DDA RESIDUAL CURRENT BLOCKS

PEP ecopassport®

Product Environmental Profile

Product Environmental Profile - PEP Ecopassport.
Document in compliance with ISO 14025: 2006 "Environmental labels and declarations. Type III environmental declarations"

ORGANIZATION		CONTACT INFORMATION			
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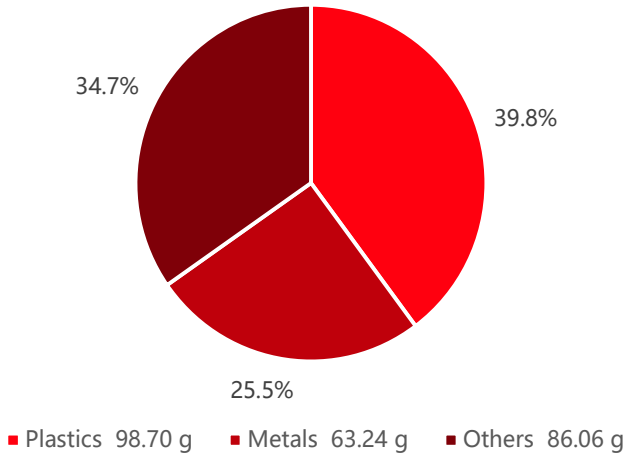
ABB Purpose & Embedding Sustainability

ABB is committed to continually promoting and embedding sustainability across its operations and value chain, aspiring to become a role model for others to follow. With its ABB Purpose, ABB is focusing on reducing harmful emissions, preserving natural resources and championing ethical and humane behavior.

General Information

Reference product	ABB DDA202 AC-25/0.03 - Code 2CSB202001R1250
Description of the product	The DDA200 RCD blocks are residual current blocks designed to be installed on the left side of the S200 series MCBs, in order to combine the protection against indirect contacts, offered by a standard RCCBs, with the protection against short circuit and overloads. This flexibility is an added advantage for the ones who desire to maintain the stock level at a minimum, providing a solution for wide range of applications with a handful of RCD blocks.
Functional unit	The functional unit for the DDA202 AC-25/0.03 is to protect people and premises at risk of fire or explosion against insulation defects in a circuit with rated voltage 230V, rated current 25A, with 2P poles, sensitivity 0.03 A, differential protection type AC, and Ingress Protection IP2X, in the Household application area, according to the appropriate use scenario, and during the 20-year reference service life of the product.
Other products covered	DDA200 Residual Current Blocks family

Constituent Materials



Total weight of Reference product and packaging	248	g

Plastics as % of weight		Metals as % of weight		Others as % of weight	
Name and CAS number	Weight%	Name and CAS number	Weight%	Name and CAS number	Weight%
PA	14.9	Steel	15.1	Cardboard & paper	21.5
Glass fibre	11.4	Copper	7.1	Wood	12.0
PC	10.1	Brass	3.1	Miscellaneous	0.9
PE	2.3	Aluminium	0.2	Resistor	0.3
PPS	1.1	–	–	–	–

Additional Environmental Information

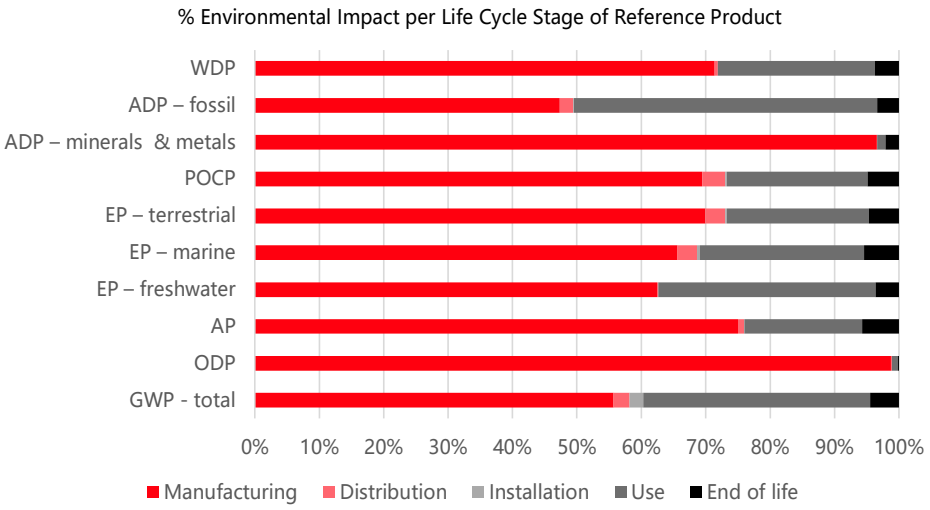
Manufacturing	The manufacturing stage includes the production and transportation to the manufacturer's last logistic platform of the product and its packaging. The production occurs at the ABB factory located in Santa Palomba (RM).
Distribution	The transport from ABB Santa Palomba factory to Vignate, Milan was taken into account. For the distribution of the product from Vignate to the final customer, the intracontinental transport scenario provided by PCR-ed4-EN-2021 09 06 standard was adopted, considering the European macro-area.
Installation	The installation phase only implies manual activities and no energy is consumed. This phase also includes the disposal of the packaging of the product. Statistical average data from Eurostat databases were considered for the disposal of the product and its packaging.
Use	During the use phase, DDA202 AC-25/0.03 dissipate some electricity due to power losses. The energy consumption has been calculated as follow: - Nominal current load rate as 20% (Household/Commercial application); - RSL of 20 years; - Functioning time of 30% of the RSL (α). No maintenance is planned for the product.
End of life	The default end of life scenario provided by the IEC/TR 62635 document has been adopted, considering the product transport by lorry over 1000 km and its disposal.
Benefits and loads beyond the system boundaries	Benefits and loads beyond the system boundaries has been considered according to PCR-ed4-EN-2021 09 06 & UNI EN 15804:2012+A2:2019.

Environmental Impacts

Reference lifetime	20 years
Product category	Blocks and differential switches
Installation elements	No installation materials are required in the life cycle of the product.
Use scenario	The formula for the calculation of the use stage electricity consumption is: E_use [kWh] = (P_use*8760*RSL*α)/1000
Geographical representativeness	Europe
Technological representativeness	Technological representativeness refers to the specific production process for primary data.
Software and database used	SimaPro 9.5 and ecoinvent 3.9.1

Energy model used	
Manufacturing	ABB GO energy mix 2022. The energy-related processes used for the remaining inputs are those included in the ecoinvent v3.9.1 datasets.
Installation	No energy consumption occur during the installation stage.
Use	Electricity, low voltage {RER}| market group for electricity, low voltage | Cut-off, S
End of life	The energy-related processes used for the inputs of the end-of-life stage are those included in the ecoinvent datasets selected for the analysis.

