

T&B LIQUIDTIGHT SYSTEMS™

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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STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
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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.



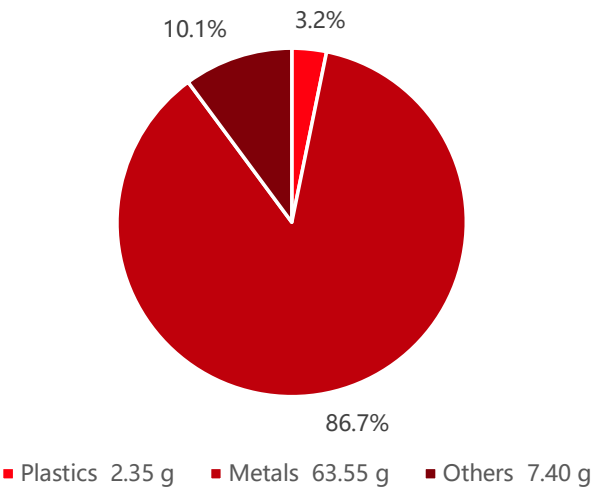
General Information

Reference product	Product 5231
Description of the product	T&B Liquidthight Systems™ is a brand leader in cables protection and it is suitable for a wide range of installations, including heavy industrial applications
Functional unit	The functional unit is to protect a cable with a metal fitting which stand up to demanding, wet or corrosive environments, including power and petrochemical plants, paper mills, and anywhere high performance is a requirement, for 20 years.
Other products covered	List of other products covered in this PEP is presented in the paragraph which concerned the extrapolation rules

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Constituent Materials



Total weight of Reference product included packaging (g)	73.3	g
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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%
Nylon	3.1	Steel	86.7	Cardboard	5.9
LDPE	0.1			Wood	4.0
				Paper	0.2
				Label	<0.1

The weight of the reference product is 0.0658 kg. The weight of its packaging is 0.0075 kg.

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Additional Environmental Information

Manufacturing	The manufacturing stage includes the production and transportation to the manufacturer's last logistic platform of T&B Liquidtight Systems™ and its packaging. The final assembly of the product is carried out at ABB's plant located in Highland Dr, Jonesboro, AR
Distribution	The transport from the ABB US (Highland Dr, Jonesboro, AR) factory to the warehouses (Byhalia, Phoenix, NEDC Carson Court Easton) sites was considered. For the distribution of the products from storages to the final customer, primary data about the location of the ABB clients has been considered and a weighted average has been computed relative to distances with a cut-off about 20%.
Installation	This phase includes the disposal of the packaging
Use	No material and energy consumption occur during the use stage. No maintenance happens during the use phase, the environmental impacts linked to this procedure have been considered equal to zero in the respective results section.
End of life	The default end-of-life scenario provided by the PCR document has been adopted for the the T&B Liquidtight Systems™ (100% incineration).
Benefits and loads beyond the system boundaries	No benefits and loads beyond the system boundaries has been considered.

