, who are mainly in Europe. The transport is done by trucks, and the average distance to the customers is set at 100 km. This is a standard distance in the EPD (Environmental Product Declaration), but the user of the EPD can adjust the results in A4 if they have a more precise transport distance.

A5 – Installation

Module A5 includes installation of the products. All Novafix products can be installed manually without the need for additional resources or energy. The packaging in which the products are delivered is disposed of and the waste is sorted and then either recycled or incinerated. Module A5 includes the environmental impact of the disposal of the packaging, while any avoided energy production from waste incineration and avoided production of new materials through recycling are calculated separately in Module D.

C1 – Disassembly

When the building has reached its end of life, the products must be dismantled. Wedges and brackets can typically be removed manually and sent to disposal in module C3 (100% incineration with energy recovery).

C2 – Transport for disposal

After dismantling, the products are transported for disposal, where it is assumed that wedges and brackets are sent to waste incineration with energy recovery.

The transport distance for disposal is set at 100 km in the EPD, but the results in C2 can be adjusted by the user as needed if the exact distance is known.

C3 – Waste management

In module C3 the waste is handled. In this EPD it is assumed that 100% of wedges and brackets are sent for incineration, which contributes to the production of electricity and heat, where the emissions avoided are included in module D.

C4 – Landfill

0% of wedges and brackets are sent to landfill, as it is assumed that these products can be incinerated with energy recovery.

D – Potentials

The last module, D, should be seen as a separate life cycle phase that summarizes avoided emissions from recycling and incineration of waste in modules A5 and

C3. This phase includes the potential environmental benefits of utilizing energy from waste incineration and avoiding the production of new materials through recycling.

LCA results

RESULTS FOR WEDGE 1 ACCORDING TO EN15804:2012+A2:2019

Tabel 4 – Potential environmental impacts, EN15804:2012+A2:2019 (LCIA)

ENVIRONMENTAL IMPACTS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ eq.]	2.47E+00	8.99E-03	7.12E+00	1.07E-02	2.17E+00	0.00E+00	1.07E-02	2.62E+00	0.00E+00	-8.61E-01
GWP-fossil	[kg CO ₂ eq.]	2.64E+00	8.98E-03	6.96E+00	1.07E-02	2.15E+00	0.00E+00	1.07E-02	2.62E+00	0.00E+00	-8.59E-01
GWP-biogenic	[kg CO ₂ eq.]	-1.77E-01	0.00E+00	1.57E-01	0.00E+00	2.08E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP-luluc	[kg CO ₂ eq.]	1.80E-03	3.09E-06	1.67E-03	3.67E-06	1.81E-04	0.00E+00	3.67E-06	3.63E-06	0.00E+00	-2.08E-03
ODP	[kg CFC 11 eq.]	1.22E-07	1.82E-10	1.72E-07	2.16E-10	2.76E-09	0.00E+00	2.16E-10	3.80E-10	0.00E+00	-3.53E-08
AP	[mol H ⁺ eq.]	9.36E-03	3.58E-05	2.09E-02	4.25E-05	8.90E-04	0.00E+00	4.25E-05	3.18E-04	0.00E+00	-4.29E-03
EP-freshwater	[kg P eq.]	5.80E-04	6.15E-07	2.16E-03	7.29E-07	5.30E-05	0.00E+00	7.29E-07	2.60E-06	0.00E+00	-3.43E-04
EP-marine	[kg N eq.]	1.85E-03	1.34E-05	4.33E-03	1.59E-05	3.35E-04	0.00E+00	1.59E-05	1.58E-04	0.00E+00	-9.79E-04
EP-terrestrial	[mol N eq.]	1.91E-02	1.46E-04	4.40E-02	1.73E-04	3.14E-03	0.00E+00	1.73E-04	1.67E-03	0.00E+00	-1.24E-02
POCP	[kg NMVOC eq.]	1.52E-02	5.65E-05	2.17E-02	6.70E-05	9.75E-04	0.00E+00	6.70E-05	4.12E-04	0.00E+00	-5.14E-03
ADPm ¹	[kg Sb eq.]	2.79E-05	2.44E-08	2.92E-05	2.89E-08	1.10E-06	0.00E+00	2.89E-08	4.25E-08	0.00E+00	-7.57E-06
ADPf ¹	[MJ]	8.68E+01	1.31E-01	1.38E+02	1.55E-01	2.39E+00	0.00E+00	1.55E-01	1.96E-01	0.00E+00	-2.26E+01
WDP ¹	[m ³ world eq. deprived]	1.37E+00	6.24E-04	1.61E+00	7.40E-04	3.23E-02	0.00E+00	7.40E-04	4.52E-03	0.00E+00	-5.17E-01
Abbreviation	GWP-total = Global warming, total; GWP-fossil = Global warming, fossil fuels; GWP-biogenic = Global warming, biogenic; GWP-luluc = Global warming, land use and land conversion; ODP = Ozone depletion; AP = Acidification; EP-freshwater = Eutrophication (nutrient loading) – freshwater; EP-marine = Eutrophication (nutrient loading) – marine; EP-terrestrial = Eutrophication (nutrient loading) – terrestrial; POCP = Photochemical ozone creation; ADPm = Depletion of abiotic resources – minerals and metals; ADPf = Depletion of abiotic fossil resources; WDP = Water consumption										
Remark	¹ The results for this environmental indicator should be used with caution, as the uncertainty surrounding the results is high or because there is limited experience with the indicator.										

Tabel 5 – Potential environmental impacts, EN15804:2012+A2:2019 (LCIA)

ENVIRONMENTAL IMPACTS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PM	[Disease incidence]	8.05E-08	9.13E-10	1.07E-07	1.08E-09	1.02E-08	0.00E+00	1.08E-09	1.46E-09	0.00E+00	-3.87E-08
IRP ²	[kBq U235 eq.]	2.17E-01	1.59E-04	7.26E-01	1.89E-04	2.83E-02	0.00E+00	1.89E-04	4.21E-04	0.00E+00	-1.88E-01
ETP-fw ¹	[CTUe]	1.21E+01	3.10E-02	1.79E+01	3.68E-02	1.44E+00	0.00E+00	3.68E-02	5.66E-01	0.00E+00	-3.82E+00
HTP-c ¹	[CTUh]	1.09E-08	5.59E-11	1.45E-08	6.63E-11	1.47E-09	0.00E+00	6.63E-11	3.06E-10	0.00E+00	-3.76E-09
HTP-nc ¹	[CTUh]	2.41E-08	8.45E-11	5.03E-08	1.00E-10	4.00E-09	0.00E+00	1.00E-10	2.50E-09	0.00E+00	-1.22E-08
SQP ¹	-	9.93E+00	1.32E-01	1.53E+01	1.56E-01	1.40E+00	0.00E+00	1.56E-01	4.69E-02	0.00E+00	-3.28E+01
Abbreviation	PM = Particulate matter; IRP = Ionizing radiation - human health; ETP-fw = Ecotoxicity - freshwater; HTP-c = Human toxicity - cancer effects; HTP- nc = Human toxicity - non-cancer effects; SQP = Soil quality (dimensionless)										
Remark	¹ The results for this environmental indicator should be used with caution, as the uncertainty surrounding the results is high or because there is limited experience with the indicator. ² This impact category primarily addresses the potential impact of low-dose ionizing radiation on human health associated with nuclear fuel cycles. It does not take into account effects from possible nuclear accidents, occupational exposure or disposal of radioactive waste in underground facilities. Potential ionizing radiation from the soil, from radon and from certain building materials is also not measured by this indicator.										

Tabel 6 – Resource consumption, EN15804:2012+A2:2019 (LCI)

RESOURCE CONSUMPTION PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PERE	[MJ]	1.12E+00	2.02E-03	5.96E+00	2.39E-03	2.97E-01	0.00E+00	2.39E-03	6.54E-03	0.00E+00	-1.28E+01
PERM	[MJ]	1.46E+00	0.00E+00	-4.14E-01	0.00E+00	-1.31E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.58E+00	2.02E-03	5.55E+00	2.39E-03	1.66E-01	0.00E+00	2.39E-03	6.54E-03	0.00E+00	-1.28E+01
PENRE	[MJ]	5.31E+01	1.31E-01	1.05E+02	1.55E-01	3.37E+01	0.00E+00	1.55E-01	1.96E-01	0.00E+00	-2.26E+01
PENRM	[MJ]	3.36E+01	0.00E+00	3.20E+01	0.00E+00	-3.13E+01	0.00E+00	0.00E+00	-3.25E+01	0.00E+00	0.00E+00
PENRT	[MJ]	8.68E+01	1.31E-01	1.37E+02	1.55E-01	2.39E+00	0.00E+00	1.55E-01	-3.24E+01	0.00E+00	-2.26E+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	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	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	0.00E+00	0.00E+00
FW	[m ³]	1.75E-02	1.94E-05	1.11E-01	2.30E-05	1.63E-03	0.00E+00	2.30E-05	4.91E-04	0.00E+00	-2.21E-02
Forkortelse	PERE = Forbrug af vedvarende primær energi; PERM = Forbrug af vedvarende primære energiresourcer anvendt som råmaterialer; PERT = Samlet forbrug af vedvarende primære energiresourcer; PENRE = Forbrug af ikke-vedvarende primær energi; PENRM = Forbrug af ikke-vedvarende primære energiresourcer anvendt som råmaterialer; PENRT = Samlet forbrug af ikke-vedvarende primære energiresourcer; SM = Forbrug af sekundært materiale; RSF = Forbrug af vedvarende sekundært brændsel; NRSF = Forbrug af ikke-vedvarende sekundært brændsel; FW = Nettoforbrug af ferskvand										

Tabel 7 – End of life, EN15804:2012+A2:2019 (LCI)

WASTE CATEGORIES AND OUTPUT FLOWS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
HWD	[kg]	1.67E-03	8.60E-07	1.61E-03	1.02E-06	1.75E-05	0.00E+00	1.02E-06	3.04E-06	0.00E+00	-3.28E-04
NHWD	[kg]	1.49E-01	1.12E-02	2.33E-01	1.33E-02	1.02E-01	0.00E+00	1.33E-02	3.32E-02	0.00E+00	-7.17E-02
RWD	[kg]	5.55E-05	3.94E-08	1.80E-04	4.67E-08	7.24E-06	0.00E+00	4.67E-08	1.06E-07	0.00E+00	-4.46E-05
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	0.00E+00	0.00E+00
MFR	[kg]	0.00E+00	0.00E+00	5.09E-02	0.00E+00	2.35E-01	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	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.14E+00	0.00E+00	0.00E+00	4.11E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.09E+00	0.00E+00	0.00E+00	7.99E+00	0.00E+00	0.00E+00
Forkortelse	HWD = Bortskaffet farligt affald; NHWD = Bortskaffet ikke-farligt affald; RWD = Bortskaffet radioaktivt affald; CRU = Komponenter til genbrug; MFR = Materiale til genanvendelse; MER = Materiale til energigenvinding; EEE = Eksporteret elektrisk energi; EET = Eksporteret termisk energi										

Tabel 8 - Biogenic carbon at the factory gate

BIOGENIC CARBON PER KG		
Parameter	Unit	At factory gate
Biogenic carbon content in the product	[kg C]	0.00E+00
Biogenic carbon content in the accompanying packaging	[kg C]	9.55E-02
Note	1 kg of biogenic carbon is equivalent to 44/12 kg of CO ₂	

RESULTS FOR WEDGE 2 ACCORDING TO EN15804:2012+A2:2019

Tabel 9 – Potential environmental impacts, EN15804:2012+A2:2019 (LCIA)