Common base of mandatory indicators



Environmental impact indicators

Indicator	Unit	Total (no Benefits	Manu-facturing	Distri-bution	Installation	Use	End of life	Bene-fits
GWP-total	kg CO_2 eq.	4.24E+00	2.36E+00	1.05E-01	9.06E-02	1.49E+00	1.91E-01	-4.21E-01
GWP-fossil	kg CO_2 eq.	4.11E+00	2.34E+00	1.05E-01	5.47E-03	1.49E+00	1.68E-01	-4.50E-01
GWP-biogenic	kg CO_2 eq.	1.26E-01	1.62E-02	8.12E-05	8.51E-02	9.12E-04	2.33E-02	2.97E-02
GWP-luluc	kg CO_2 eq.	7.79E-03	3.83E-03	4.97E-05	2.28E-06	3.71E-03	1.96E-04	-4.92E-04
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	kg CFC-11 eq.	2.89E-06	2.85E-06	2.31E-09	1.16E-10	2.84E-08	4.27E-09	-5.79E-09
ODP = Depletion potential of the stratospheric ozone layer								
AP	H+ eq.	4.67E-02	3.50E-02	4.36E-04	2.80E-05	8.54E-03	2.66E-03	-1.15E-02
AP = Acidification potential, Accumulated Exceedance								
EP-freshwater	kg P eq.	4.18E-03	2.61E-03	7.52E-06	6.73E-07	1.41E-03	1.51E-04	-9.57E-04
EP-marine	kg N eq.	5.41E-03	3.55E-03	1.65E-04	2.47E-05	1.38E-03	2.91E-04	-8.11E-04
EP-terrestrial	mol N eq.	5.66E-02	3.96E-02	1.76E-03	1.16E-04	1.25E-02	2.63E-03	-1.03E-02
EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment EP-terrestrial = Eutrophication potential, Accumulated Exceedance								
POCP	kg NMVOC eq.	1.83E-02	1.27E-02	6.62E-04	4.31E-05	4.01E-03	8.91E-04	-3.16E-03
POCP = Formation potential of tropospheric ozone								
ADP-minerals & metals	kg Sb eq.	1.35E-03	1.31E-03	2.85E-07	1.94E-08	1.80E-05	2.82E-05	-1.40E-04
ADP-fossil	MJ	7.19E+01	3.40E+01	1.54E+00	6.49E-02	3.39E+01	2.46E+00	-5.92E+00
ADP-minerals & metals = Abiotic depletion potential for non-fossil resources ADP-fossil = Abiotic depletion for fossil resources potential								
WDP	m^3 eq. depr.	1.56E+00	1.11E+00	7.36E-03	3.98E-04	3.80E-01	5.82E-02	-2.22E-01
WDP = Water Deprivation potential								

Common base of mandatory indicators

Inventory flows indicator – Resource use indicators

Indicator	Unit	Total (no Benefits	Manu-facturing	Distri-bution	Installation	Use	End of life	Bene-fits
PERE	MJ	1.40E+01	6.03E+00	2.26E-02	2.42E-03	7.59E+00	3.18E-01	-8.87E-01
PERM	MJ	1.43E+00	1.43E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	1.54E+01	7.47E+00	2.26E-02	2.42E-03	7.59E+00	3.18E-01	-8.87E-01
PENRE	MJ	6.76E+01	2.97E+01	1.54E+00	6.49E-02	3.38E+01	2.46E+00	-5.92E+00
PENRM	MJ	4.28E+00	4.28E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	7.19E+01	3.40E+01	1.54E+00	6.49E-02	3.38E+01	2.46E+00	-5.92E+00

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

Inventory flows indicator – Indicators describing the use of secondary materials, water, and energy resources

Indicator	Unit	Total (no Benefits	Manu-facturing	Distri-bution	Installation	Use	End of life	Bene-fits
SM	kg	3.46E-02	3.46E-02	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
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m³	6.47E-02	3.50E-02	2.42E-04	2.61E-05	2.74E-02	1.98E-03	-5.90E-03

SM = Use of secondary material
RSF = Use of renewable secondary fuels
NRSF = Use of non-renewable secondary fuels
FW = Use of net fresh water

Inventory flows indicator – Waste category indicators

Indicator	Unit	Total (no Benefits	Manu-facturing	Distri-bution	Installation	Use	End of life	Bene-fits
Hazardous waste disposed	kg	6.08E-04	5.23E-04	9.59E-06	3.86E-07	5.94E-05	1.56E-05	-9.48E-06
Non- hazardous waste disposed	kg	8.64E-01	4.68E-01	1.35E-01	1.87E-02	1.36E-01	1.06E-01	-6.34E-02
Radioactive waste disposed	kg	3.11E-04	5.85E-05	4.71E-07	5.98E-08	2.44E-04	8.03E-06	-8.64E-06

Common base of mandatory indicators

Inventory flows indicator – Output flow indicators

Indicator	Unit	Total (no Benefits	Manu-facturing	Distri-bution	Installation	Use	End of life	Bene-fits
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	1.86E-01	0.00E+00	0.00E+00	5.30E-02	0.00E+00	1.33E-01	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	9.06E-02	0.00E+00	0.00E+00	7.21E-02	0.00E+00	1.85E-02	0.00E+00

Inventory flow indicator – other indicators

Indicator	**Unit**	Total (no Benefits	Manu-facturing	Distri-bution	Installation	Use	End of life	Bene-fits
Biogenic carbon content of the product	kg of C	5.05E-05	5.05E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic carbon content of the associated packaging	kg of C	4.48E-02	4.48E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Optional indicators