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Environmental Impacts

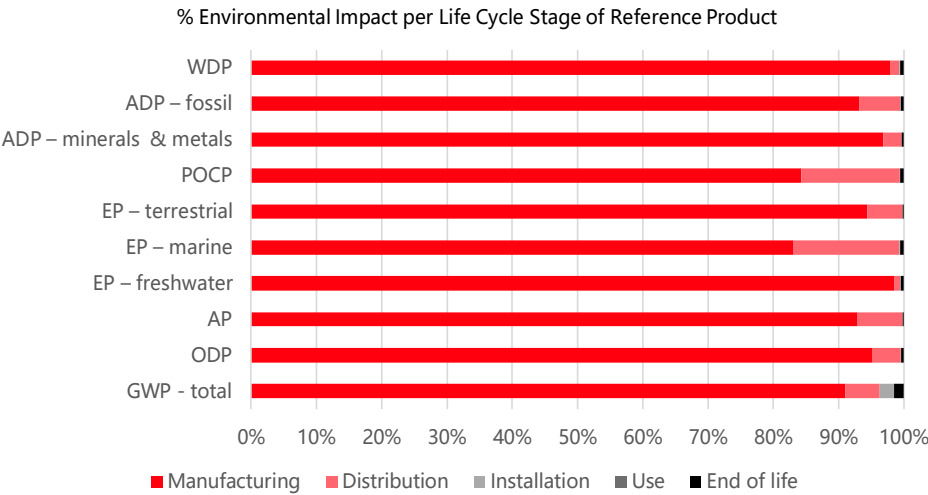
Reference lifetime	20 years
Product category	Electrical, Electronic and Heating Ventilation Air Conditioning-Refrigeration (HVAC-R) products
Installation elements	No installation materials are required in the life cycle of the product.
Use scenario	No material and energy consumption occur during the use stage. No maintenance phase is planned for the T&B Liquidtight Systems™
Geographical representativeness	The suppliers are collocated all over the world, the products are fabricated in Jonesboro (AR) and distributed all over the world.
Technological representativeness	Technological representativeness refers to the specific production process for primary data.
Software and database used	SimaPro 9.6 and ecoinvent 3.9.1

Energy model used

Manufacturing	Manufacturing internal and storage: An ad-hoc process has been created, which considers 100% hydroelectric energy Netherlands as reported in the Renewable Energy Certificate System (RECs). The energy-related processes used for all the other inputs of the manufacturing stage are those included in the ecoinvent 3.9.1 datasets selected for the analysis.
Installation	No energy consumption occur during the installation stage.
Use	No energy consumption occur during the use stage.
End of life	The energy-related processes used for the inputs of the end-of-life stage are those included in ecoinvent 3.9.1

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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.	5.59E-01	5.08E-01	2.96E-02	1.24E-02	0.00E+00	8.27E-03	0.00E+00
GWP-fossil	kg CO ₂ eq.	5.48E-01	5.11E-01	2.96E-02	5.05E-04	0.00E+00	7.42E-03	0.00E+00
GWP-biogenic	kg CO ₂ eq.	9.60E-03	-3.17E-03	3.36E-06	1.19E-02	0.00E+00	8.52E-04	0.00E+00
GWP-luluc	kg CO ₂ eq.	4.22E-04	4.02E-04	1.83E-05	1.32E-07	0.00E+00	1.87E-06	0.00E+00
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.	1.06E-08	1.01E-08	4.70E-10	9.06E-12	0.00E+00	4.07E-11	0.00E+00
ODP = Depletion potential of the stratospheric ozone layer								
AP	H+ eq.	6.70E-03	6.22E-03	4.63E-04	2.38E-06	0.00E+00	1.08E-05	0.00E+00
AP = Acidification potential, Accumulated Exceedance								
EP-freshwater	kg P eq.	1.85E-04	1.82E-04	1.78E-06	5.08E-08	0.00E+00	9.76E-07	0.00E+00
EP-marine	kg N eq.	7.65E-04	6.36E-04	1.24E-04	1.15E-06	0.00E+00	4.17E-06	0.00E+00
EP-terrestrial	mol N eq.	2.49E-02	2.35E-02	1.36E-03	1.07E-05	0.00E+00	4.28E-05	0.00E+00
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.	2.60E-03	2.19E-03	3.94E-04	2.94E-06	0.00E+00	1.45E-05	0.00E+00
POCP = Formation potential of tropospheric ozone								
ADP-minerals & metals	kg Sb eq.	2.02E-06	1.96E-06	5.75E-08	8.15E-10	0.00E+00	6.29E-09	0.00E+00
ADP-fossil	MJ	6.43E+00	5.99E+00	4.02E-01	3.45E-03	0.00E+00	3.13E-02	0.00E+00
ADP-minerals & metals = Abiotic depletion potential for non-fossil resources ADP-fossil = Abiotic depletion for fossil resources potential								
WDP	m ³ eq. depr.	1.22E-01	1.20E-01	1.59E-03	1.62E-04	0.00E+00	7.25E-04	0.00E+00
WDP = Water Deprivation potential								