ENVIRONMENTAL IMPACTS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ eq.]	2.46E+00	8.99E-03	5.45E+00	1.07E-02	8.63E-01	0.00E+00	1.07E-02	2.62E+00	0.00E+00	-4.63E-01
GWP-fossil	[kg CO ₂ eq.]	2.64E+00	8.98E-03	5.29E+00	1.07E-02	8.52E-01	0.00E+00	1.07E-02	2.62E+00	0.00E+00	-4.61E-01
GWP-biogenic	[kg CO ₂ eq.]	-1.77E-01	0.00E+00	1.66E-01	0.00E+00	1.11E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP-luluc	[kg CO ₂ eq.]	1.83E-03	3.09E-06	9.38E-04	3.67E-06	7.18E-05	0.00E+00	3.67E-06	3.63E-06	0.00E+00	-1.36E-03
ODP	[kg CFC 11 eq.]	1.24E-07	1.82E-10	1.04E-07	2.16E-10	1.10E-09	0.00E+00	2.16E-10	3.80E-10	0.00E+00	-1.79E-08
AP	[mol H ⁺ eq.]	1.32E-02	3.58E-05	1.58E-02	4.25E-05	3.53E-04	0.00E+00	4.25E-05	3.18E-04	0.00E+00	-2.52E-03
EP-freshwater	[kg P eq.]	5.83E-04	6.15E-07	1.81E-03	7.29E-07	2.10E-05	0.00E+00	7.29E-07	2.60E-06	0.00E+00	-2.05E-04
EP-marine	[kg N eq.]	2.00E-03	1.34E-05	3.32E-03	1.59E-05	1.33E-04	0.00E+00	1.59E-05	1.58E-04	0.00E+00	-5.91E-04
EP-terrestrial	[mol N eq.]	1.90E-02	1.46E-04	3.35E-02	1.73E-04	1.24E-03	0.00E+00	1.73E-04	1.67E-03	0.00E+00	-7.80E-03
POCP	[kg NMVOC eq.]	1.55E-02	5.65E-05	1.35E-02	6.70E-05	3.86E-04	0.00E+00	6.70E-05	4.12E-04	0.00E+00	-2.64E-03
ADPm ¹	[kg Sb eq.]	2.47E-05	2.44E-08	1.61E-05	2.89E-08	4.35E-07	0.00E+00	2.89E-08	4.25E-08	0.00E+00	-3.95E-06
ADPf ¹	[MJ]	8.75E+01	1.31E-01	8.91E+01	1.55E-01	9.48E-01	0.00E+00	1.55E-01	1.96E-01	0.00E+00	-1.09E+01
WDP ¹	[m ³ world eq. deprived]	1.40E+00	6.24E-04	9.23E-01	7.40E-04	1.28E-02	0.00E+00	7.40E-04	4.52E-03	0.00E+00	-2.29E-01
Abbreviation	GWP-total = Global warming, total; GWP-fossil = Global warming, fossil fuels; GWP-biogenic = Global warming, biogenic; GWP-luluc = Global warming, land use and land conversion; ODP = Ozone depletion; AP = Acidification; EP-freshwater = Eutrophication (nutrient loading) – freshwater; EP-marine = Eutrophication (nutrient loading) – marine; EP-terrestrial = Eutrophication (nutrient loading) – terrestrial; POCP = Photochemical ozone creation; ADPm = Depletion of abiotic resources – minerals and metals; ADPf = Depletion of abiotic fossil resources; WDP = Water consumption										
Remark	¹ The results for this environmental indicator should be used with caution, as the uncertainty surrounding the results is high or because there is limited experience with the indicator.										

Tabel 10 – Potential environmental impacts, EN15804:2012+A2:2019 (LCIA)

ENVIRONMENTAL IMPACTS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PM	[Disease incidence]	1.00E-07	9.13E-10	7.06E-08	1.08E-09	4.03E-09	0.00E+00	1.08E-09	1.46E-09	0.00E+00	-2.37E-08
IRP ²	[kBq U235 eq.]	2.27E-01	1.59E-04	5.92E-01	1.89E-04	1.12E-02	0.00E+00	1.89E-04	4.21E-04	0.00E+00	-1.14E-01
ETP-fw ¹	[CTUe]	1.49E+01	3.10E-02	1.24E+01	3.68E-02	5.71E-01	0.00E+00	3.68E-02	5.66E-01	0.00E+00	-2.11E+00
HTP-c ¹	[CTUh]	1.09E-08	5.59E-11	8.83E-09	6.63E-11	5.81E-10	0.00E+00	6.63E-11	3.06E-10	0.00E+00	-2.04E-09
HTP-nc ¹	[CTUh]	2.41E-08	8.45E-11	3.68E-08	1.00E-10	1.58E-09	0.00E+00	1.00E-10	2.50E-09	0.00E+00	-7.27E-09
SQP ¹	-	9.88E+00	1.32E-01	1.04E+01	1.56E-01	5.53E-01	0.00E+00	1.56E-01	4.69E-02	0.00E+00	-2.27E+01
Abbreviation	PM = Particulate matter; IRP = Ionizing radiation - human health; ETP-fw = Ecotoxicity - freshwater; HTP-c = Human toxicity - cancer effects; HTP- nc = Human toxicity - non-cancer effects; SQP = Soil quality (dimensionless)										
Remark	¹ The results for this environmental indicator should be used with caution, as the uncertainty surrounding the results is high or because there is limited experience with the indicator. ² This impact category primarily addresses the potential impact of low-dose ionizing radiation on human health associated with nuclear fuel cycles. It does not take into account effects from possible nuclear accidents, occupational exposure or disposal of radioactive waste in underground facilities. Potential ionizing radiation from the soil, from radon and from certain building materials is also not measured by this indicator.										

Tabel 11 – Resource consumption, EN15804:2012+A2:2019 (LCI)

RESOURCE CONSUMPTION PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PERE	[MJ]	1.19E+00	2.02E-03	4.63E+00	2.39E-03	1.17E-01	0.00E+00	2.39E-03	6.54E-03	0.00E+00	-8.91E+00
PERM	[MJ]	1.46E+00	0.00E+00	-4.75E-01	0.00E+00	-6.99E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.65E+00	2.02E-03	4.15E+00	2.39E-03	4.76E-02	0.00E+00	2.39E-03	6.54E-03	0.00E+00	-8.91E+00
PENRE	[MJ]	5.39E+01	1.31E-01	7.62E+01	1.55E-01	1.33E+01	0.00E+00	1.55E-01	1.96E-01	0.00E+00	-1.09E+01
PENRM	[MJ]	3.36E+01	0.00E+00	1.24E+01	0.00E+00	-1.24E+01	0.00E+00	0.00E+00	-3.25E+01	0.00E+00	0.00E+00
PENRT	[MJ]	8.75E+01	1.31E-01	8.86E+01	1.55E-01	9.48E-01	0.00E+00	1.55E-01	-3.24E+01	0.00E+00	-1.09E+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	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	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	0.00E+00	0.00E+00
FW	[m ³]	1.82E-02	1.94E-05	9.68E-02	2.30E-05	6.45E-04	0.00E+00	2.30E-05	4.91E-04	0.00E+00	-1.53E-02
Forkortelse	PERE = Forbrug af vedvarende primær energi; PERM = Forbrug af vedvarende primære energiresourcer anvendt som råmaterialer; PERT = Samlet forbrug af vedvarende primære energiresourcer; PENRE = Forbrug af ikke-vedvarende primær energi; PENRM = Forbrug af ikke-vedvarende primære energiresourcer anvendt som råmaterialer; PENRT = Samlet forbrug af ikke-vedvarende primære energiresourcer; SM = Forbrug af sekundært materiale; RSF = Forbrug af vedvarende sekundært brændsel; NRSF = Forbrug af ikke-vedvarende sekundært brændsel; FW = Nettoforbrug af ferskvand										

Tabel 12 – End of life, EN15804:2012+A2:2019 (LCI)

WASTE CATEGORIES AND OUTPUT FLOWS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
HWD	[kg]	1.69E-03	8.60E-07	6.98E-04	1.02E-06	6.94E-06	0.00E+00	1.02E-06	3.04E-06	0.00E+00	-1.35E-04
NHWD	[kg]	1.51E-01	1.12E-02	1.60E-01	1.33E-02	4.05E-02	0.00E+00	1.33E-02	3.32E-02	0.00E+00	-4.28E-02
RWD	[kg]	5.80E-05	3.94E-08	1.46E-04	4.67E-08	2.87E-06	0.00E+00	4.67E-08	1.06E-07	0.00E+00	-2.67E-05
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	0.00E+00	0.00E+00
MFR	[kg]	0.00E+00	0.00E+00	5.09E-02	0.00E+00	9.44E-02	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	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E+00	0.00E+00	0.00E+00	4.11E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.41E+00	0.00E+00	0.00E+00	7.99E+00	0.00E+00	0.00E+00
Forkortelse	HWD = Bortskaffet farligt affald; NHWD = Bortskaffet ikke-farligt affald; RWD = Bortskaffet radioaktivt affald; CRU = Komponenter til genbrug; MFR = Materiale til genanvendelse; MER = Materiale til energigenvinding; EEE = Eksporteret elektrisk energi; EET = Eksporteret termisk energi										

Tabel 13 - Biogenic carbon at the factory gate

BIOGENIC CARBON PER KG		
Parameter	Unit	At factory gate
Biogenic carbon content in the product	[kg C]	0.00E+00
Biogenic carbon content in the accompanying packaging	[kg C]	5.10E-02
Note	1 kg of biogenic carbon is equivalent to 44/12 kg of CO ₂	

RESULTS FOR WEDGE 3 ACCORDING TO EN15804:2012+A2:2019

Tabel 14 – Potential environmental impacts, EN15804:2012+A2:2019 (LCIA)

ENVIRONMENTAL IMPACTS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ eq.]	2.56E+00	8.99E-03	4.79E+00	1.07E-02	4.40E-01	0.00E+00	1.07E-02	2.62E+00	0.00E+00	-3.20E-01
GWP-fossil	[kg CO ₂ eq.]	2.74E+00	8.98E-03	4.70E+00	1.07E-02	3.64E-01	0.00E+00	1.07E-02	2.62E+00	0.00E+00	-3.19E-01
GWP-biogenic	[kg CO ₂ eq.]	-1.77E-01	0.00E+00	9.09E-02	0.00E+00	7.54E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP-luluc	[kg CO ₂ eq.]	2.02E-03	3.09E-06	1.11E-03	3.67E-06	5.87E-05	0.00E+00	3.67E-06	3.63E-06	0.00E+00	-1.14E-03
ODP	[kg CFC 11 eq.]	1.25E-07	1.82E-10	7.90E-08	2.16E-10	8.46E-10	0.00E+00	2.16E-10	3.80E-10	0.00E+00	-1.49E-08
AP	[mol H ⁺ eq.]	1.04E-02	3.58E-05	1.41E-02	4.25E-05	2.48E-04	0.00E+00	4.25E-05	3.18E-04	0.00E+00	-2.11E-03
EP-freshwater	[kg P eq.]	6.17E-04	6.15E-07	1.70E-03	7.29E-07	1.70E-05	0.00E+00	7.29E-07	2.60E-06	0.00E+00	-1.68E-04
EP-marine	[kg N eq.]	1.91E-03	1.34E-05	3.04E-03	1.59E-05	8.81E-05	0.00E+00	1.59E-05	1.58E-04	0.00E+00	-4.95E-04
EP-terrestrial	[mol N eq.]	1.97E-02	1.46E-04	3.04E-02	1.73E-04	8.01E-04	0.00E+00	1.73E-04	1.67E-03	0.00E+00	-6.58E-03
POCP	[kg NMVOC eq.]	1.55E-02	5.65E-05	1.06E-02	6.70E-05	2.62E-04	0.00E+00	6.70E-05	4.12E-04	0.00E+00	-2.12E-03
ADPm ¹	[kg Sb eq.]	2.77E-05	2.44E-08	1.13E-05	2.89E-08	3.53E-07	0.00E+00	2.89E-08	4.25E-08	0.00E+00	-3.29E-06
ADPf ¹	[MJ]	8.88E+01	1.31E-01	7.12E+01	1.55E-01	7.52E-01	0.00E+00	1.55E-01	1.96E-01	0.00E+00	-8.94E+00
WDP ¹	[m ³ world eq. deprived]	1.51E+00	6.24E-04	6.85E-01	7.40E-04	9.96E-03	0.00E+00	7.40E-04	4.52E-03	0.00E+00	-1.56E-01
Abbreviation	GWP-total = Global warming, total; GWP-fossil = Global warming, fossil fuels; GWP-biogenic = Global warming, biogenic; GWP-luluc = Global warming, land use and land conversion; ODP = Ozone depletion; AP = Acidification; EP-freshwater = Eutrophication (nutrient loading) – freshwater; EP-marine = Eutrophication (nutrient loading) – marine; EP-terrestrial = Eutrophication (nutrient loading) – terrestrial; POCP = Photochemical ozone creation; ADPm = Depletion of abiotic resources – minerals and metals; ADPf = Depletion of abiotic fossil resources; WDP = Water consumption										
Remark	¹ The results for this environmental indicator should be used with caution, as the uncertainty surrounding the results is high or because there is limited experience with the indicator.										