Environmental indicators

Indicator	Unit	Total (no Benefits	Manu-facturing	Distri-bution	Installation	Use	End of life	Bene-fits
Total use of primary energy during the life cycle	MJ	8.73E+01	4.15E+01	1.57E+00	6.73E-02	4.14E+01	2.77E+00	-6.81E+00
Emissions of fine particles	incidence of diseases	2.26E-07	1.71E-07	1.08E-08	5.02E-10	3.13E-08	1.25E-08	-3.91E-08
Ionizing radiation, human health	kBq U235 eq.	1.22E+00	2.29E-01	1.95E-03	2.39E-04	9.54E-01	3.13E-02	-3.38E-02
Ecotoxicity (fresh water)	CTUe	7.11E+01	6.22E+01	7.43E-01	6.46E-02	5.69E+00	2.44E+00	-1.45E+01
Human toxicity, car-cinogenic effects	CTUh	9.80E-09	7.62E-09	4.57E-11	7.54E-12	6.99E-10	1.43E-09	-1.23E-09
Human toxicity, non-carcinogenic effects	incidence of diseases	4.71E-07	3.99E-07	1.11E-09	7.34E-11	2.79E-08	4.24E-08	-1.29E-07
Impact related to land use/soil quality		3.91E+01	2.93E+01	1.57E+00	3.64E-02	6.60E+00	1.63E+00	-4.56E+00

Other indicators

Indicator	Unit	Total (no Benefits	Manu-facturing	Distri-bution	Installation	Use	End of life	Bene-fits
No Other indicators used								

Environmental Impact Indicator Glossary

Impact indicators

Indicator	Description	Distri-bution
Global warming potential (GWP) - total	Indicator of potential global warming caused by emissions to air contributing to the greenhouse effect. The total global warming potential (GWP-total) is the sum of three sub-categories of climate change. GWP-total = GWP-fossil + GWP-biogenic + GWP- land use and land use change	kg CO_2 eq.
Ozone depletion (ODP)	Emissions to air that contribute to the destruction of the stratospheric ozone layer	kg CFC-11 eq.
Acidification of soil and water (A)	Acidification of soils and water caused by the release of certain gases to the atmosphere, such as nitrogen oxides and sulphur oxides	H+ eq.
Eutrophication (E)	Indicator of the contribution to eutrophication of water by the enrichment of the aquatic ecosystem with nutritional elements, e.g. industrial or domestic effluents, agriculture, etc. This indicator is divided to three: freshwater, marine and terrestrial.	kg P eq., kg N eq., mole N eq.
Photochemical ozone creation (POCP)	Indicator of emissions of gases that affect the creation of photochemical ozone in the lower atmosphere (smog) because of the rays of the sun.	kg NMVOC eq.
Depletion of abiotic resources – elements (ADPe)	Indicator of the depletion of natural non-fossil resources	kg Sb eq.
Depletion of abiotic resources – fossil fuels (ADPf)	The use of non-renewable fossil resources in an unsustainable way (e.g. from material to waste)	MJ (lower heating value)
Water Deprivation potential (WDP)	Deprivation-weighted water consumption. Assesses the potential of water deprivation, to either humans or ecosystems, building on the assumption that the less water remaining available per area, the more likely another user will be deprived.	m^3 eq. depr.

Resource use indicators

Indicator	Description	Distri-bution
Total use of primary energy	Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) + Total use of renewable primary energy re-sources (primary energy and primary energy resources used as raw materials)	MJ (lower heating value)

Extrapolation rules

The PEP can cover products different from the reference product if they belong to a homogeneous environmental family. This means that the group of products must satisfy the following characteristics:

- same function;
- same product standard;
- same manufacturing technology: the same type of materials and same manufacturing processes.

The DDA200 residual current blocks product family satisfy these conditions, so extrapolation rules were applied to assess the environmental impact of the products belonging to the family, following the PCR indication. No extrapolation rules are set in the PSR; thus, the next steps have been followed to define the extrapolation rule:

- Analyse the products covered by the PEP belonging to the same homogenous family;
- Perform the LCA of a representative product of the homogeneous family;
- Identify and quantify the product parameters that vary between the various products of the homogeneous environmental family (i.e. dimensions, the weight of parts, materials, energy consumption. etc.).

Lastly, a sensitivity analysis was performed for each life cycle stage to identify which parameters of the ones selected are sensitive to environmental impacts to create extrapolation rules.

The parameters identified are listed below and differ between the different stages of the life cycle:

- for the manufacturing. distribution. installation and end-of-life stages:
  - weight of the product;
  - weight of the packaging.
- for manufacturing only:
  - assembly energy consumption;
  - product material composition.
- for the use stage:
  - energy consumption.

The representative products considered for the calculation of the extrapolation rules are DDA202 AC-25/0.03 (code 2CSB202001R1250) for 25A/40A variants and DDA204 AC-63/0.03 (code 2CSB204001R1630) for 63A variants.

The results of the sensitive analysis show that the sensitive parameters are the weight of the product, the use stage consumption, and the product material composition.

The products included in the DDA200 residual current blocks product family and considered for the application of the extrapolation rules are resented in the table below.