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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	1.65E+00	1.65E+00	4.19E-03	7.77E-05	0.00E+00	5.20E-04	0.00E+00
PERM	MJ	1.47E-01	1.47E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	1.80E+00	1.80E+00	4.19E-03	7.77E-05	0.00E+00	5.20E-04	0.00E+00
PENRE	MJ	6.33E+00	5.89E+00	4.02E-01	3.45E-03	0.00E+00	3.13E-02	0.00E+00
PENRM	MJ	9.72E-02	9.72E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	6.43E+00	5.99E+00	4.02E-01	3.45E-03	0.00E+00	3.13E-02	0.00E+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	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
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	3.42E-03	3.34E-03	5.15E-05	5.72E-06	0.00E+00	2.06E-05	0.00E+00
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	7.59E-05	7.34E-05	2.32E-06	2.03E-08	0.00E+00	1.89E-07	0.00E+00
Non- hazardous waste disposed	kg	1.32E-01	1.09E-01	2.14E-02	2.44E-04	0.00E+00	1.64E-03	0.00E+00
Radioactive waste disposed	kg	4.26E-06	4.18E-06	7.03E-08	1.08E-09	0.00E+00	7.58E-09	0.00E+00

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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	7.70E-02	7.70E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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	0.00E+00	0.00E+00	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	4.85E-03	4.85E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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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	8.23E+00	7.79E+00	4.06E-01	3.53E-03	0.00E+00	3.18E-02	0.00E+00
Emissions of fine particles	incidence of diseases	8.15E-08	7.91E-08	2.08E-09	2.73E-11	0.00E+00	2.83E-10	0.00E+00
Ionizing radiation, human health	kBq U235 eq.	1.73E-02	1.70E-02	2.99E-04	4.37E-06	0.00E+00	3.15E-05	0.00E+00
Ecotoxicity (fresh water)	CTUe	3.33E+00	3.07E+00	2.07E-01	9.13E-03	0.00E+00	4.12E-02	0.00E+00
Human toxicity, car-cinogenic effects	CTUh	2.97E-09	2.96E-09	1.28E-11	5.98E-13	0.00E+00	3.21E-12	0.00E+00
Human toxicity, non-carcinogenic effects	incidence of diseases	9.87E-09	9.59E-09	2.22E-10	2.29E-11	0.00E+00	3.86E-11	0.00E+00
Impact related to land use/soil quality		3.77E+00	3.48E+00	2.56E-01	1.65E-03	0.00E+00	2.68E-02	0.00E+00

Other indicators

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

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Environmental Impact Indicator Glossary

Impact indicators

Indicator	Description	Distribution
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	Distribution
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)

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Approach for extrapolation rules applied to a homogeneous environmental family

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 T&B Liquidtight Systems™ 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. The next steps have been followed to define the extrapolation rules:

- 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:

- product weight;
- packaging weight;
- product composition (weights of nylon, iron, steel, copper, brass);
- packaging composition (weight of wood and cardboard).

The representative product considered for the calculation of the extrapolation rules is 5231. This product is most representative for the sales.

The results of the sensitivity analysis show that all the parameters considered are sensitive.

The products included in the T&B Liquidtight Systems™ product family and considered for the application of the extrapolation rules are resented in the following table.