Tabel 15 – Potential environmental impacts, EN15804:2012+A2:2019 (LCIA)

ENVIRONMENTAL IMPACTS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PM	[Disease incidence]	8.76E-08	9.13E-10	5.93E-08	1.08E-09	3.13E-09	0.00E+00	1.08E-09	1.46E-09	0.00E+00	-2.00E-08
IRP ²	[kBq U235 eq.]	2.42E-01	1.59E-04	5.46E-01	1.89E-04	9.18E-03	0.00E+00	1.89E-04	4.21E-04	0.00E+00	-9.24E-02
ETP-fw ¹	[CTUe]	1.25E+01	3.10E-02	1.09E+01	3.68E-02	3.98E-01	0.00E+00	3.68E-02	5.66E-01	0.00E+00	-1.75E+00
HTP-c ¹	[CTUh]	1.16E-08	5.59E-11	6.87E-09	6.63E-11	4.44E-10	0.00E+00	6.63E-11	3.06E-10	0.00E+00	-1.69E-09
HTP-nc ¹	[CTUh]	2.46E-08	8.45E-11	3.25E-08	1.00E-10	9.85E-10	0.00E+00	1.00E-10	2.50E-09	0.00E+00	-6.10E-09
SQP ¹	-	1.02E+01	1.32E-01	1.05E+01	1.56E-01	4.44E-01	0.00E+00	1.56E-01	4.69E-02	0.00E+00	-1.93E+01
Abbreviation	PM = Particulate matter; IRP = Ionizing radiation - human health; ETP-fw = Ecotoxicity - freshwater; HTP-c = Human toxicity - cancer effects; HTP- nc = Human toxicity - non-cancer effects; SQP = Soil quality (dimensionless)										
Remark	¹ The results for this environmental indicator should be used with caution, as the uncertainty surrounding the results is high or because there is limited experience with the indicator. ² This impact category primarily addresses the potential impact of low-dose ionizing radiation on human health associated with nuclear fuel cycles. It does not take into account effects from possible nuclear accidents, occupational exposure or disposal of radioactive waste in underground facilities. Potential ionizing radiation from the soil, from radon and from certain building materials is also not measured by this indicator.										

Tabel 16 – Resource consumption, EN15804:2012+A2:2019 (LCI)

RESOURCE CONSUMPTION PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PERE	[MJ]	1.35E+00	2.02E-03	3.87E+00	2.39E-03	4.88E-02	0.00E+00	2.39E-03	6.54E-03	0.00E+00	-7.56E+00
PERM	[MJ]	1.46E+00	0.00E+00	9.38E-02	0.00E+00	-7.32E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.81E+00	2.02E-03	3.97E+00	2.39E-03	-6.83E-01	0.00E+00	2.39E-03	6.54E-03	0.00E+00	-7.56E+00
PENRE	[MJ]	5.52E+01	1.31E-01	6.59E+01	1.55E-01	5.89E+00	0.00E+00	1.55E-01	1.96E-01	0.00E+00	-8.94E+00
PENRM	[MJ]	3.36E+01	0.00E+00	4.94E+00	0.00E+00	-5.14E+00	0.00E+00	0.00E+00	-3.25E+01	0.00E+00	0.00E+00
PENRT	[MJ]	8.88E+01	1.31E-01	7.08E+01	1.55E-01	7.52E-01	0.00E+00	1.55E-01	-3.24E+01	0.00E+00	-8.94E+00
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	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	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	0.00E+00	0.00E+00
FW	[m ³]	2.07E-02	1.94E-05	9.23E-02	2.30E-05	3.49E-04	0.00E+00	2.30E-05	4.91E-04	0.00E+00	-1.29E-02
Forkortelse	PERE = Forbrug af vedvarende primær energi; PERM = Forbrug af vedvarende primære energiresourcer anvendt som råmaterialer; PERT = Samlet forbrug af vedvarende primære energiresourcer; PENRE = Forbrug af ikke-vedvarende primær energi; PENRM = Forbrug af ikke-vedvarende primære energiresourcer anvendt som råmaterialer; PENRT = Samlet forbrug af ikke-vedvarende primære energiresourcer; SM = Forbrug af sekundært materiale; RSF = Forbrug af vedvarende sekundært brændsel; NRSF = Forbrug af ikke-vedvarende sekundært brændsel; FW = Nettoforbrug af ferskvand										

Tabel 17 – End of life, EN15804:2012+A2:2019 (LCI)

WASTE CATEGORIES AND OUTPUT FLOWS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
HWD	[kg]	1.69E-03	8.60E-07	3.55E-04	1.02E-06	5.30E-06	0.00E+00	1.02E-06	3.04E-06	0.00E+00	-1.11E-04
NHWD	[kg]	1.53E-01	1.12E-02	1.49E-01	1.33E-02	2.86E-02	0.00E+00	1.33E-02	3.32E-02	0.00E+00	-3.58E-02
RWD	[kg]	6.19E-05	3.94E-08	1.34E-04	4.67E-08	2.35E-06	0.00E+00	4.67E-08	1.06E-07	0.00E+00	-2.15E-05
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	0.00E+00	0.00E+00
MFR	[kg]	0.00E+00	0.00E+00	5.09E-02	0.00E+00	7.59E-02	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	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.47E-01	0.00E+00	0.00E+00	4.11E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E+00	0.00E+00	0.00E+00	7.99E+00	0.00E+00	0.00E+00
Forkortelse	HWD = Bortskaffet farligt affald; NHWD = Bortskaffet ikke-farligt affald; RWD = Bortskaffet radioaktivt affald; CRU = Komponenter til genbrug; MFR = Materiale til genanvendelse; MER = Materiale til energigenvinding; EEE = Eksporteret elektrisk energi; EET = Eksporteret termisk energi										

Tabel 18 - Biogenic carbon at the factory gate

BIOGENIC CARBON PER KG		
Parameter	Unit	At factory gate
Biogenic carbon content in the product	[kg C]	0.00E+00
Biogenic carbon content in the accompanying packaging	[kg C]	4.11E-02
Note	1 kg of biogenic carbon is equivalent to 44/12 kg of CO ₂	

RESULTS FOR WEDGE 4 ACCORDING TO EN15804:2012+A2:2019

Tabel 19 – Potential environmental impacts, EN15804:2012+A2:2019 (LCIA)

ENVIRONMENTAL IMPACTS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ eq.]	2.42E+00	8.99E-03	4.79E+00	1.07E-02	4.33E-01	0.00E+00	1.07E-02	2.62E+00	0.00E+00	-3.18E-01
GWP-fossil	[kg CO ₂ eq.]	2.60E+00	8.98E-03	4.69E+00	1.07E-02	3.58E-01	0.00E+00	1.07E-02	2.62E+00	0.00E+00	-3.17E-01
GWP-biogenic	[kg CO ₂ eq.]	-1.77E-01	0.00E+00	9.20E-02	0.00E+00	7.46E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP-luluc	[kg CO ₂ eq.]	1.78E-03	3.09E-06	1.09E-03	3.67E-06	5.75E-05	0.00E+00	3.67E-06	3.63E-06	0.00E+00	-1.13E-03
ODP	[kg CFC 11 eq.]	1.23E-07	1.82E-10	7.87E-08	2.16E-10	8.28E-10	0.00E+00	2.16E-10	3.80E-10	0.00E+00	-1.47E-08
AP	[mol H ⁺ eq.]	8.98E-03	3.58E-05	1.41E-02	4.25E-05	2.43E-04	0.00E+00	4.25E-05	3.18E-04	0.00E+00	-2.09E-03
EP-freshwater	[kg P eq.]	5.62E-04	6.15E-07	1.69E-03	7.29E-07	1.66E-05	0.00E+00	7.29E-07	2.60E-06	0.00E+00	-1.67E-04
EP-marine	[kg N eq.]	1.81E-03	1.34E-05	3.03E-03	1.59E-05	8.63E-05	0.00E+00	1.59E-05	1.58E-04	0.00E+00	-4.92E-04
EP-terrestrial	[mol N eq.]	1.85E-02	1.46E-04	3.03E-02	1.73E-04	7.85E-04	0.00E+00	1.73E-04	1.67E-03	0.00E+00	-6.54E-03
POCP	[kg NMVOC eq.]	1.51E-02	5.65E-05	1.06E-02	6.70E-05	2.57E-04	0.00E+00	6.70E-05	4.12E-04	0.00E+00	-2.09E-03
ADPm ¹	[kg Sb eq.]	2.38E-05	2.44E-08	1.12E-05	2.89E-08	3.45E-07	0.00E+00	2.89E-08	4.25E-08	0.00E+00	-3.26E-06
ADPf ¹	[MJ]	8.70E+01	1.31E-01	7.10E+01	1.55E-01	7.36E-01	0.00E+00	1.55E-01	1.96E-01	0.00E+00	-8.82E+00
WDP ¹	[m ³ world eq. deprived]	1.35E+00	6.24E-04	6.81E-01	7.40E-04	9.76E-03	0.00E+00	7.40E-04	4.52E-03	0.00E+00	-1.53E-01
Abbreviation	GWP-total = Global warming, total; GWP-fossil = Global warming, fossil fuels; GWP-biogenic = Global warming, biogenic; GWP-luluc = Global warming, land use and land conversion; ODP = Ozone depletion; AP = Acidification; EP-freshwater = Eutrophication (nutrient loading) – freshwater; EP-marine = Eutrophication (nutrient loading) – marine; EP-terrestrial = Eutrophication (nutrient loading) – terrestrial; POCP = Photochemical ozone creation; ADPm = Depletion of abiotic resources – minerals and metals; ADPf = Depletion of abiotic fossil resources; WDP = Water consumption										
Remark	¹ The results for this environmental indicator should be used with caution, as the uncertainty surrounding the results is high or because there is limited experience with the indicator.										

Tabel 20 – Potential environmental impacts, EN15804:2012+A2:2019 (LCIA)

ENVIRONMENTAL IMPACTS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PM	[Disease incidence]	7.64E-08	9.13E-10	5.91E-08	1.08E-09	3.07E-09	0.00E+00	1.08E-09	1.46E-09	0.00E+00	-1.99E-08
IRP ²	[kBq U235 eq.]	2.17E-01	1.59E-04	5.45E-01	1.89E-04	8.99E-03	0.00E+00	1.89E-04	4.21E-04	0.00E+00	-9.19E-02
ETP-fw ¹	[CTUe]	1.13E+01	3.10E-02	1.08E+01	3.68E-02	3.90E-01	0.00E+00	3.68E-02	5.66E-01	0.00E+00	-1.73E+00
HTP-c ¹	[CTUh]	1.04E-08	5.59E-11	6.84E-09	6.63E-11	4.35E-10	0.00E+00	6.63E-11	3.06E-10	0.00E+00	-1.68E-09
HTP-nc ¹	[CTUh]	2.32E-08	8.45E-11	3.24E-08	1.00E-10	9.65E-10	0.00E+00	1.00E-10	2.50E-09	0.00E+00	-6.06E-09
SQP ¹	-	9.69E+00	1.32E-01	1.05E+01	1.56E-01	4.35E-01	0.00E+00	1.56E-01	4.69E-02	0.00E+00	-1.93E+01
Abbreviation	PM = Particulate matter; IRP = Ionizing radiation - human health; ETP-fw = Ecotoxicity - freshwater; HTP-c = Human toxicity - cancer effects; HTP- nc = Human toxicity - non-cancer effects; SQP = Soil quality (dimensionless)										
Remark	¹ The results for this environmental indicator should be used with caution, as the uncertainty surrounding the results is high or because there is limited experience with the indicator. ² This impact category primarily addresses the potential impact of low-dose ionizing radiation on human health associated with nuclear fuel cycles. It does not take into account effects from possible nuclear accidents, occupational exposure or disposal of radioactive waste in underground facilities. Potential ionizing radiation from the soil, from radon and from certain building materials is also not measured by this indicator.										