Product ID	Product Name	Tp	In (A)	Current type (AC/DC)	S (A)	Np	IP	Ue (V)	Weight (g)	Power (W)
2CSB202001R0250	DDA202 AC-25/0.01	AC	25	AC	0.01	2	2X	230	168	0.08
2CSB202001R1250	DDA202 AC-25/0.03	AC	25	AC	0.03	2	2X	230	168	0.08
2CSB202001R1400	DDA202 AC-40/0.03	AC	40	AC	0.03	2	2X	230	168	0.13
2CSB202001R1630	DDA202 AC-63/0.03	AC	63	AC	0.03	2	2X	230	201	0.2
2CSB202001R2250	DDA202 AC-25/0.1	AC	25	AC	0.10	2	2X	230	168	0.08
2CSB202001R2400	DDA202 AC-40/0.1	AC	40	AC	0.10	2	2X	230	168	0.13
2CSB202001R2630	DDA202 AC-63/0.1	AC	63	AC	0.10	2	2X	230	201	0.2
2CSB202001R3250	DDA202 AC-25/0.3	AC	25	AC	0.30	2	2X	230	168	0.08
2CSB202001R3400	DDA202 AC-40/0.3	AC	40	AC	0.30	2	2X	230	168	0.13
2CSB202001R3630	DDA202 AC-63/0.3	AC	63	AC	0.30	2	2X	230	201	0.2
2CSB202001R4250	DDA202 AC-25/0.5	AC	25	AC	0.50	2	2X	230	168	0.08
2CSB202001R5400	DDA202 AC-40/1	AC	40	AC	1	2	2X	230	168	0.13
2CSB202001R4400	DDA202 AC-40/0.5	AC	40	AC	0.50	2	2X	230	168	0.13
2CSB202001R5630	DDA202 AC-63/1	AC	63	AC	1	2	2X	230	201	0.2
2CSB202001R4630	DDA202 AC-63/0.5	AC	63	AC	0.50	2	2X	230	201	0.2
2CSB202001R6630	DDA202 AC-63/2	AC	63	AC	2	2	2X	230	201	0.2
2CSB202101R0250	DDA202 A-25/0.01	A	25	AC	0.01	2	2X	230	168	0.08
2CSB202001R5250	DDA202 AC-25/1	AC	25	AC	1	2	2X	230	168	0.08
2CSB202101R1250	DDA202 A-25/0.03	A	25	AC	0.03	2	2X	230	168	0.08
2CSB202101R1400	DDA202 A-40/0.03	A	40	AC	0.03	2	2X	230	168	0.13
2CSB202101R1630	DDA202 A-63/0.03	A	63	AC	0.03	2	2X	230	201	0.2
2CSB202101R2250	DDA202 A-25/0.1	A	25	AC	0.10	2	2X	230	168	0.08
2CSB202101R2400	DDA202 A-40/0.1	A	40	AC	0.10	2	2X	230	168	0.13
2CSB202101R2630	DDA202 A-63/0.1	A	63	AC	0.10	2	2X	230	201	0.2
2CSB202101R3250	DDA202 A-25/0.3	A	25	AC	0.30	2	2X	230	168	0.08
2CSB202101R3400	DDA202 A-40/0.3	A	40	AC	0.30	2	2X	230	168	0.13
2CSB202101R3630	DDA202 A-63/0.3	A	63	AC	0.30	2	2X	230	201	0.2
2CSB202101R4250	DDA202 A-25/0.5	A	25	AC	0.50	2	2X	230	168	0.08
2CSB202101R4400	DDA202 A-40/0.5	A	40	AC	0.50	2	2X	230	168	0.13
2CSB202101R4630	DDA202 A-63/0.5	A	63	AC	0.50	2	2X	230	201	0.2
2CSB202101R5250	DDA202 A-25/1	A	25	AC	1	2	2X	230	168	0.08
2CSB202101R5400	DDA202 A-40/1	A	40	AC	1	2	2X	230	168	0.13
2CSB202101R5630	DDA202 A-63/1	A	63	AC	1	2	2X	230	201	0.2
2CSB202201R2630	DDA202 A S-63/0.1	A S	63	AC	0.10	2	2X	230	201	0.2
2CSB202201R3630	DDA202 A S-63/0.3	A S	63	AC	0.30	2	2X	230	201	0.2
2CSB202201R4630	DDA202 A S-63/0.5	A S	63	AC	0.50	2	2X	230	201	0.2
2CSB202201R5630	DDA202 A S-63/1	A S	63	AC	1	2	2X	230	201	0.2
2CSB202192R1630	DDA202 A-63/0.03 400V	A	63	AC	0.03	2	2X	400	201	0.2
2CSB202301R1400	DDA202 AC-40/0.03 AP-R	AC AP-R	40	AC	0.03	2	2X	230	168	0.13
2CSB202199R1250	DDA202 A-25/0.03 110V	A	25	AC	0.03	2	2X	110	168	0.08
2CSB202199R1400	DDA202 A-40/0.03 110V	A	40	AC	0.03	2	2X	110	168	0.13
2CSB202199R1630	DDA202 A-63/0.03 110V	A	63	AC	0.03	2	2X	110	201	0.2
2CSB202401R1250	DDA202 A-25/0.03 AP-R	A AP-R	25	AC	0.03	2	2X	230	168	0.08
2CSB202401R1400	DDA202 A-40/0.03 AP-R	A AP-R	40	AC	0.03	2	2X	230	168	0.13
2CSB202401R1630	DDA202 A-63/0.03 AP-R	A AP-R	63	AC	0.03	2	2X	230	201	0.2
2CSB202701R1630	DDA202 A-63/0.03 AE	A AE	63	AC	0.03	2	2X	230	201	0.2
2CSB202701R3630	DDA202 A-63/0.3 AE	A AE	63	AC	0.30	2	2X	230	201	0.2
2CSB202701R4630	DDA202 A-63/0.5 AE	A AE	63	AC	0.50	2	2X	230	201	0.2
2CSB202701R5630	DDA202 A-63/1 AE	A AE	63	AC	1	2	2X	230	201	0.2
2CSB202319R1630	DDA202 AC-63/0.03 G	AC G	63	AC	0.03	2	2X	230	201	0.2
2CSB202319R2630	DDA202 AC-63/0.1 G	AC G	63	AC	0.10	2	2X	230	201	0.2
2CSB202419R1630	DDA202 A-63/0.03 G	A G	63	AC	0.03	2	2X	230	201	0.2
2CSB202419R2630	DDA202 A-63/0.1 G	A G	63	AC	0.10	2	2X	230	201	0.2
2CSB202592R1250	DDA202 B-25/0.03 AP-R	B AP-R	25	Both	0.03	2	2X	230	347	0.86
2CSB202592R1400	DDA202 B-40/0.03 AP-R	B AP-R	40	Both	0.03	2	2X	230	347	0.91
2CSB202592R1630	DDA202 B-63/0.03 AP-R	B AP-R	63	Both	0.03	2	2X	230	347	0.98
2CSB202592R3250	DDA202 B-25/0.3 AP-R	B AP-R	25	Both	0.30	2	2X	230	347	0.86
2CSB202592R3630	DDA202 B-63/0.3 AP-R	B AP-R	63	Both	0.30	2	2X	230	347	0.98
2CSB202901R2630	DDA202 AC S-63/0.1	AC S	63	AC	0.10	2	2X	230	201	0.2
2CSB202901R3630	DDA202 AC S-63/0.3	AC S	63	AC	0.30	2	2X	230	201	0.2
2CSB202901R4630	DDA202 AC S-63/0.5	AC S	63	AC	0.50	2	2X	230	201	0.2
2CSB202325R1400	DDA202 F-40/0.03	F	40	AC	0.03	2	2X	230	168	0.13
2CSB202325R1630	DDA202 F-63/0.03	F	63	AC	0.03	2	2X	230	201	0.2
2CSB203001R1250	DDA203 AC-25/0.03	AC	25	AC	0.03	3	2X	230	178	0.12
2CSB203001R1400	DDA203 AC-40/0.03	AC	40	AC	0.03	3	2X	230	178	0.19
2CSB203001R3400	DDA203 AC-40/0.3	AC	40	AC	0.30	3	2X	230	178	0.19
2CSB203001R1630	DDA203 AC-63/0.03	AC	63	AC	0.03	3	2X	230	270	0.3
2CSB203001R3630	DDA203 AC-63/0.3	AC	63	AC	0.30	3	2X	230	270	0.3
2CSB203001R2250	DDA203 AC-25/0.1	AC	25	AC	0.10	3	2X	230	178	0.12
2CSB203001R4250	DDA203 AC-25/0.5	AC	25	AC	0.50	3	2X	230	178	0.12
2CSB203001R2400	DDA203 AC-40/0.1	AC	40	AC	0.10	3	2X	230	178	0.19