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T&B Liquid tight Systems™ Light weight products								
Catalog Number	Iron Weight (kg)	Steel Weight (kg)	Cardboard Weight (kg)	Wood Weight (kg)	SKU Weight (kg)	Packaging Weight (kg)	Remaining SKU Weight (kg)	Nylon Weight (kg)
5231	0.00E+00	6.35E-02	3.24E-03	2.95E-03	6.58E-02	6.24E-03	2.27E-03	2.27E-03
5231-PT	0.00E+00	7.66E-02	4.31E-03	2.95E-03	7.87E-02	2.12E-02	2.18E-03	2.18E-03
5232	0.00E+00	8.16E-02	3.24E-03	2.95E-03	8.25E-02	6.24E-03	8.16E-04	8.25E-04
5232GR	0.00E+00	8.16E-02	3.42E-03	2.95E-03	9.77E-02	6.43E-03	1.61E-02	9.77E-04
5232-PT	0.00E+00	9.66E-02	2.52E-03	2.95E-03	9.76E-02	2.14E-02	9.66E-04	9.76E-04
5233	0.00E+00	1.02E-01	6.38E-03	3.37E-03	1.03E-01	9.82E-03	1.02E-03	1.03E-03
5233GR	0.00E+00	1.02E-01	1.36E-02	1.01E-02	1.93E-01	2.39E-02	9.10E-02	1.93E-03
5233-PT	0.00E+00	1.17E-01	4.95E-03	3.37E-03	1.19E-01	3.89E-02	1.17E-03	1.19E-03
5234GR	0.00E+00	1.72E-01	7.43E-03	2.21E-02	2.64E-01	3.00E-02	9.17E-02	2.64E-03
5234-PT	8.13E-02	7.99E-02	1.25E-02	1.01E-02	1.63E-01	4.50E-02	1.61E-03	1.61E-03
5234TB	0.00E+00	1.64E-01	6.49E-03	6.32E-03	1.65E-01	1.29E-02	1.64E-03	1.65E-03
5235	1.87E-01	7.18E-02	1.29E-02	1.01E-02	2.61E-01	2.32E-02	2.59E-03	2.61E-03
5236	3.02E-01	1.16E-01	3.21E-02	2.11E-02	4.22E-01	5.35E-02	4.18E-03	4.22E-03
5241	8.16E-02	3.29E-02	6.38E-03	3.37E-03	1.16E-01	9.82E-03	1.15E-03	1.16E-03
5241-PT	8.16E-02	4.79E-02	4.95E-03	3.37E-03	1.31E-01	2.48E-02	1.30E-03	1.31E-03
5242	9.93E-02	3.86E-02	6.38E-03	3.37E-03	1.39E-01	9.82E-03	1.38E-03	1.39E-03
5242GR	9.93E-02	3.86E-02	6.75E-03	3.37E-03	2.29E-01	1.02E-02	9.14E-02	2.29E-03
5242-PT	9.93E-02	5.36E-02	4.95E-03	3.37E-03	1.54E-01	2.52E-02	1.53E-03	1.54E-03
5243	1.17E-01	4.55E-02	6.62E-03	1.01E-02	1.64E-01	1.69E-02	1.62E-03	1.64E-03
5243GR	1.17E-01	4.55E-02	6.82E-03	5.05E-03	2.54E-01	1.20E-02	9.16E-02	2.54E-03
5243-PT	1.17E-01	6.05E-02	4.95E-03	3.37E-03	1.79E-01	2.70E-02	1.77E-03	1.79E-03