Tabel 21 – Resource consumption, EN15804:2012+A2:2019 (LCI)

RESOURCE CONSUMPTION PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PERE	[MJ]	1.09E+00	2.02E-03	3.87E+00	2.39E-03	4.79E-02	0.00E+00	2.39E-03	6.54E-03	0.00E+00	-7.54E+00
PERM	[MJ]	1.46E+00	0.00E+00	8.46E-02	0.00E+00	-7.20E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.55E+00	2.02E-03	3.96E+00	2.39E-03	-6.73E-01	0.00E+00	2.39E-03	6.54E-03	0.00E+00	-7.54E+00
PENRE	[MJ]	5.33E+01	1.31E-01	6.57E+01	1.55E-01	5.79E+00	0.00E+00	1.55E-01	1.96E-01	0.00E+00	-8.82E+00
PENRM	[MJ]	3.36E+01	0.00E+00	4.85E+00	0.00E+00	-5.05E+00	0.00E+00	0.00E+00	-3.25E+01	0.00E+00	0.00E+00
PENRT	[MJ]	8.70E+01	1.31E-01	7.06E+01	1.55E-01	7.36E-01	0.00E+00	1.55E-01	-3.24E+01	0.00E+00	-8.82E+00
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	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	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	0.00E+00	0.00E+00
FW	[m³]	1.69E-02	1.94E-05	9.22E-02	2.30E-05	3.42E-04	0.00E+00	2.30E-05	4.91E-04	0.00E+00	-1.28E-02
Forkortelse	PERE = Forbrug af vedvarende primær energi; PERM = Forbrug af vedvarende primære energiresourcer anvendt som råmaterialer; PERT = Samlet forbrug af vedvarende primære energiresourcer; PENRE = Forbrug af ikke-vedvarende primær energi; PENRM = Forbrug af ikke-vedvarende primære energiresourcer anvendt som råmaterialer; PENRT = Samlet forbrug af ikke-vedvarende primære energiresourcer; SM = Forbrug af sekundært materiale; RSF = Forbrug af vedvarende sekundært brændsel; NRSF = Forbrug af ikke-vedvarende sekundært brændsel; FW = Nettoforbrug af ferskvand										

Tabel 22 – End of life, EN15804:2012+A2:2019 (LCI)

WASTE CATEGORIES AND OUTPUT FLOWS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
HWD	[kg]	1.67E-03	8.60E-07	3.50E-04	1.02E-06	5.19E-06	0.00E+00	1.02E-06	3.04E-06	0.00E+00	-1.08E-04
NHWD	[kg]	1.44E-01	1.12E-02	1.48E-01	1.33E-02	2.80E-02	0.00E+00	1.33E-02	3.32E-02	0.00E+00	-3.56E-02
RWD	[kg]	5.56E-05	3.94E-08	1.34E-04	4.67E-08	2.30E-06	0.00E+00	4.67E-08	1.06E-07	0.00E+00	-2.14E-05
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	0.00E+00	0.00E+00
MFR	[kg]	0.00E+00	0.00E+00	5.09E-02	0.00E+00	7.48E-02	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	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.37E-01	0.00E+00	0.00E+00	4.11E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E+00	0.00E+00	0.00E+00	7.99E+00	0.00E+00	0.00E+00
Forkortelse	HWD = Bortskaffet farligt affald; NHWD = Bortskaffet ikke-farligt affald; RWD = Bortskaffet radioaktivt affald; CRU = Komponenter til genbrug; MFR = Materiale til genanvendelse; MER = Materiale til energigenvinding; EEE = Eksporteret elektrisk energi; EET = Eksporteret termisk energi										

Tabel 23 - Biogenic carbon at the factory gate

BIOGENIC CARBON PER KG		
Parameter	Unit	At factory gate
Biogenic carbon content in the product	[kg C]	0.00E+00
Biogenic carbon content in the accompanying packaging	[kg C]	4.49E-02
Note	1 kg of biogenic carbon is equivalent to 44/12 kg of CO ₂	

RESULTS FOR UNIVERSAL MULTI-BRACKET (UMB) ACCORDING TO EN15804:2012+A2:2019

Tabel 24 – Potential environmental impacts, EN15804:2012+A2:2019 (LCIA)

ENVIRONMENTAL IMPACTS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ eq.]	2.47E+00	9.21E-03	4.67E+00	1.07E-02	3.29E-01	0.00E+00	1.07E-02	2.62E+00	0.00E+00	-2.87E-01
GWP-fossil	[kg CO ₂ eq.]	2.64E+00	9.21E-03	4.56E+00	1.07E-02	2.64E-01	0.00E+00	1.07E-02	2.62E+00	0.00E+00	-2.86E-01
GWP-biogenic	[kg CO ₂ eq.]	-1.77E-01	0.00E+00	1.03E-01	0.00E+00	6.56E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP-luluc	[kg CO ₂ eq.]	2.46E-03	3.17E-06	9.75E-04	3.67E-06	4.53E-05	0.00E+00	3.67E-06	3.64E-06	0.00E+00	-1.07E-03
ODP	[kg CFC 11 eq.]	1.23E-07	1.86E-10	7.36E-08	2.16E-10	6.51E-10	0.00E+00	2.16E-10	3.81E-10	0.00E+00	-1.29E-08
AP	[mol H ⁺ eq.]	9.34E-03	3.67E-05	1.37E-02	4.25E-05	1.89E-04	0.00E+00	4.25E-05	3.18E-04	0.00E+00	-1.92E-03
EP-freshwater	[kg P eq.]	5.81E-04	6.30E-07	1.67E-03	7.29E-07	1.31E-05	0.00E+00	7.29E-07	2.61E-06	0.00E+00	-1.54E-04
EP-marine	[kg N eq.]	1.88E-03	1.38E-05	2.94E-03	1.59E-05	6.70E-05	0.00E+00	1.59E-05	1.58E-04	0.00E+00	-4.56E-04
EP-terrestrial	[mol N eq.]	1.93E-02	1.50E-04	2.94E-02	1.73E-04	6.08E-04	0.00E+00	1.73E-04	1.67E-03	0.00E+00	-6.12E-03
POCP	[kg NMVOC eq.]	1.52E-02	5.80E-05	9.94E-03	6.70E-05	2.00E-04	0.00E+00	6.70E-05	4.11E-04	0.00E+00	-1.85E-03
ADPm ¹	[kg Sb eq.]	2.42E-05	2.50E-08	1.02E-05	2.89E-08	2.72E-07	0.00E+00	2.89E-08	4.25E-08	0.00E+00	-2.89E-06
ADPf ¹	[MJ]	8.71E+01	1.34E-01	6.74E+01	1.55E-01	5.79E-01	0.00E+00	1.55E-01	1.96E-01	0.00E+00	-7.59E+00
WDP ¹	[m ³ world eq. deprived]	1.38E+00	6.40E-04	6.28E-01	7.40E-04	7.66E-03	0.00E+00	7.40E-04	4.53E-03	0.00E+00	-1.27E-01
Abbreviation	GWP-total = Global warming, total; GWP-fossil = Global warming, fossil fuels; GWP-biogenic = Global warming, biogenic; GWP-luluc = Global warming, land use and land conversion; ODP = Ozone depletion; AP = Acidification; EP-freshwater = Eutrophication (nutrient loading) – freshwater; EP-marine = Eutrophication (nutrient loading) – marine; EP-terrestrial = Eutrophication (nutrient loading) – terrestrial; POCP = Photochemical ozone creation; ADPm = Depletion of abiotic resources – minerals and metals; ADPf = Depletion of abiotic fossil resources; WDP = Water consumption										
Remark	¹ The results for this environmental indicator should be used with caution, as the uncertainty surrounding the results is high or because there is limited experience with the indicator.										

Tabel 25 – Potential environmental impacts, EN15804:2012+A2:2019 (LCIA)

ENVIRONMENTAL IMPACTS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PM	[Disease incidence]	8.08E-08	9.37E-10	5.61E-08	1.08E-09	2.41E-09	0.00E+00	1.08E-09	1.46E-09	0.00E+00	-1.84E-08
IRP ²	[kBq U235 eq.]	2.20E-01	1.63E-04	5.35E-01	1.89E-04	7.09E-03	0.00E+00	1.89E-04	4.22E-04	0.00E+00	-8.55E-02
ETP-fw ¹	[CTUe]	1.22E+01	3.18E-02	1.04E+01	3.68E-02	3.04E-01	0.00E+00	3.68E-02	5.68E-01	0.00E+00	-1.56E+00
HTP-c ¹	[CTUh]	1.05E-08	5.73E-11	6.41E-09	6.63E-11	3.41E-10	0.00E+00	6.63E-11	3.17E-10	0.00E+00	-1.51E-09
HTP-nc ¹	[CTUh]	2.35E-08	8.66E-11	3.13E-08	1.00E-10	7.44E-10	0.00E+00	1.00E-10	2.54E-09	0.00E+00	-5.59E-09
SQP ¹	-	1.03E+01	1.35E-01	9.92E+00	1.56E-01	3.43E-01	0.00E+00	1.56E-01	4.70E-02	0.00E+00	-1.85E+01
Abbreviation	PM = Particulate matter; IRP = Ionizing radiation - human health; ETP-fw = Ecotoxicity - freshwater; HTP-c = Human toxicity - cancer effects; HTP- nc = Human toxicity - non-cancer effects; SQP = Soil quality (dimensionless)										
Remark	¹ The results for this environmental indicator should be used with caution, as the uncertainty surrounding the results is high or because there is limited experience with the indicator. ² This impact category primarily addresses the potential impact of low-dose ionizing radiation on human health associated with nuclear fuel cycles. It does not take into account effects from possible nuclear accidents, occupational exposure or disposal of radioactive waste in underground facilities. Potential ionizing radiation from the soil, from radon and from certain building materials is also not measured by this indicator.										

Tabel 26 – Resource consumption, EN15804:2012+A2:2019 (LCI)

RESOURCE CONSUMPTION PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PERE	[MJ]	1.23E+00	2.07E-03	3.82E+00	2.39E-03	3.51E-02	0.00E+00	2.39E-03	6.56E-03	0.00E+00	-7.23E+00
PERM	[MJ]	1.46E+00	0.00E+00	3.41E-03	0.00E+00	-6.25E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.69E+00	2.07E-03	3.82E+00	2.39E-03	-5.90E-01	0.00E+00	2.39E-03	6.56E-03	0.00E+00	-7.23E+00
PENRE	[MJ]	5.36E+01	1.34E-01	6.35E+01	1.55E-01	4.28E+00	0.00E+00	1.55E-01	1.96E-01	0.00E+00	-7.59E+00
PENRM	[MJ]	3.35E+01	0.00E+00	3.46E+00	0.00E+00	-3.70E+00	0.00E+00	0.00E+00	-3.24E+01	0.00E+00	0.00E+00
PENRT	[MJ]	8.71E+01	1.34E-01	6.70E+01	1.55E-01	5.79E-01	0.00E+00	1.55E-01	-3.22E+01	0.00E+00	-7.59E+00
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	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	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	0.00E+00	0.00E+00
FW	[m ³]	1.78E-02	1.99E-05	9.11E-02	2.30E-05	2.60E-04	0.00E+00	2.30E-05	4.93E-04	0.00E+00	-1.23E-02
Forkortelse	PERE = Forbrug af vedvarende primær energi; PERM = Forbrug af vedvarende primære energiresourcer anvendt som råmaterialer; PERT = Samlet forbrug af vedvarende primære energiresourcer; PENRE = Forbrug af ikke-vedvarende primær energi; PENRM = Forbrug af ikke-vedvarende primære energiresourcer anvendt som råmaterialer; PENRT = Samlet forbrug af ikke-vedvarende primære energiresourcer; SM = Forbrug af sekundært materiale; RSF = Forbrug af vedvarende sekundært brændsel; NRSF = Forbrug af ikke-vedvarende sekundært brændsel; FW = Nettoforbrug af ferskvand										

Tabel 27 – End of life, EN15804:2012+A2:2019 (LCI)

WASTE CATEGORIES AND OUTPUT FLOWS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
HWD	[kg]	1.67E-03	8.82E-07	2.85E-04	1.02E-06	4.08E-06	0.00E+00	1.02E-06	3.07E-06	0.00E+00	-8.71E-05
NHWD	[kg]	1.48E-01	1.15E-02	1.41E-01	1.33E-02	2.19E-02	0.00E+00	1.33E-02	3.34E-02	0.00E+00	-3.29E-02
RWD	[kg]	5.63E-05	4.04E-08	1.32E-04	4.67E-08	1.82E-06	0.00E+00	4.67E-08	1.07E-07	0.00E+00	-1.98E-05
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	0.00E+00	0.00E+00
MFR	[kg]	0.00E+00	0.00E+00	5.09E-02	0.00E+00	6.01E-02	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	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.97E-01	0.00E+00	0.00E+00	4.10E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.73E-01	0.00E+00	0.00E+00	7.97E+00	0.00E+00	0.00E+00
Forkortelse	HWD = Bortskaffet farligt affald; NHWD = Bortskaffet ikke-farligt affald; RWD = Bortskaffet radioaktivt affald; CRU = Komponenter til genbrug; MFR = Materiale til genanvendelse; MER = Materiale til energigenvinding; EEE = Eksporteret elektrisk energi; EET = Eksporteret termisk energi										

Tabel 28 - Biogenic carbon at the factory gate

BIOGENIC CARBON PER KG		
Parameter	Unit	At factory gate
Biogenic carbon content in the product	[kg C]	0.00E+00
Biogenic carbon content in the accompanying packaging	[kg C]	4.98E-02
Note	1 kg of biogenic carbon is equivalent to 44/12 kg of CO ₂	

RESULTS FOR RIGHT MULTI-BRACKET (RMB) ACCORDING TO EN15804:2012+A2:2019

Tabel 29 – Potential environmental impacts, EN15804:2012+A2:2019 (LCIA)