Product ID	Product Name	Tp	In (A)	Current type (AC/DC)	S (A)	Np	IP	Ue (V)	Weight (g)	Power (W)
2CSB203001R2630	DDA203 AC-63/0.1	AC	63	AC	0.10	3	2X	230	270	0.3
2CSB203001R4400	DDA203 AC-40/0.5	AC	40	AC	0.50	3	2X	230	178	0.19
2CSB203001R3250	DDA203 AC-25/0.3	AC	25	AC	0.30	3	2X	230	178	0.12
2CSB203001R4630	DDA203 AC-63/0.5	AC	63	AC	0.50	3	2X	230	270	0.3
2CSB203001R5250	DDA203 AC-25/1	AC	25	AC	1	3	2X	230	178	0.12
2CSB203201R2630	DDA203 A S-63/0.1	A S	63	AC	0.10	3	2X	230	270	0.3
2CSB203001R5400	DDA203 AC-40/1	AC	40	AC	1	3	2X	230	178	0.19
2CSB203201R3630	DDA203 A S-63/0.3	A S	63	AC	0.30	3	2X	230	270	0.3
2CSB203001R5630	DDA203 AC-63/1	AC	63	AC	1	3	2X	230	270	0.3
2CSB203001R6630	DDA203 AC-63/2	AC	63	AC	2	3	2X	230	270	0.3
2CSB203201R4630	DDA203 A S-63/0.5	A S	63	AC	0.50	3	2X	230	270	0.3
2CSB203201R5630	DDA203 A S-63/1	A S	63	AC	1	3	2X	230	270	0.3
2CSB203101R1250	DDA203 A-25/0.03	A	25	AC	0.03	3	2X	230	178	0.12
2CSB203401R1250	DDA203 A-25/0.03 AP-R	A AP-R	25	AC	0.03	3	2X	230	178	0.08
2CSB203101R1400	DDA203 A-40/0.03	A	40	AC	0.03	3	2X	230	178	0.19
2CSB203401R1400	DDA203 A-40/0.03 AP-R	A AP-R	40	AC	0.03	3	2X	230	178	0.19
2CSB203101R1630	DDA203 A-63/0.03	A	63	AC	0.03	3	2X	230	270	0.3
2CSB203101R2250	DDA203 A-25/0.1	A	25	AC	0.10	3	2X	230	178	0.12
2CSB203401R1630	DDA203 A-63/0.03 AP-R	A AP-R	63	AC	0.03	3	2X	230	270	0.3
2CSB203101R2400	DDA203 A-40/0.1	A	40	AC	0.10	3	2X	230	178	0.19
2CSB203701R1630	DDA203 A-63/0.03 AE	A AE	63	AC	0.03	3	2X	230	270	0.3
2CSB203101R2630	DDA203 A-63/0.1	A	63	AC	0.10	3	2X	230	270	0.3
2CSB203701R3630	DDA203 A-63/0.3 AE	A AE	63	AC	0.30	3	2X	230	270	0.3
2CSB203701R4630	DDA203 A-63/0.5 AE	A AE	63	AC	0.50	3	2X	230	270	0.3
2CSB203101R3250	DDA203 A-25/0.3	A	25	AC	0.30	3	2X	230	178	0.12
2CSB203701R5630	DDA203 A-63/1 AE	A AE	63	AC	1	3	2X	230	270	0.3
2CSB203101R3400	DDA203 A-40/0.3	A	40	AC	0.30	3	2X	230	178	0.19
2CSB203319R1630	DDA203 AC-63/0.03 G	AC G	63	AC	0.03	3	2X	230	270	0.3
2CSB203101R3630	DDA203 A-63/0.3	A	63	AC	0.30	3	2X	230	270	0.3
2CSB203319R2630	DDA203 AC-63/0.1 G	AC G	63	AC	0.10	3	2X	230	270	0.3
2CSB203101R4250	DDA203 A-25/0.5	A	25	AC	0.50	3	2X	230	178	0.12
2CSB203419R1630	DDA203 A-63/0.03 G	A G	63	AC	0.30	3	2X	230	270	0.3
2CSB203101R4400	DDA203 A-40/0.5	A	40	AC	0.50	3	2X	230	178	0.19
2CSB203419R2630	DDA203 A-63/0.1 G	A G	63	AC	0.10	3	2X	230	270	0.3
2CSB203101R4630	DDA203 A-63/0.5	A	63	AC	0.50	3	2X	230	270	0.3
2CSB203199R1630	DDA203 A-63/0.03 110V	A	63	AC	0.03	3	2X	110	270	0.3
2CSB203101R5250	DDA203 A-25/1	A	25	AC	1	3	2X	230	178	0.12
2CSB203101R5400	DDA203 A-40/1	A	40	AC	1	3	2X	230	178	0.19
2CSB203592R1630	DDA203 B-63/0.03 AP-R	B AP-R	63	Both	0.03	3		230	375	1.34
2CSB203592R3630	DDA203 B-63/0.3 AP-R	B AP-R	63	Both	0.30	3		230	375	1.34
2CSB203101R5630	DDA203 A-63/1	A	63	AC	1	3	2X	230	270	0.3
2CSB203892R3630	DDA203 B S-63/0.3	B S	63	Both	0.30	3		230	375	1.34
2CSB203491R1250	DDA203 A-25/0.03 AP-R 230V	A AP-R	25	AC	0.03	3	2X	230	178	0.12
2CSB203199R1400	DDA203 A-40/0.03 110V	A	40	AC	0.03	3	2X	110	178	0.19
2CSB203191R1250	DDA203 A-25/0.03 230V	A	25	AC	0.03	3	2X	230	178	0.12
2CSB203491R1400	DDA203 A-40/0.03 AP-R 230V	A AP-R	40	AC	0.03	3	2X	230	178	0.19
2CSB203191R1400	DDA203 A-40/0.03 230V	A	40	AC	0.03	3	2X	230	178	0.19
2CSB203491R1630	DDA203 A-63/0.03 AP-R 230V	A AP-R	63	AC	0.03	3	2X	230	270	0.3
2CSB203591R1630	DDA203 B-63/0.03 AP-R 230V	B AP-R	63	Both	0.03	3		230	375	1.34
2CSB203191R1630	DDA203 A-63/0.03 230V	A	63	AC	0.03	3	2X	230	270	0.3
2TAZ811301S2400	DDA203 AC-40/0.03	AC	40	AC	0.03	3	2X	230	178	0.19
2CSB204001R1250	DDA204 AC-25/0.03	AC	25	AC	0.03	4	2X	230	180	0.12
2CSB204001R2630	DDA204 AC-63/0.1	AC	63	AC	0.10	4	2X	230	312	0.3
2CSB204001R1400	DDA204 AC-40/0.03	AC	40	AC	0.03	4	2X	230	180	0.19
2CSB204001R3250	DDA204 AC-25/0.3	AC	25	AC	0.30	4	2X	230	180	0.12
2CSB204001R1630	DDA204 AC-63/0.03	AC	63	AC	0.03	4	2X	230	312	0.3
2CSB204001R3400	DDA204 AC-40/0.3	AC	40	AC	0.30	4	2X	230	180	0.19
2CSB204001R3630	DDA204 AC-63/0.3	AC	63	AC	0.30	4	2X	230	312	0.3
2CSB204001R2250	DDA204 AC-25/0.1	AC	25	AC	0.10	4	2X	230	180	0.12
2CSB204001R2400	DDA204 AC-40/0.1	AC	40	AC	0.10	4	2X	230	180	0.19
2CSB204001R4250	DDA204 AC-25/0.5	AC	25	AC	0.50	4	2X	230	180	0.12
2CSB204001R4400	DDA204 AC-40/0.5	AC	40	AC	0.50	4	2X	230	180	0.19
2CSB204001R4630	DDA204 AC-63/0.5	AC	63	AC	0.50	4	2X	230	312	0.3
2CSB204001R5250	DDA204 AC-25/1	AC	25	AC	1	4	2X	230	180	0.12
2CSB204001R5400	DDA204 AC-40/1	AC	40	AC	1	4	2X	230	180	0.19
2CSB204001R5630	DDA204 AC-63/1	AC	63	AC	1	4	2X	230	312	0.3
2CSB204001R6630	DDA204 AC-63/2	AC	63	AC	2	4	2X	230	312	0.3
2CSB204101R1250	DDA204 A-25/0.03	A	25	AC	0.03	4	2X	230	180	0.12
2CSB204101R1400	DDA204 A-40/0.03	A	40	AC	0.03	4	2X	230	180	0.19