5244	1.65E-01	6.35E-02	1.29E-02	1.01E-02	2.31E-01	2.32E-02	2.28E-03	2.31E-03
5244GR	1.65E-01	6.35E-02	1.36E-02	1.01E-02	3.21E-01	2.39E-02	9.23E-02	3.21E-03
5245	2.96E-01	1.14E-01	1.29E-02	1.01E-02	4.13E-01	2.32E-02	4.09E-03	4.13E-03
5251	6.86E-02	2.76E-02	6.38E-03	3.37E-03	9.72E-02	9.82E-03	9.62E-04	9.72E-04
5251-PT	6.86E-02	4.26E-02	4.95E-03	3.37E-03	1.12E-01	2.48E-02	1.11E-03	1.12E-03
5252	9.53E-02	3.86E-02	6.38E-03	3.37E-03	1.35E-01	9.82E-03	1.34E-03	1.35E-03
5252GR	9.53E-02	3.86E-02	6.75E-03	3.37E-03	2.25E-01	1.02E-02	9.13E-02	2.25E-03
5252-PT	9.53E-02	3.78E-02	3.31E-03	5.05E-03	1.34E-01	2.52E-02	1.45E-03	1.45E-03
5253	1.18E-01	4.55E-02	6.44E-03	5.05E-03	1.65E-01	1.16E-02	1.64E-03	1.65E-03
5253GR	1.18E-01	4.55E-02	6.82E-03	5.05E-03	2.55E-01	1.20E-02	9.16E-02	2.55E-03
5253-PT	1.18E-01	6.05E-02	4.95E-03	3.37E-03	1.81E-01	2.70E-02	1.79E-03	1.81E-03
5254	2.02E-01	7.78E-02	1.29E-02	1.01E-02	2.83E-01	2.32E-02	2.80E-03	2.83E-03
5254GR	2.02E-01	7.78E-02	1.36E-02	1.01E-02	3.73E-01	2.39E-02	9.28E-02	3.73E-03
5331	0.00E+00	6.35E-02	3.24E-03	2.95E-03	6.41E-02	6.24E-03	6.35E-04	6.41E-04
5331-HT	0.00E+00	6.16E-02	4.31E-03	2.94E-03	6.34E-02	4.91E-03	1.77E-03	1.77E-03
5331-PT	0.00E+00	7.66E-02	4.31E-03	2.95E-03	7.95E-02	1.99E-02	2.93E-03	2.93E-03
5332	0.00E+00	8.16E-02	3.24E-03	2.95E-03	8.70E-02	6.24E-03	5.35E-03	5.35E-03
5332GR	0.00E+00	8.16E-02	3.42E-03	2.95E-03	1.72E-01	6.43E-03	9.08E-02	1.72E-03
5332-HT	0.00E+00	8.16E-02	1.90E-03	2.95E-03	8.25E-02	4.91E-03	8.16E-04	8.25E-04
5332-PT	0.00E+00	9.66E-02	2.52E-03	2.95E-03	9.76E-02	1.99E-02	9.66E-04	9.76E-04
5333	0.00E+00	1.02E-01	6.38E-03	3.37E-03	1.03E-01	9.82E-03	1.02E-03	1.03E-03
5333GR	0.00E+00	1.02E-01	1.36E-02	1.01E-02	1.93E-01	2.39E-02	9.10E-02	1.93E-03
5333-HT	0.00E+00	1.02E-01	3.71E-03	3.37E-03	1.03E-01	7.15E-03	1.02E-03	1.03E-03
5333-PT	0.00E+00	1.17E-01	4.95E-03	3.37E-03	1.19E-01	2.21E-02	1.17E-03	1.19E-03