ENVIRONMENTAL IMPACTS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ eq.]	2.47E+00	9.21E-03	4.69E+00	1.07E-02	3.58E-01	0.00E+00	1.07E-02	2.62E+00	0.00E+00	-2.95E-01
GWP-fossil	[kg CO ₂ eq.]	2.64E+00	9.21E-03	4.60E+00	1.07E-02	2.86E-01	0.00E+00	1.07E-02	2.62E+00	0.00E+00	-2.94E-01
GWP-biogenic	[kg CO ₂ eq.]	-1.77E-01	0.00E+00	9.56E-02	0.00E+00	7.19E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP-luluc	[kg CO ₂ eq.]	2.46E-03	3.17E-06	1.02E-03	3.67E-06	4.92E-05	0.00E+00	3.67E-06	3.64E-06	0.00E+00	-1.09E-03
ODP	[kg CFC 11 eq.]	1.23E-07	1.86E-10	7.48E-08	2.16E-10	7.07E-10	0.00E+00	2.16E-10	3.81E-10	0.00E+00	-1.35E-08
AP	[mol H ⁺ eq.]	9.34E-03	3.67E-05	1.38E-02	4.25E-05	2.06E-04	0.00E+00	4.25E-05	3.18E-04	0.00E+00	-1.97E-03
EP-freshwater	[kg P eq.]	5.81E-04	6.30E-07	1.67E-03	7.29E-07	1.42E-05	0.00E+00	7.29E-07	2.61E-06	0.00E+00	-1.58E-04
EP-marine	[kg N eq.]	1.88E-03	1.38E-05	2.97E-03	1.59E-05	7.27E-05	0.00E+00	1.59E-05	1.58E-04	0.00E+00	-4.66E-04
EP-terrestrial	[mol N eq.]	1.93E-02	1.50E-04	2.96E-02	1.73E-04	6.60E-04	0.00E+00	1.73E-04	1.67E-03	0.00E+00	-6.23E-03
POCP	[kg NMVOC eq.]	1.52E-02	5.80E-05	1.01E-02	6.70E-05	2.17E-04	0.00E+00	6.70E-05	4.11E-04	0.00E+00	-1.92E-03
ADPm ¹	[kg Sb eq.]	2.42E-05	2.50E-08	1.05E-05	2.89E-08	2.95E-07	0.00E+00	2.89E-08	4.25E-08	0.00E+00	-3.00E-06
ADPf ¹	[MJ]	8.71E+01	1.34E-01	6.83E+01	1.55E-01	6.29E-01	0.00E+00	1.55E-01	1.96E-01	0.00E+00	-7.97E+00
WDP ¹	[m ³ world eq. deprived]	1.38E+00	6.40E-04	6.41E-01	7.40E-04	8.32E-03	0.00E+00	7.40E-04	4.53E-03	0.00E+00	-1.34E-01
Abbreviation	GWP-total = Global warming, total; GWP-fossil = Global warming, fossil fuels; GWP-biogenic = Global warming, biogenic; GWP-luluc = Global warming, land use and land conversion; ODP = Ozone depletion; AP = Acidification; EP-freshwater = Eutrophication (nutrient loading) – freshwater; EP-marine = Eutrophication (nutrient loading) – marine; EP-terrestrial = Eutrophication (nutrient loading) – terrestrial; POCP = Photochemical ozone creation; ADPm = Depletion of abiotic resources – minerals and metals; ADPf = Depletion of abiotic fossil resources; WDP = Water consumption										
Remark	¹ The results for this environmental indicator should be used with caution, as the uncertainty surrounding the results is high or because there is limited experience with the indicator.										

Tabel 30 – Potential environmental impacts, EN15804:2012+A2:2019 (LCIA)

ENVIRONMENTAL IMPACTS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PM	[Disease incidence]	8.08E-08	9.37E-10	5.69E-08	1.08E-09	2.62E-09	0.00E+00	1.08E-09	1.46E-09	0.00E+00	-1.89E-08
IRP ²	[kBq U235 eq.]	2.20E-01	1.63E-04	5.37E-01	1.89E-04	7.71E-03	0.00E+00	1.89E-04	4.22E-04	0.00E+00	-8.72E-02
ETP-fw ¹	[CTUe]	1.22E+01	3.18E-02	1.05E+01	3.68E-02	3.30E-01	0.00E+00	3.68E-02	5.68E-01	0.00E+00	-1.61E+00
HTP-c ¹	[CTUh]	1.05E-08	5.73E-11	6.52E-09	6.63E-11	3.71E-10	0.00E+00	6.63E-11	3.17E-10	0.00E+00	-1.56E-09
HTP-nc ¹	[CTUh]	2.35E-08	8.66E-11	3.16E-08	1.00E-10	8.08E-10	0.00E+00	1.00E-10	2.54E-09	0.00E+00	-5.72E-09
SQP ¹	-	1.03E+01	1.35E-01	1.02E+01	1.56E-01	3.72E-01	0.00E+00	1.56E-01	4.70E-02	0.00E+00	-1.87E+01
Abbreviation	PM = Particulate matter; IRP = Ionizing radiation - human health; ETP-fw = Ecotoxicity - freshwater; HTP-c = Human toxicity - cancer effects; HTP- nc = Human toxicity - non-cancer effects; SQP = Soil quality (dimensionless)										
Remark	¹ The results for this environmental indicator should be used with caution, as the uncertainty surrounding the results is high or because there is limited experience with the indicator. ² This impact category primarily addresses the potential impact of low-dose ionizing radiation on human health associated with nuclear fuel cycles. It does not take into account effects from possible nuclear accidents, occupational exposure or disposal of radioactive waste in underground facilities. Potential ionizing radiation from the soil, from radon and from certain building materials is also not measured by this indicator.										

Tabel 31 – Resource consumption, EN15804:2012+A2:2019 (LCI)

RESOURCE CONSUMPTION PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PERE	[MJ]	1.23E+00	2.07E-03	3.83E+00	2.39E-03	3.81E-02	0.00E+00	2.39E-03	6.56E-03	0.00E+00	-7.31E+00
PERM	[MJ]	1.46E+00	0.00E+00	5.46E-02	0.00E+00	-6.83E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.69E+00	2.07E-03	3.88E+00	2.39E-03	-6.45E-01	0.00E+00	2.39E-03	6.56E-03	0.00E+00	-7.31E+00
PENRE	[MJ]	5.36E+01	1.34E-01	6.41E+01	1.55E-01	4.65E+00	0.00E+00	1.55E-01	1.96E-01	0.00E+00	-7.97E+00
PENRM	[MJ]	3.35E+01	0.00E+00	3.79E+00	0.00E+00	#####	0.00E+00	0.00E+00	-3.24E+01	0.00E+00	0.00E+00
PENRT	[MJ]	8.71E+01	1.34E-01	6.78E+01	1.55E-01	6.29E-01	0.00E+00	1.55E-01	-3.22E+01	0.00E+00	-7.97E+00
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	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	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	0.00E+00	0.00E+00
FW	[m³]	1.78E-02	1.99E-05	9.14E-02	2.30E-05	2.82E-04	0.00E+00	2.30E-05	4.93E-04	0.00E+00	-1.24E-02
Forkortelse	PERE = Forbrug af vedvarende primær energi; PERM = Forbrug af vedvarende primære energiresourcer anvendt som råmaterialer; PERT = Samlet forbrug af vedvarende primære energiresourcer; PENRE = Forbrug af ikke-vedvarende primær energi; PENRM = Forbrug af ikke-vedvarende primære energiresourcer anvendt som råmaterialer; PENRT = Samlet forbrug af ikke-vedvarende primære energiresourcer; SM = Forbrug af sekundært materiale; RSF = Forbrug af vedvarende sekundært brændsel; NRSF = Forbrug af ikke-vedvarende sekundært brændsel; FW = Nettoforbrug af ferskvand										

Tabel 32 – End of life, EN15804:2012+A2:2019 (LCI)

WASTE CATEGORIES AND OUTPUT FLOWS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
HWD	[kg]	1.67E-03	8.82E-07	3.00E-04	1.02E-06	4.43E-06	0.00E+00	1.02E-06	3.07E-06	0.00E+00	-9.39E-05
NHWD	[kg]	1.48E-01	1.15E-02	1.43E-01	1.33E-02	2.38E-02	0.00E+00	1.33E-02	3.34E-02	0.00E+00	-3.36E-02
RWD	[kg]	5.63E-05	4.04E-08	1.32E-04	4.67E-08	1.97E-06	0.00E+00	4.67E-08	1.07E-07	0.00E+00	-2.02E-05
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	0.00E+00	0.00E+00
MFR	[kg]	0.00E+00	0.00E+00	5.09E-02	0.00E+00	6.56E-02	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	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.32E-01	0.00E+00	0.00E+00	4.10E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.40E-01	0.00E+00	0.00E+00	7.97E+00	0.00E+00	0.00E+00
Forkortelse	HWD = Bortskaffet farligt affald; NHWD = Bortskaffet ikke-farligt affald; RWD = Bortskaffet radioaktivt affald; CRU = Komponenter til genbrug; MFR = Materiale til genanvendelse; MER = Materiale til energigenvinding; EEE = Eksporteret elektrisk energi; EET = Eksporteret termisk energi										

Tabel 33 - Biogenic carbon at the factory gate

BIOGENIC CARBON PER KG		
Parameter	Unit	At factory gate
Biogenic carbon content in the product	[kg C]	0.00E+00
Biogenic carbon content in the accompanying packaging	[kg C]	5.70E-02
Note	1 kg of biogenic carbon is equivalent to 44/12 kg of CO ₂	

RESULTS FOR LEFT MULTI-BRACKET (LMB) ACCORDING TO EN15804:2012+A2:2019

Tabel 34 – Potential environmental impacts, EN15804:2012+A2:2019 (LCIA)

ENVIRONMENTAL IMPACTS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ eq.]	2.47E+00	9.21E-03	4.69E+00	1.07E-02	3.58E-01	0.00E+00	1.07E-02	2.62E+00	0.00E+00	-2.95E-01
GWP-fossil	[kg CO ₂ eq.]	2.64E+00	9.21E-03	4.60E+00	1.07E-02	2.86E-01	0.00E+00	1.07E-02	2.62E+00	0.00E+00	-2.94E-01
GWP-biogenic	[kg CO ₂ eq.]	-1.77E-01	0.00E+00	9.56E-02	0.00E+00	7.19E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP-luluc	[kg CO ₂ eq.]	2.46E-03	3.17E-06	1.02E-03	3.67E-06	4.92E-05	0.00E+00	3.67E-06	3.64E-06	0.00E+00	-1.09E-03
ODP	[kg CFC 11 eq.]	1.23E-07	1.86E-10	7.48E-08	2.16E-10	7.07E-10	0.00E+00	2.16E-10	3.81E-10	0.00E+00	-1.35E-08
AP	[mol H ⁺ eq.]	9.34E-03	3.67E-05	1.38E-02	4.25E-05	2.06E-04	0.00E+00	4.25E-05	3.18E-04	0.00E+00	-1.97E-03
EP-freshwater	[kg P eq.]	5.81E-04	6.30E-07	1.67E-03	7.29E-07	1.42E-05	0.00E+00	7.29E-07	2.61E-06	0.00E+00	-1.58E-04
EP-marine	[kg N eq.]	1.88E-03	1.38E-05	2.97E-03	1.59E-05	7.27E-05	0.00E+00	1.59E-05	1.58E-04	0.00E+00	-4.66E-04
EP-terrestrial	[mol N eq.]	1.93E-02	1.50E-04	2.96E-02	1.73E-04	6.60E-04	0.00E+00	1.73E-04	1.67E-03	0.00E+00	-6.23E-03
POCP	[kg NMVOC eq.]	1.52E-02	5.80E-05	1.01E-02	6.70E-05	2.17E-04	0.00E+00	6.70E-05	4.11E-04	0.00E+00	-1.92E-03
ADPm ¹	[kg Sb eq.]	2.42E-05	2.50E-08	1.05E-05	2.89E-08	2.95E-07	0.00E+00	2.89E-08	4.25E-08	0.00E+00	-3.00E-06
ADPf ¹	[MJ]	8.71E+01	1.34E-01	6.83E+01	1.55E-01	6.29E-01	0.00E+00	1.55E-01	1.96E-01	0.00E+00	-7.97E+00
WDP ¹	[m ³ world eq. deprived]	1.38E+00	6.40E-04	6.41E-01	7.40E-04	8.32E-03	0.00E+00	7.40E-04	4.53E-03	0.00E+00	-1.34E-01
Abbreviation	GWP-total = Global warming, total; GWP-fossil = Global warming, fossil fuels; GWP-biogenic = Global warming, biogenic; GWP-luluc = Global warming, land use and land conversion; ODP = Ozone depletion; AP = Acidification; EP-freshwater = Eutrophication (nutrient loading) – freshwater; EP-marine = Eutrophication (nutrient loading) – marine; EP-terrestrial = Eutrophication (nutrient loading) – terrestrial; POCP = Photochemical ozone creation; ADPm = Depletion of abiotic resources – minerals and metals; ADPf = Depletion of abiotic fossil resources; WDP = Water consumption										
Remark	¹ The results for this environmental indicator should be used with caution, as the uncertainty surrounding the results is high or because there is limited experience with the indicator.										