Product ID	Product Name	Tp	In (A)	Current type (AC/DC)	S (A)	Np	IP	Ue (V)	Weight (g)	Power (W)
2CSB204101R1630	DDA204 A-63/0.03	A	63	AC	0.03	4	2X	230	312	0.3
2CSB204101R2250	DDA204 A-25/0.1	A	25	AC	0.10	4	2X	230	180	0.12
2CSB204101R2400	DDA204 A-40/0.1	A	40	AC	0.10	4	2X	230	180	0.19
2CSB204101R2630	DDA204 A-63/0.1	A	63	AC	0.10	4	2X	230	312	0.3
2CSB204101R3250	DDA204 A-25/0.3	A	25	AC	0.30	4	2X	230	180	0.12
2CSB204101R3400	DDA204 A-40/0.3	A	40	AC	0.30	4	2X	230	180	0.19
2CSB204101R3630	DDA204 A-63/0.3	A	63	AC	0.30	4	2X	230	312	0.3
2CSB204101R4250	DDA204 A-25/0.5	A	25	AC	0.50	4	2X	230	180	0.12
2CSB204101R4400	DDA204 A-40/0.5	A	40	AC	0.50	4	2X	230	180	0.19
2CSB204101R4630	DDA204 A-63/0.5	A	63	AC	0.50	4	2X	230	312	0.3
2CSB204101R5250	DDA204 A-25/1	A	25	AC	1	4	2X	230	180	0.12
2CSB204101R5400	DDA204 A-40/1	A	40	AC	1	4	2X	230	180	0.19
2CSB204101R5630	DDA204 A-63/1	A	63	AC	1	4	2X	230	312	0.3
2CSB204099R1630	DDA204 AC-63/0.03 110V	AC	63	AC	0.03	4	2X	110	312	0.3
2CSB204199R1630	DDA204 A-63/0.03 110V	A	63	AC	0.03	4	2X	110	312	0.3
2CSB204201R2630	DDA204 A S-63/0.1	A S	63	AC	0.10	4	2X	230	312	0.3
2CSB204201R3630	DDA204 A S-63/0.3	A S	63	AC	0.30	4	2X	230	312	0.3
2CSB204201R4630	DDA204 A S-63/0.5	A S	63	AC	0.50	4	2X	230	312	0.3
2CSB204201R5630	DDA204 A S-63/1	A S	63	AC	1	4	2X	230	312	0.3
2CSB204401R1250	DDA204 A-25/0.03 AP-R	A AP-R	25	AC	0.03	4	2X	230	180	0.12
2CSB204401R1400	DDA204 A-40/0.03 AP-R	A AP-R	40	AC	0.03	4	2X	230	180	0.19
2CSB204401R1630	DDA204 A-63/0.03 AP-R	A AP-R	63	AC	0.03	4	2X	230	312	0.3
2CSB204701R1630	DDA204 A-63/0.03 AE	A AE	63	AC	0.03	4	2X	230	312	0.3
2CSB204701R3630	DDA204 A-63/0.3 AE	A AE	63	AC	0.30	4	2X	230	312	0.3
2CSB204701R4630	DDA204 A-63/0.5 AE	A AE	63	AC	0.50	4	2X	230	312	0.3
2CSB204701R5630	DDA204 A-63/1 AE	A AE	63	AC	1	4	2X	230	312	0.3
2CSB204319R1630	DDA204 AC-63/0.03 G	AC G	63	AC	0.03	4	2X	230	312	0.3
2CSB204319R2630	DDA204 AC-63/0.1 G	AC G	63	AC	0.10	4	2X	230	312	0.3
2CSB204419R1630	DDA204 A-63/0.03 G	A G	63	AC	0.03	4	2X	230	312	0.3
2CSB204419R2630	DDA204 A-63/0.1 G	A G	63	AC	0.10	4	2X	230	312	0.3
2CSB204592R1250	DDA204 B-25/0.03 AP-R	B AP-R	25	Both	0.03	4		230	394	1.16
2CSB204592R1400	DDA204 B-40/0.03 AP-R	B AP-R	40	Both	0.03	4		230	394	1.23
2CSB204592R1630	DDA204 B-63/0.03 AP-R	B AP-R	63	Both	0.03	4		230	394	1.34
2CSB204592R3250	DDA204 B-25/0.3 AP-R	B AP-R	25	Both	0.30	4		230	394	1.16
2CSB204592R3630	DDA204 B-63/0.3 AP-R	B AP-R	63	Both	0.30	4		230	394	1.34
2CSB204592R4630	DDA204 B-63/0.5 AP-R	B AP-R	63	Both	0.50	4		230	394	1.34
2CSB204892R3630	DDA204 B S-63/0.3	B S	63	Both	0.30	4		230	394	1.34
2CSB204301R1250	DDA204 AC-25/0.03 AP-R	AC AP-R	25	AC	0.03	4	2X	230	180	0.12
2CSB204301R1400	DDA204 AC-40/0.03 AP-R	AC AP-R	40	AC	0.03	4	2X	230	180	0.19
2CSB204901R3630	DDA204 AC S-63/0.3	AC S	63	AC	0.30	4	2X	230	312	0.3
2CSB204301R1630	DDA204 AC-63/0.03AP-R	AC AP-R	63	AC	0.03	4	2X	230	312	0.3