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T&B Liquid tight Systems™ Light weight products								
Catalog Number	Iron Weight (kg)	Steel Weight (kg)	Cardboard Weight (kg)	Wood Weight (kg)	SKU Weight (kg)	Packaging Weight (kg)	Remaining SKU Weight (kg)	Nylon Weight (kg)
5334GR	0.00E+00	1.72E-01	7.43E-03	2.21E-02	2.64E-01	3.00E-02	9.17E-02	2.64E-03
5334-HT	0.00E+00	1.72E-01	3.82E-03	6.32E-03	1.74E-01	1.03E-02	1.72E-03	1.74E-03
5334TB	0.00E+00	1.62E-01	6.49E-03	6.32E-03	1.64E-01	1.29E-02	1.62E-03	1.64E-03
5335	1.56E-01	5.99E-02	1.29E-02	1.01E-02	2.18E-01	2.32E-02	2.15E-03	2.18E-03
5335-HT	3.67E-01	1.41E-01	7.55E-03	1.01E-02	5.14E-01	1.78E-02	5.08E-03	5.14E-03
5336	2.89E-01	1.11E-01	3.21E-02	2.11E-02	4.05E-01	5.35E-02	4.01E-03	4.05E-03
5336GR	2.89E-01	1.11E-01	3.39E-02	2.11E-02	4.95E-01	5.54E-02	9.40E-02	4.95E-03
5336-HT	2.89E-01	1.11E-01	1.88E-02	2.21E-02	4.05E-01	4.13E-02	4.01E-03	4.05E-03
5341	5.88E-02	2.37E-02	6.38E-03	3.37E-03	8.33E-02	9.82E-03	8.25E-04	8.33E-04
5341-HT	5.88E-02	2.37E-02	3.71E-03	3.37E-03	8.33E-02	7.15E-03	8.25E-04	8.33E-04
5342	1.04E-01	3.86E-02	6.38E-03	3.37E-03	1.44E-01	9.82E-03	1.42E-03	1.44E-03
5342GR	1.04E-01	3.86E-02	6.75E-03	3.37E-03	2.34E-01	1.02E-02	9.14E-02	2.34E-03
5342-HT	1.04E-01	3.86E-02	3.71E-03	3.37E-03	1.44E-01	7.15E-03	1.42E-03	1.44E-03
5342-PT	1.04E-01	5.36E-02	4.95E-03	3.37E-03	1.59E-01	2.21E-02	1.57E-03	1.59E-03
5343	1.17E-01	4.55E-02	6.62E-03	1.01E-02	1.64E-01	1.69E-02	1.62E-03	1.64E-03
5343GR	1.17E-01	4.55E-02	6.82E-03	5.05E-03	2.54E-01	1.20E-02	9.16E-02	2.54E-03
5343-HT	1.17E-01	4.55E-02	3.75E-03	4.21E-03	1.64E-01	8.04E-03	1.62E-03	1.64E-03
5343-PT	1.17E-01	6.05E-02	4.95E-03	3.37E-03	1.79E-01	2.30E-02	1.77E-03	1.79E-03
5344	1.68E-01	6.47E-02	1.29E-02	1.01E-02	2.35E-01	2.32E-02	2.33E-03	2.35E-03
5344GR	1.68E-01	6.47E-02	1.36E-02	1.01E-02	3.25E-01	2.39E-02	9.23E-02	3.25E-03
5344-HT	1.68E-01	6.47E-02	7.34E-03	4.21E-03	2.35E-01	1.16E-02	2.33E-03	2.35E-03
5345	3.05E-01	1.17E-01	1.29E-02	1.01E-02	4.27E-01	2.32E-02	4.22E-03	4.27E-03
5345-HT	3.05E-01	1.17E-01	7.82E-03	1.77E-02	4.27E-01	2.58E-02	4.22E-03	4.27E-03
5351	6.86E-02	2.76E-02	6.38E-03	3.37E-03	9.72E-02	9.82E-03	9.62E-04	9.72E-04
5351-HT	6.86E-02	2.76E-02	3.67E-03	2.02E-03	9.72E-02	5.73E-03	9.62E-04	9.72E-04
5351-PT	6.86E-02	4.26E-02	4.95E-03	3.37E-03	1.12E-01	2.07E-02	1.11E-03	1.12E-03
5352	9.53E-02	3.86E-02	6.38E-03	3.37E-03	1.35E-01	9.82E-03	1.34E-03	1.35E-03
5352GR	9.53E-02	3.86E-02	6.75E-03	3.37E-03	2.25E-01	1.02E-02	9.13E-02	2.25E-03
5352-HT	9.53E-02	2.74E-02	5.52E-03	3.37E-03	1.25E-01	7.15E-03	2.14E-03	2.14E-03
5352-PT	9.53E-02	4.24E-02	9.84E-03	5.05E-03	1.39E-01	2.21E-02	1.38E-03	1.39E-03
5352TB	9.53E-02	3.86E-02	6.38E-03	3.37E-03	1.35E-01	9.82E-03	1.34E-03	1.35E-03
5353	1.16E-01	4.55E-02	6.44E-03	5.05E-03	1.63E-01	1.16E-02	1.61E-03	1.63E-03
5353GR	1.16E-01	4.55E-02	6.82E-03	5.05E-03	2.53E-01	1.20E-02	9.16E-02	2.53E-03
5353-HT	1.16E-01	4.55E-02	3.78E-03	5.05E-03	1.63E-01	8.92E-03	1.61E-03	1.63E-03
5353-PT	1.16E-01	6.05E-02	5.01E-03	5.05E-03	1.78E-01	2.39E-02	1.76E-03	1.78E-03
5354	2.05E-01	7.90E-02	1.29E-02	1.01E-02	2.87E-01	2.32E-02	2.84E-03	2.87E-03
5354GR	2.05E-01	7.90E-02	1.36E-02	1.01E-02	3.77E-01	2.39E-02	9.28E-02	3.77E-03
5354-HT	2.05E-01	7.90E-02	7.49E-03	8.42E-03	2.87E-01	1.61E-02	2.84E-03	2.87E-03