Tabel 35 – Potential environmental impacts, EN15804:2012+A2:2019 (LCIA)

ENVIRONMENTAL IMPACTS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PM	[Disease incidence]	8.08E-08	9.37E-10	5.69E-08	1.08E-09	2.62E-09	0.00E+00	1.08E-09	1.46E-09	0.00E+00	-1.89E-08
IRP ²	[kBq U235 eq.]	2.20E-01	1.63E-04	5.37E-01	1.89E-04	7.71E-03	0.00E+00	1.89E-04	4.22E-04	0.00E+00	-8.72E-02
ETP-fw ¹	[CTUe]	1.22E+01	3.18E-02	1.05E+01	3.68E-02	3.30E-01	0.00E+00	3.68E-02	5.68E-01	0.00E+00	-1.61E+00
HTP-c ¹	[CTUh]	1.05E-08	5.73E-11	6.52E-09	6.63E-11	3.71E-10	0.00E+00	6.63E-11	3.17E-10	0.00E+00	-1.56E-09
HTP-nc ¹	[CTUh]	2.35E-08	8.66E-11	3.16E-08	1.00E-10	8.08E-10	0.00E+00	1.00E-10	2.54E-09	0.00E+00	-5.72E-09
SQP ¹	-	1.03E+01	1.35E-01	1.02E+01	1.56E-01	3.72E-01	0.00E+00	1.56E-01	4.70E-02	0.00E+00	-1.87E+01
Abbreviation	PM = Particulate matter; IRP = Ionizing radiation - human health; ETP-fw = Ecotoxicity - freshwater; HTP-c = Human toxicity - cancer effects; HTP- nc = Human toxicity - non-cancer effects; SQP = Soil quality (dimensionless)										
Remark	¹ The results for this environmental indicator should be used with caution, as the uncertainty surrounding the results is high or because there is limited experience with the indicator. ² This impact category primarily addresses the potential impact of low-dose ionizing radiation on human health associated with nuclear fuel cycles. It does not take into account effects from possible nuclear accidents, occupational exposure or disposal of radioactive waste in underground facilities. Potential ionizing radiation from the soil, from radon and from certain building materials is also not measured by this indicator.										

Tabel 36 – Resource consumption, EN15804:2012+A2:2019 (LCI)

RESOURCE CONSUMPTION PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PERE	[MJ]	1.23E+00	2.07E-03	3.83E+00	2.39E-03	3.81E-02	0.00E+00	2.39E-03	6.56E-03	0.00E+00	-7.31E+00
PERM	[MJ]	1.46E+00	0.00E+00	5.46E-02	0.00E+00	-6.83E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.69E+00	2.07E-03	3.88E+00	2.39E-03	-6.45E-01	0.00E+00	2.39E-03	6.56E-03	0.00E+00	-7.31E+00
PENRE	[MJ]	5.36E+01	1.34E-01	6.41E+01	1.55E-01	4.65E+00	0.00E+00	1.55E-01	1.96E-01	0.00E+00	-7.97E+00
PENRM	[MJ]	3.35E+01	0.00E+00	3.79E+00	0.00E+00	-4.02E+00	0.00E+00	0.00E+00	-3.24E+01	0.00E+00	0.00E+00
PENRT	[MJ]	8.71E+01	1.34E-01	6.78E+01	1.55E-01	6.29E-01	0.00E+00	1.55E-01	-3.22E+01	0.00E+00	-7.97E+00
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	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	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	0.00E+00	0.00E+00
FW	[m ³]	1.78E-02	1.99E-05	9.14E-02	2.30E-05	2.82E-04	0.00E+00	2.30E-05	4.93E-04	0.00E+00	-1.24E-02
Forkortelse	PERE = Forbrug af vedvarende primær energi; PERM = Forbrug af vedvarende primære energiresourcer anvendt som råmaterialer; PERT = Samlet forbrug af vedvarende primære energiresourcer; PENRE = Forbrug af ikke-vedvarende primær energi; PENRM = Forbrug af ikke-vedvarende primære energiresourcer anvendt som råmaterialer; PENRT = Samlet forbrug af ikke-vedvarende primære energiresourcer; SM = Forbrug af sekundært materiale; RSF = Forbrug af vedvarende sekundært brændsel; NRSF = Forbrug af ikke-vedvarende sekundært brændsel; FW = Nettoforbrug af ferskvand										

Tabel 37 – End of life, EN15804:2012+A2:2019 (LCI)

WASTE CATEGORIES AND OUTPUT FLOWS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
HWD	[kg]	1.67E-03	8.82E-07	3.00E-04	1.02E-06	4.43E-06	0.00E+00	1.02E-06	3.07E-06	0.00E+00	-9.39E-05
NHWD	[kg]	1.48E-01	1.15E-02	1.43E-01	1.33E-02	2.38E-02	0.00E+00	1.33E-02	3.34E-02	0.00E+00	-3.36E-02
RWD	[kg]	5.63E-05	4.04E-08	1.32E-04	4.67E-08	1.97E-06	0.00E+00	4.67E-08	1.07E-07	0.00E+00	-2.02E-05
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	0.00E+00	0.00E+00
MFR	[kg]	0.00E+00	0.00E+00	5.09E-02	0.00E+00	6.56E-02	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	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.32E-01	0.00E+00	0.00E+00	4.10E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.40E-01	0.00E+00	0.00E+00	7.97E+00	0.00E+00	0.00E+00
Forkortelse	HWD = Bortskaffet farligt affald; NHWD = Bortskaffet ikke-farligt affald; RWD = Bortskaffet radioaktivt affald; CRU = Komponenter til genbrug; MFR = Materiale til genanvendelse; MER = Materiale til energigenvinding; EEE = Eksporteret elektrisk energi; EET = Eksporteret termisk energi										

Tabel 38 - Biogenic carbon at the factory gate

BIOGENIC CARBON PER KG		
Parameter	Unit	At factory gate
Biogenic carbon content in the product	[kg C]	0.00E+00
Biogenic carbon content in the accompanying packaging	[kg C]	5.70E-02
Note	1 kg of biogenic carbon is equivalent to 44/12 kg of CO ₂	

RESULTS FOR ADAPTER MULTI BRACKET (ABU) ACCORDING TO EN15804:2012+A2:2019

Tabel 39 – Potential environmental impacts, EN15804:2012+A2:2019 (LCIA)

ENVIRONMENTAL IMPACTS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ eq.]	2.42E+00	8.99E-03	4.55E+00	1.07E-02	1.96E-01	0.00E+00	1.07E-02	2.62E+00	0.00E+00	-2.53E-01
GWP-fossil	[kg CO ₂ eq.]	2.60E+00	8.98E-03	4.41E+00	1.07E-02	1.57E-01	0.00E+00	1.07E-02	2.62E+00	0.00E+00	-2.52E-01
GWP-biogenic	[kg CO ₂ eq.]	-1.77E-01	0.00E+00	1.33E-01	0.00E+00	3.92E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP-luluc	[kg CO ₂ eq.]	1.78E-03	3.09E-06	7.63E-04	3.67E-06	2.70E-05	0.00E+00	3.67E-06	3.63E-06	0.00E+00	-9.98E-04
ODP	[kg CFC 11 eq.]	1.23E-07	1.82E-10	6.77E-08	2.16E-10	3.87E-10	0.00E+00	2.16E-10	3.80E-10	0.00E+00	-1.03E-08
AP	[mol H ⁺ eq.]	8.98E-03	3.58E-05	1.32E-02	4.25E-05	1.13E-04	0.00E+00	4.25E-05	3.18E-04	0.00E+00	-1.70E-03
EP-freshwater	[kg P eq.]	5.62E-04	6.15E-07	1.63E-03	7.29E-07	7.80E-06	0.00E+00	7.29E-07	2.60E-06	0.00E+00	-1.38E-04
EP-marine	[kg N eq.]	1.81E-03	1.34E-05	2.82E-03	1.59E-05	3.99E-05	0.00E+00	1.59E-05	1.58E-04	0.00E+00	-4.08E-04
EP-terrestrial	[mol N eq.]	1.85E-02	1.46E-04	2.83E-02	1.73E-04	3.62E-04	0.00E+00	1.73E-04	1.67E-03	0.00E+00	-5.57E-03
POCP	[kg NMVOC eq.]	1.51E-02	5.65E-05	9.21E-03	6.70E-05	1.19E-04	0.00E+00	6.70E-05	4.12E-04	0.00E+00	-1.50E-03
ADPm ¹	[kg Sb eq.]	2.38E-05	2.44E-08	9.13E-06	2.89E-08	1.62E-07	0.00E+00	2.89E-08	4.25E-08	0.00E+00	-2.36E-06
ADPf ¹	[MJ]	8.70E+01	1.31E-01	6.33E+01	1.55E-01	3.45E-01	0.00E+00	1.55E-01	1.96E-01	0.00E+00	-5.82E+00
WDP ¹	[m ³ world eq. deprived]	1.35E+00	6.24E-04	5.64E-01	7.40E-04	4.56E-03	0.00E+00	7.40E-04	4.52E-03	0.00E+00	-9.19E-02
Abbreviation	GWP-total = Global warming, total; GWP-fossil = Global warming, fossil fuels; GWP-biogenic = Global warming, biogenic; GWP-luluc = Global warming, land use and land conversion; ODP = Ozone depletion; AP = Acidification; EP-freshwater = Eutrophication (nutrient loading) – freshwater; EP-marine = Eutrophication (nutrient loading) – marine; EP-terrestrial = Eutrophication (nutrient loading) – terrestrial; POCP = Photochemical ozone creation; ADPm = Depletion of abiotic resources – minerals and metals; ADPf = Depletion of abiotic fossil resources; WDP = Water consumption										
Remark	¹ The results for this environmental indicator should be used with caution, as the uncertainty surrounding the results is high or because there is limited experience with the indicator.										

Tabel 40 – Potential environmental impacts, EN15804:2012+A2:2019 (LCIA)

ENVIRONMENTAL IMPACTS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PM	[Disease incidence]	7.64E-08	9.13E-10	5.21E-08	1.08E-09	1.43E-09	0.00E+00	1.08E-09	1.46E-09	0.00E+00	-1.66E-08
IRP ²	[kBq U235 eq.]	2.17E-01	1.59E-04	5.22E-01	1.89E-04	4.22E-03	0.00E+00	1.89E-04	4.21E-04	0.00E+00	-7.76E-02
ETP-fw ¹	[CTUe]	1.13E+01	3.10E-02	9.74E+00	3.68E-02	1.81E-01	0.00E+00	3.68E-02	5.66E-01	0.00E+00	-1.33E+00
HTP-c ¹	[CTUh]	1.04E-08	5.59E-11	5.87E-09	6.63E-11	2.03E-10	0.00E+00	6.63E-11	3.06E-10	0.00E+00	-1.27E-09
HTP-nc ¹	[CTUh]	2.32E-08	8.45E-11	2.99E-08	1.00E-10	4.43E-10	0.00E+00	1.00E-10	2.50E-09	0.00E+00	-4.97E-09
SQP ¹	-	9.69E+00	1.32E-01	8.69E+00	1.56E-01	2.04E-01	0.00E+00	1.56E-01	4.69E-02	0.00E+00	-1.75E+01
Abbreviation	PM = Particulate matter; IRP = Ionizing radiation - human health; ETP-fw = Ecotoxicity - freshwater; HTP-c = Human toxicity - cancer effects; HTP- nc = Human toxicity - non-cancer effects; SQP = Soil quality (dimensionless)										
Remark	¹ The results for this environmental indicator should be used with caution, as the uncertainty surrounding the results is high or because there is limited experience with the indicator. ² This impact category primarily addresses the potential impact of low-dose ionizing radiation on human health associated with nuclear fuel cycles. It does not take into account effects from possible nuclear accidents, occupational exposure or disposal of radioactive waste in underground facilities. Potential ionizing radiation from the soil, from radon and from certain building materials is also not measured by this indicator.										