The extrapolation rules have been calculated based on the environmental impact assessment results of the reference products DDA202 AC-25/0.03 (code 2CSB202001R1250) for 25A/40A variants and DDA204 AC-63/0.03 (code 2CSB204001R1630) for 63A variants, and the sensitivity analysis carried out.

For the manufacturing stage, distribution stage and end-of-life stage, the parameter considered for the calculation of the LCIA impacts of the variants is the weight of the product. For the use stage, the parameter considered for the calculation of the LCIA impacts of the variants is the average power loss during this stage. For the manufacturing stage only, the parameter considered for the calculation of the LCIA impacts of the variants is the product material composition.

The calculation of the LCIA impacts of the variants through these parameters indicated that the correlation between the impacts of the representative product and the variants is linear. For the creation of the extrapolation rules, the extrapolation principle applied is a linear correlation concerning weight for the production, distribution and end-of-life phase, concerning material composition for the production, and concerning average power loss for the use phase. Each environmental indicator value shall be calculated using the following formulas:

- For the manufacturing stage, distribution stage and end-of-life stage:

$$y = a_n x_1 + b_n$$

where x_1 is the *weight of the product*.

- For use stage:

$$y = a_n x_2 + b_n$$

where x_2 is the *average power loss* of the product.

For the weight and average power loss data of the variants, please refer to the table above.

The table below reports the linear coefficients a_n & b_n for each life cycle stage. For Manufacturing stage only, $a_{1\,(25A/40A)}$ and $b_{1\,(25A/40A)}$ coefficients shall be used only for the environmental impact calculation of 25A/40A variants; $a_{1\,(63A)}$ and $b_{1\,(63A)}$ coefficients shall be used only for the environmental impact calculation of 63A variants.