Tabel 41 – Resource consumption, EN15804:2012+A2:2019 (LCI)

RESOURCE CONSUMPTION PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PERE	[MJ]	1.09E+00	2.02E-03	3.79E+00	2.39E-03	2.09E-02	0.00E+00	2.39E-03	6.54E-03	0.00E+00	-6.88E+00
PERM	[MJ]	1.46E+00	0.00E+00	-2.18E-01	0.00E+00	-3.73E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.55E+00	2.02E-03	3.57E+00	2.39E-03	-3.52E-01	0.00E+00	2.39E-03	6.54E-03	0.00E+00	-6.88E+00
PENRE	[MJ]	5.33E+01	1.31E-01	6.09E+01	1.55E-01	2.55E+00	0.00E+00	1.55E-01	1.96E-01	0.00E+00	-5.82E+00
PENRM	[MJ]	3.36E+01	0.00E+00	1.91E+00	0.00E+00	-2.20E+00	0.00E+00	0.00E+00	-3.25E+01	0.00E+00	0.00E+00
PENRT	[MJ]	8.70E+01	1.31E-01	6.28E+01	1.55E-01	3.45E-01	0.00E+00	1.55E-01	-3.24E+01	0.00E+00	-5.82E+00
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	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	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	0.00E+00	0.00E+00
FW	[m ³]	1.69E-02	1.94E-05	8.97E-02	2.30E-05	1.55E-04	0.00E+00	2.30E-05	4.91E-04	0.00E+00	-1.17E-02
Forkortelse	PERE = Forbrug af vedvarende primær energi; PERM = Forbrug af vedvarende primære energiresourcer anvendt som råmaterialer; PERT = Samlet forbrug af vedvarende primære energiresourcer; PENRE = Forbrug af ikke-vedvarende primær energi; PENRM = Forbrug af ikke-vedvarende primære energiresourcer anvendt som råmaterialer; PENRT = Samlet forbrug af ikke-vedvarende primære energiresourcer; SM = Forbrug af sekundært materiale; RSF = Forbrug af vedvarende sekundært brændsel; NRSF = Forbrug af ikke-vedvarende sekundært brændsel; FW = Nettoforbrug af ferskvand										

Tabel 42 – End of life, EN15804:2012+A2:2019 (LCI)

WASTE CATEGORIES AND OUTPUT FLOWS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
HWD	[kg]	1.67E-03	8.60E-07	2.12E-04	1.02E-06	2.43E-06	0.00E+00	1.02E-06	3.04E-06	0.00E+00	-5.51E-05
NHWD	[kg]	1.44E-01	1.12E-02	1.29E-01	1.33E-02	1.30E-02	0.00E+00	1.33E-02	3.32E-02	0.00E+00	-2.93E-02
RWD	[kg]	5.56E-05	3.94E-08	1.28E-04	4.67E-08	1.08E-06	0.00E+00	4.67E-08	1.06E-07	0.00E+00	-1.79E-05
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	0.00E+00	0.00E+00
MFR	[kg]	0.00E+00	0.00E+00	5.09E-02	0.00E+00	3.59E-02	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	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.36E-01	0.00E+00	0.00E+00	4.11E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.60E-01	0.00E+00	0.00E+00	7.99E+00	0.00E+00	0.00E+00
Forkortelse	HWD = Bortskaffet farligt affald; NHWD = Bortskaffet ikke-farligt affald; RWD = Bortskaffet radioaktivt affald; CRU = Komponenter til genbrug; MFR = Materiale til genanvendelse; MER = Materiale til energigenvinding; EEE = Eksporteret elektrisk energi; EET = Eksporteret termisk energi										

Tabel 43 - Biogenic carbon at the factory gate

BIOGENIC CARBON PER KG		
Parameter	Unit	At factory gate
Biogenic carbon content in the product	[kg C]	0.00E+00
Biogenic carbon content in the accompanying packaging	[kg C]	3.04E-02
Note	1 kg of biogenic carbon is equivalent to 44/12 kg of CO ₂	

RESULTS FOR ADAPTER LEFT/RIGHT MULTI- BRACKET (ABRL) ACCORDING TO EN15804:2012+A2:2019

Tabel 44 – Potential environmental impacts, EN15804:2012+A2:2019 (LCIA)

ENVIRONMENTAL IMPACTS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ eq.]	2.42E+00	8.79E-03	5.12E+00	1.07E-02	7.75E-01	0.00E+00	1.07E-02	2.62E+00	0.00E+00	-4.10E-01
GWP-fossil	[kg CO ₂ eq.]	2.60E+00	8.79E-03	5.09E+00	1.07E-02	6.43E-01	0.00E+00	1.07E-02	2.62E+00	0.00E+00	-4.09E-01
GWP-biogenic	[kg CO ₂ eq.]	-1.77E-01	0.00E+00	2.58E-02	0.00E+00	1.32E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP-luluc	[kg CO ₂ eq.]	1.78E-03	3.03E-06	1.61E-03	3.67E-06	1.04E-04	0.00E+00	3.67E-06	3.63E-06	0.00E+00	-1.33E-03
ODP	[kg CFC 11 eq.]	1.23E-07	1.78E-10	9.43E-08	2.16E-10	1.49E-09	0.00E+00	2.16E-10	3.80E-10	0.00E+00	-2.13E-08
AP	[mol H ⁺ eq.]	8.98E-03	3.51E-05	1.54E-02	4.25E-05	4.37E-04	0.00E+00	4.25E-05	3.18E-04	0.00E+00	-2.67E-03
EP-freshwater	[kg P eq.]	5.62E-04	6.01E-07	1.79E-03	7.29E-07	3.00E-05	0.00E+00	7.29E-07	2.60E-06	0.00E+00	-2.09E-04
EP-marine	[kg N eq.]	1.81E-03	1.31E-05	3.34E-03	1.59E-05	1.55E-04	0.00E+00	1.59E-05	1.58E-04	0.00E+00	-6.15E-04
EP-terrestrial	[mol N eq.]	1.85E-02	1.43E-04	3.32E-02	1.73E-04	1.41E-03	0.00E+00	1.73E-04	1.67E-03	0.00E+00	-7.97E-03
POCP	[kg NMVOC eq.]	1.51E-02	5.53E-05	1.25E-02	6.70E-05	4.63E-04	0.00E+00	6.70E-05	4.12E-04	0.00E+00	-2.97E-03
ADPm ¹	[kg Sb eq.]	2.38E-05	2.39E-08	1.42E-05	2.89E-08	6.22E-07	0.00E+00	2.89E-08	4.25E-08	0.00E+00	-4.60E-06
ADPf ¹	[MJ]	8.70E+01	1.28E-01	8.20E+01	1.55E-01	1.33E+00	0.00E+00	1.55E-01	1.96E-01	0.00E+00	-1.33E+01
WDP ¹	[m ³ world eq. deprived]	1.35E+00	6.11E-04	8.47E-01	7.40E-04	1.76E-02	0.00E+00	7.40E-04	4.52E-03	0.00E+00	-2.44E-01
Abbreviation	GWP-total = Global warming, total; GWP-fossil = Global warming, fossil fuels; GWP-biogenic = Global warming, biogenic; GWP-luluc = Global warming, land use and land conversion; ODP = Ozone depletion; AP = Acidification; EP-freshwater = Eutrophication (nutrient loading) – freshwater; EP-marine = Eutrophication (nutrient loading) – marine; EP-terrestrial = Eutrophication (nutrient loading) – terrestrial; POCP = Photochemical ozone creation; ADPm = Depletion of abiotic resources – minerals and metals; ADPf = Depletion of abiotic fossil resources; WDP = Water consumption										
Remark	¹ The results for this environmental indicator should be used with caution, as the uncertainty surrounding the results is high or because there is limited experience with the indicator.										

Tabel 45 – Potential environmental impacts, EN15804:2012+A2:2019 (LCIA)

ENVIRONMENTAL IMPACTS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PM	[Disease incidence]	7.64E-08	8.94E-10	6.92E-08	1.08E-09	5.52E-09	0.00E+00	1.08E-09	1.46E-09	0.00E+00	-2.47E-08
IRP ²	[kBq U235 eq.]	2.17E-01	1.56E-04	5.78E-01	1.89E-04	1.62E-02	0.00E+00	1.89E-04	4.21E-04	0.00E+00	-1.13E-01
ETP-fw ¹	[CTUe]	1.13E+01	3.04E-02	1.24E+01	3.68E-02	7.03E-01	0.00E+00	3.68E-02	5.66E-01	0.00E+00	-2.32E+00
HTP-c ¹	[CTUh]	1.04E-08	5.47E-11	8.25E-09	6.63E-11	7.83E-10	0.00E+00	6.63E-11	3.06E-10	0.00E+00	-2.29E-09
HTP-nc ¹	[CTUh]	2.32E-08	8.26E-11	3.59E-08	1.00E-10	1.74E-09	0.00E+00	1.00E-10	2.50E-09	0.00E+00	-7.66E-09
SQP ¹	-	9.69E+00	1.29E-01	1.32E+01	1.56E-01	7.83E-01	0.00E+00	1.56E-01	4.69E-02	0.00E+00	-2.18E+01
Abbreviation	PM = Particulate matter; IRP = Ionizing radiation - human health; ETP-fw = Ecotoxicity - freshwater; HTP-c = Human toxicity - cancer effects; HTP- nc = Human toxicity - non-cancer effects; SQP = Soil quality (dimensionless)										
Remark	¹ The results for this environmental indicator should be used with caution, as the uncertainty surrounding the results is high or because there is limited experience with the indicator. ² This impact category primarily addresses the potential impact of low-dose ionizing radiation on human health associated with nuclear fuel cycles. It does not take into account effects from possible nuclear accidents, occupational exposure or disposal of radioactive waste in underground facilities. Potential ionizing radiation from the soil, from radon and from certain building materials is also not measured by this indicator.										

Tabel 46 – Resource consumption, EN15804:2012+A2:2019 (LCI)

RESOURCE CONSUMPTION PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PERE	[MJ]	1.09E+00	1.97E-03	3.97E+00	2.39E-03	8.60E-02	0.00E+00	2.39E-03	6.54E-03	0.00E+00	-8.49E+00
PERM	[MJ]	1.46E+00	0.00E+00	5.75E-01	0.00E+00	-1.28E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	2.55E+00	1.97E-03	4.54E+00	2.39E-03	-1.20E+00	0.00E+00	2.39E-03	6.54E-03	0.00E+00	-8.49E+00
PENRE	[MJ]	5.33E+01	1.28E-01	7.25E+01	1.55E-01	1.04E+01	0.00E+00	1.55E-01	1.96E-01	0.00E+00	-1.33E+01
PENRM	[MJ]	3.36E+01	0.00E+00	9.00E+00	0.00E+00	-9.06E+00	0.00E+00	0.00E+00	-3.25E+01	0.00E+00	0.00E+00
PENRT	[MJ]	8.70E+01	1.28E-01	8.15E+01	1.55E-01	1.33E+00	0.00E+00	1.55E-01	-3.24E+01	0.00E+00	-1.33E+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	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	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	0.00E+00	0.00E+00
FW	[m ³]	1.69E-02	1.89E-05	9.59E-02	2.30E-05	6.15E-04	0.00E+00	2.30E-05	4.91E-04	0.00E+00	-1.44E-02
Forkortelse	PERE = Forbrug af vedvarende primær energi; PERM = Forbrug af vedvarende primære energiresourcer anvendt som råmaterialer; PERT = Samlet forbrug af vedvarende primære energiresourcer; PENRE = Forbrug af ikke-vedvarende primær energi; PENRM = Forbrug af ikke-vedvarende primære energiresourcer anvendt som råmaterialer; PENRT = Samlet forbrug af ikke-vedvarende primære energiresourcer; SM = Forbrug af sekundært materiale; RSF = Forbrug af vedvarende sekundært brændsel; NRSF = Forbrug af ikke-vedvarende sekundært brændsel; FW = Nettoforbrug af ferskvand										

Tabel 47 – End of life, EN15804:2012+A2:2019 (LCI)

WASTE CATEGORIES AND OUTPUT FLOWS PER KG											
Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
HWD	[kg]	1.67E-03	8.41E-07	5.46E-04	1.02E-06	9.35E-06	0.00E+00	1.02E-06	3.04E-06	0.00E+00	-1.89E-04
NHWD	[kg]	1.44E-01	1.10E-02	1.77E-01	1.33E-02	5.05E-02	0.00E+00	1.33E-02	3.32E-02	0.00E+00	-4.49E-02
RWD	[kg]	5.56E-05	3.85E-08	1.43E-04	4.67E-08	4.15E-06	0.00E+00	4.67E-08	1.06E-07	0.00E+00	-2.65E-05
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	0.00E+00	0.00E+00
MFR	[kg]	0.00E+00	0.00E+00	5.09E-02	0.00E+00	1.34E-01	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	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.65E-01	0.00E+00	0.00E+00	4.11E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E+00	0.00E+00	0.00E+00	7.99E+00	0.00E+00	0.00E+00
Forkortelse	HWD = Bortskaffet farligt affald; NHWD = Bortskaffet ikke-farligt affald; RWD = Bortskaffet radioaktivt affald; CRU = Komponenter til genbrug; MFR = Materiale til genanvendelse; MER = Materiale til energigenvinding; EEE = Eksporteret elektrisk energi; EET = Eksporteret termisk energi										

Tabel 48 - Biogenic carbon at the factory gate

BIOGENIC CARBON PER KG		
Parameter	Unit	At factory gate
Biogenic carbon content in the product	[kg C]	0.00E+00
Biogenic carbon content in the accompanying packaging	[kg C]	6.78E-02
Note	1 kg of biogenic carbon is equivalent to 44/12 kg of CO ₂	

Additional information

LCA interpretation

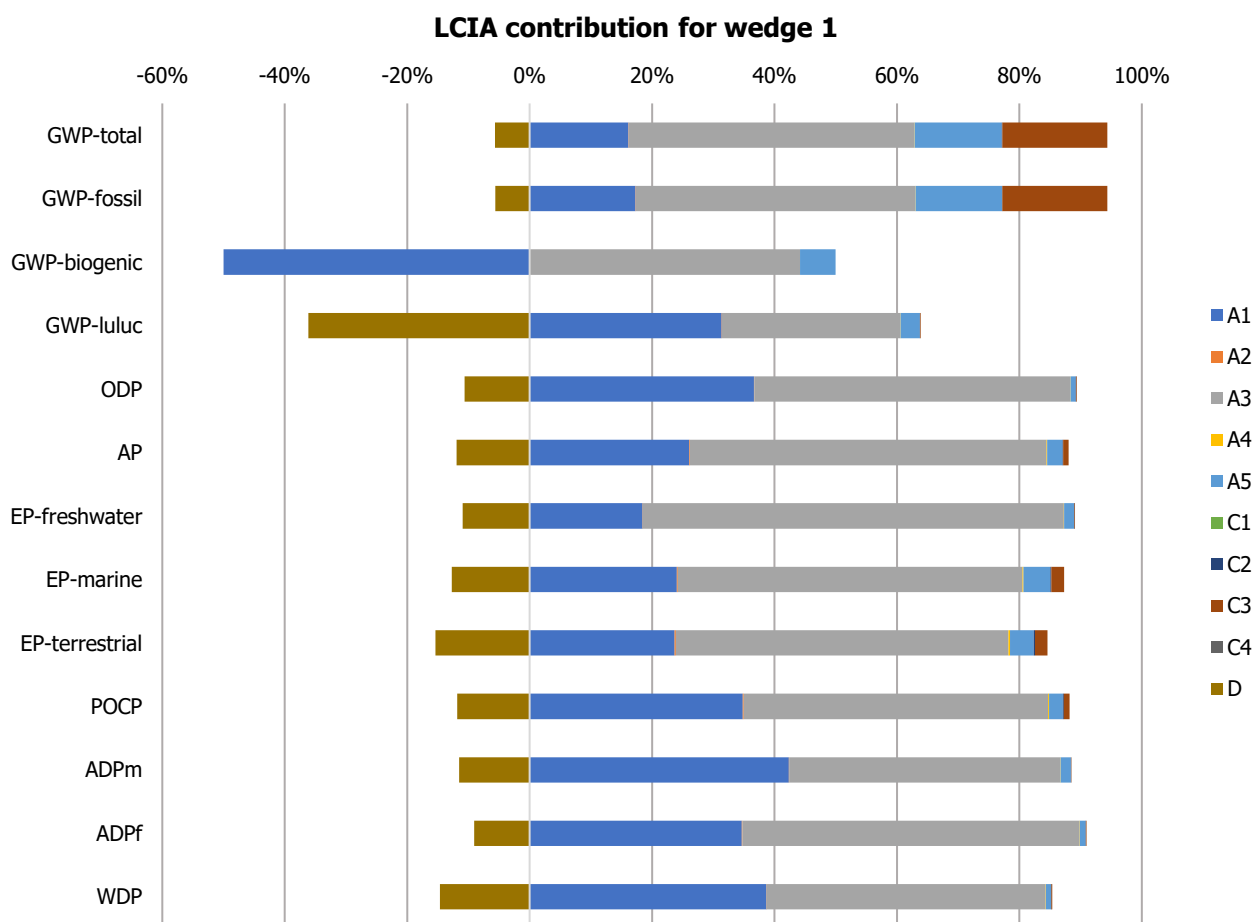


Figure 10 shows LCIA contributions to the different modules for wedge 1. Although the figure is only made for wedge 1, the other products in EPD 2 show a similar pattern, with module A1 and A3 being the most important life cycle phases that contribute the most to the different environmental indicators.

For GWP-total (i.e. the product's total greenhouse gas emissions), module A3 (Novafix's production) is responsible for the majority of the product's climate footprint. The second most contributing module is A1.

The high contribution from A3 is due to, among other things, the electricity consumption per kg of product for the injection molding of wedges and brackets and the consumption of PP granules for the plastic boxes. Since the plastic box consists of virgin PP granules, this contributes to the climate footprint.

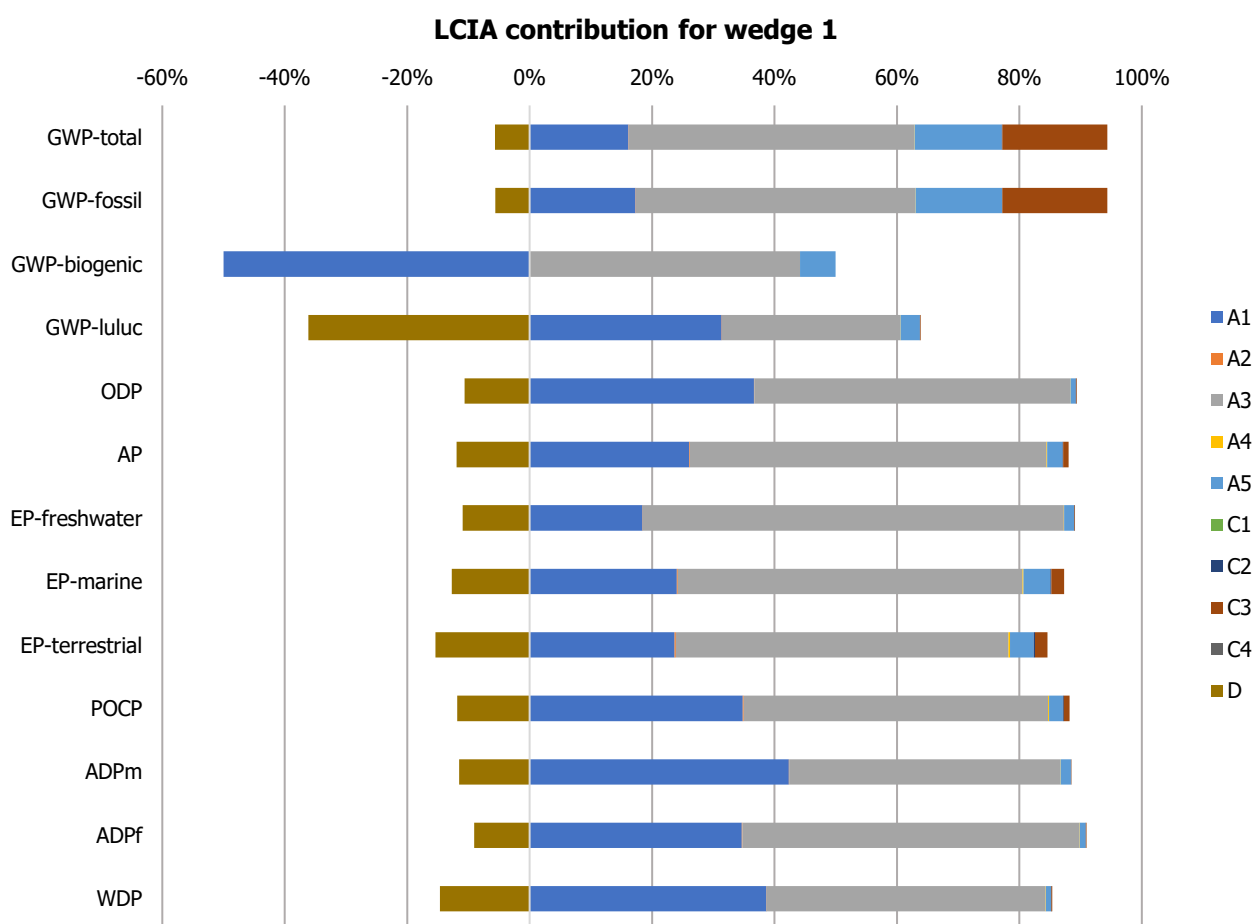


Figure 10– LCIA contribution for wedge 1.

Technical information about underlying scenarios

Transport to the construction site (A4)

Name	Value	Unit
Fuel quantity and type (alternatively: transport type)	>32 ton truck (EURO4)	
Transport distance	Diesel consumption: 0.02 kg/h*km	-
Capacity utilization (incl. empty return run)	100	km
Gross density of transported product	61	%
Capacity utilization, volume factor	Varies from product to product	kg/m ³

Installation in the building (A5)

Name	Value	Unit
Installation support materials	0	kg
Water consumption	0	m ³
Other resources	0	kg
Energy type and consumption (e.g. electricity consumption including grid -mix type)	0	kWh
Waste materials	Varies for individual products. See table on sales packaging per kg in Table 2.	-
Output materials in connection with waste management on site	0	kg
Direct emissions to air, soil and water	0	kg

End of life/ Disposal (C1-C4)

Product name	Separated waste (kg/kg)	Mixed waste (kg/kg)	Recycling (kg/kg)	Recycling (kg/kg)	Energy recovery (kg/kg)	Landfill (kg/kg)
Wedge 1	1.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E+00	0.00E+00
Wedge 2	1.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E+00	0.00E+00
Wedge 3	1.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E+00	0.00E+00
Wedge 4	1.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E+00	0.00E+00
Universal Multi-bracket (UMB)	1.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E+00	0.00E+00
Right Multi-bracket (RMB)	1.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E+00	0.00E+00
Left Multi-bracket (LMB)	1.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E+00	0.00E+00
Adapter Universal Multi-bracket (ABU)	1.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E+00	0.00E+00
Adapter left/right Multi-bracket (ABRL)	1.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E+00	0.00E+00

Recycling, recovery and/ or recycling potential (D)

Overview of the amount of electricity and heat production (MJ/kg) that can be replaced by incinerating packaging in module A5 and plastic in C3.

Product name	Substitution of electricity (MJ/kg)	Heat substitution (MJ/kg)
Wedge 1	-4.11E+00	-7.99E+00
Wedge 2	-4.11E+00	-7.99E+00
Wedge 3	-4.14E+00	-8.05E+00
Wedge 4	-4.14E+00	-8.05E+00
Universal Multi-bracket (UMB)	-4.13E+00	-8.02E+00
Right Multi-bracket (RMB)	-4.13E+00	-8.03E+00
Left Multi-bracket (LMB)	-4.13E+00	-8.03E+00
Adapter Universal Multi-bracket (ABU)	-4.13E+00	-8.02E+00

How much production of new materials can be replaced by recycling packaging in module A5.

Product name	PP granules (kg/kg)
Wedge 1	2.14E-01
Wedge 2	8.45E-02
Wedge 3	3.51E-02
Wedge 4	3.45E-02
Universal Multi-bracket (UMB)	2.52E-02
Right Multi-bracket (RMB)	2.74E-02
Left Multi-bracket (LMB)	2.74E-02
Adapter Universal Multi-bracket (ABU)	1.50E-02
Adapter left/right Multi- bracket (ABRL)	6.18E-02

Indoor air

The EPD does not state anything about the release of hazardous substances into indoor air, as the horizontal standards for the measurements are not available. Read more in EN15804+A2 section 7.4.1.

Soil and water

The EPD does not indicate anything about the release of hazardous substances to soil and water, as the horizontal standards for the measurements are not available. Read more in EN15804+A2 section 7.4.2.

References

Publisher	 epddanmark www.epddanmark.dk Template version 2024.1
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3rd party verifier	<i>Guangli Du</i> <i>BUILD - Aalborg University</i> www.aau.dk

General program instructions

General Program 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"

EN 15804

DS/EN 15804:2012+A2/AC:2021 – Corrigendum to DS/EN 15804 + A2:2019

EN 15942

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

ISO 14025

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

ISO 14040

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

ISO 14044

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