IMPACT CATEGORY	MANUFACTURING				DISTRIBUTION		INSTALLATION		USE		END OF LIFE	
	$a_{1\ (25A/40A)}$	$b_{1\ (25A/40A)}$	$a_{1\ (63A)}$	$b_{1\ (63A)}$	a_2	b_2	a_3	b_3	a_4	b_4	a_5	b_5
GWP-total	1.31E-02	1.51E-01	1.27E-02	1.62E-01	4.26E-04	3.45E-02	0.00E+00	9.06E-02	1.87E+01	2.26E-03	1.14E-03	-9.45E-04
GWP-fossil	1.30E-02	1.59E-01	1.26E-02	1.71E-01	4.26E-04	3.45E-02	3.07E-37	5.47E-03	1.86E+01	2.49E-03	1.00E-03	-8.29E-04
GWP-biogenic	1.54E-04	-9.60E-03	1.31E-04	-9.47E-03	3.30E-07	2.67E-05	0.00E+00	8.51E-02	1.38E-02	-2.36E-04	1.39E-04	-1.15E-04
GWP-luluc	1.62E-05	1.12E-03	1.63E-05	1.13E-03	2.02E-07	1.63E-05	0.00E+00	2.28E-06	4.64E-02	6.22E-06	1.17E-06	-9.72E-07
ODP	1.70E-08	-7.23E-09	9.39E-09	6.64E-09	9.37E-12	7.59E-10	4.57E-45	1.16E-10	3.55E-07	4.75E-11	2.56E-11	-2.12E-11
AP	1.95E-04	2.30E-03	3.77E-04	2.50E-03	1.77E-06	1.43E-04	-1.20E-39	2.80E-05	1.07E-01	1.43E-05	1.59E-05	-1.32E-05
EP-freshwater	1.48E-05	1.21E-04	2.92E-05	1.36E-04	3.05E-08	2.47E-06	0.00E+00	6.73E-07	1.76E-02	2.36E-06	9.04E-07	-7.49E-07
EP-marine	1.83E-05	4.73E-04	2.47E-05	4.90E-04	6.70E-07	5.43E-05	1.20E-39	2.47E-05	1.73E-02	2.31E-06	1.74E-06	-1.44E-06
EP-terrestrial	2.09E-04	4.45E-03	3.09E-04	4.64E-03	7.15E-06	5.79E-04	0.00E+00	1.16E-04	1.56E-01	2.09E-05	1.58E-05	-1.30E-05
POCP	6.82E-05	1.27E-03	9.55E-05	1.33E-03	2.69E-06	2.18E-04	-2.40E-39	4.31E-05	5.01E-02	6.72E-06	5.33E-06	-4.41E-06
ADPE	7.71E-06	1.25E-05	4.65E-06	1.88E-05	1.16E-09	9.37E-08	0.00E+00	1.94E-08	2.26E-04	3.02E-08	1.68E-07	-1.39E-07
ADPF	1.89E-01	2.20E+00	1.80E-01	2.36E+00	6.26E-03	5.08E-01	0.00E+00	6.49E-02	4.23E+02	5.67E-02	1.47E-02	-1.22E-02
WDP	6.14E-03	7.92E-02	8.01E-03	8.48E-02	2.99E-05	2.42E-03	-1.92E-38	3.98E-04	4.75E+00	6.36E-04	3.48E-04	-2.88E-04
PE	2.08E-01	6.56E+00	2.03E-01	6.74E+00	6.36E-03	5.15E-01	-4.91E-36	6.73E-02	5.18E+02	6.94E-02	1.66E-02	-1.37E-02
PERE	1.84E-02	2.93E+00	2.34E-02	2.95E+00	9.17E-05	7.43E-03	0.00E+00	2.42E-03	9.49E+01	1.27E-02	1.90E-03	-1.57E-03
PERM	5.90E-06	1.43E+00	4.11E-05	1.43E+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
PERT	1.85E-02	4.37E+00	2.35E-02	4.38E+00	9.17E-05	7.43E-03	0.00E+00	2.42E-03	9.49E+01	1.27E-02	1.90E-03	-1.57E-03
PENRE	1.64E-01	2.13E+00	1.60E-01	2.27E+00	6.26E-03	5.08E-01	-4.91E-36	6.49E-02	4.23E+02	5.67E-02	1.47E-02	-1.22E-02
PENRM	2.51E-02	6.79E-02	1.99E-02	8.91E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	1.89E-01	2.20E+00	1.80E-01	2.36E+00	6.26E-03	5.08E-01	-4.91E-36	6.49E-02	4.23E+02	5.67E-02	1.47E-02	-1.22E-02
SM	0.00E+00	3.46E-02	0.00E+00	3.46E-02	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	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	0.00E+00	0.00E+00
NRSF	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	0.00E+00	0.00E+00
FW	1.69E-04	6.71E-03	2.08E-04	6.86E-03	9.84E-07	7.97E-05	-1.20E-39	2.61E-05	3.43E-01	4.59E-05	1.19E-05	-9.82E-06
HWD	2.92E-06	3.24E-05	6.42E-06	3.54E-05	3.89E-08	3.15E-06	-1.87E-41	3.86E-07	7.43E-04	9.96E-08	9.35E-08	-7.74E-08
NHWD	2.48E-03	5.08E-02	2.97E-03	5.30E-02	5.50E-04	4.45E-02	1.23E-36	1.87E-02	1.70E+00	2.28E-04	6.33E-04	-5.24E-04
RWD	3.19E-07	4.79E-06	3.22E-07	5.07E-06	1.91E-09	1.55E-07	4.68E-42	5.98E-08	3.05E-03	4.09E-07	4.80E-08	-3.97E-08
CRU	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	0.00E+00	0.00E+00
MFR	5.08E-04	5.31E-02	5.02E-04	5.35E-02	0.00E+00	0.00E+00	-2.46E-36	5.30E-02	0.00E+00	0.00E+00	7.96E-04	-6.59E-04
MER	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	0.00E+00	0.00E+00
EE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.21E-02	0.00E+00	0.00E+00	1.10E-04	-9.14E-05
PM	9.10E-10	1.75E-08	1.18E-09	1.84E-08	4.40E-11	3.56E-09	0.00E+00	5.02E-10	3.91E-07	5.24E-11	7.49E-11	-6.20E-11
IRP	1.25E-03	1.88E-02	1.26E-03	1.99E-02	7.91E-06	6.41E-04	-9.59E-39	2.39E-04	1.19E+01	1.60E-03	1.87E-04	-1.55E-04
ETP-fw	3.59E-01	1.92E+00	5.23E-01	2.25E+00	3.01E-03	2.44E-01	4.91E-36	6.46E-02	7.11E+01	9.53E-03	1.46E-02	-1.21E-02
HTP-c	4.10E-11	7.24E-10	6.45E-11	7.63E-10	1.85E-13	1.50E-11	0.00E+00	7.54E-12	8.74E-09	1.17E-12	8.58E-12	-7.10E-12
HTP-nc	2.24E-09	2.23E-08	4.59E-09	2.46E-08	4.50E-12	3.65E-10	0.00E+00	7.34E-11	3.48E-07	4.67E-11	2.54E-10	-2.10E-10
SQP	7.82E-02	1.62E+01	1.32E-01	1.62E+01	6.37E-03	5.16E-01	0.00E+00	3.64E-02	8.25E+01	1.11E-02	9.77E-03	-8.09E-03
Biogenic C product	3.02E-07	-2.24E-07	7.89E-07	1.04E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic C packaging	0.00E+00	4.48E-02	0.00E+00	4.48E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

GWP-total: Global 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**: Depletion potential of the stratospheric ozone layer; **AP**: Acidification potential, accumulated exceedance; **EP-freshwater**: Eutrophication potential - freshwater; **EP-marine**: Eutrophication potential - marine; **EP-terrestrial**: Eutrophication potential - terrestrial; **POCP**: Photochemical ozone creation potential; **ADPE**: Abiotic depletion potential - non-fossil resources; **ADPF**: Abiotic depletion potential - fossil resources; **WDP**: Water deprivation potential; **PE**: Total use of primary energy during the life cycle; **PERE**: Use of renewable primary energy as energy carrier; **PERM**: Use of renewable primary energy resources used as raw materials; **PERT**: Total use of renewable primary energy; **PENRE**: Use of non-renewable primary energy as energy carrier; **PENRM**: Use of non-renewable primary energy resources used as raw materials; **PENRT**: Total use of non-renewable primary energy resource; **SM**: Use of secondary material; **RSF**: Use of renewable secondary fuels; **NRSF**: Use of non-renewable secondary fuels; **FW**: Net use of fresh water; **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; **EE**: Exported energy – total; **PM**: Particulate matter emissions; **IRP**: Ionizing radiation, human health; **ETP-fw**: Eco-toxicity – freshwater; **HTP-c**: Human toxicity, cancer effect; **HTP-nc**: Human toxicity, non-cancer effects; **SQP**: Land use related impacts/Soil quality.

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Independent verification of the declaration and data, in compliance with ISO 14025: 2006

Internal: ○ **External:** ◉

The PCR review was conducted by a panel of experts chaired by Julie ORGELET (DDemain)

PEP are compliant with XP C08-100-1 :2016 or EN 50693:2019
The components of the present PEP may not be compared with components from any other program.

Document in compliance with ISO 14025: 2006 "Environmental labels and declarations. Type III environmental declarations"