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T&B Liquid tight Systems™ Heavy weight products								
Catalog Number	Iron Weight (kg)	Steel Weight (kg)	Cardboard Weight (kg)	Wood Weight (kg)	SKU Weight (kg)	Packaging Weight (kg)	Remaining SKU Weight (kg)	Nylon Weight (kg)
5236GR	3.02E-01	1.16E-01	3.39E-02	2.11E-02	5.12E-01	5.54E-02	9.42E-02	5.12E-03
5237	5.69E-01	8.62E-02	6.33E-02	1.81E-02	6.62E-01	8.17E-02	6.55E-03	6.62E-03
5237GR	5.69E-01	8.62E-02	6.70E-02	1.81E-02	7.52E-01	8.54E-02	9.65E-02	7.52E-03
5238	1.34E+00	1.01E-01	6.40E-02	3.93E-02	1.46E+00	1.04E-01	1.44E-02	1.46E-02
5239	1.83E+00	1.29E-01	6.47E-02	5.90E-02	1.98E+00	1.26E-01	2.49E-02	2.49E-02
5239GR	2.05E+00	1.42E-01	3.37E-01	1.47E-01	2.31E+00	4.87E-01	1.16E-01	2.49E-02
5240	2.83E+00	1.81E-01	3.17E-01	1.01E-01	3.05E+00	4.19E-01	3.02E-02	3.05E-02
5240GR	2.83E+00	1.81E-01	3.36E-01	1.18E-01	3.14E+00	4.56E-01	1.20E-01	3.14E-02
5246	4.01E-01	1.54E-01	3.21E-02	2.11E-02	5.61E-01	5.35E-02	5.56E-03	5.61E-03
5246GR	4.01E-01	1.54E-01	3.39E-02	2.11E-02	6.51E-01	5.54E-02	9.56E-02	6.51E-03
5247	8.32E-01	8.62E-02	6.42E-02	4.37E-02	9.27E-01	1.09E-01	9.18E-03	9.27E-03
5247GR	8.32E-01	8.62E-02	7.27E-02	1.77E-01	1.02E+00	2.53E-01	9.92E-02	1.02E-02
5248	2.61E+00	6.34E-02	3.18E-01	1.42E-01	2.70E+00	4.62E-01	2.67E-02	2.70E-02
5249	3.31E+00	8.02E-02	3.20E-01	1.97E-01	3.42E+00	5.20E-01	3.39E-02	3.42E-02
5250	4.63E+00	1.12E-01	3.26E-01	3.54E-01	4.78E+00	6.86E-01	4.74E-02	4.78E-02
5255	3.52E-01	1.35E-01	1.31E-02	1.68E-02	4.92E-01	3.03E-02	4.87E-03	4.92E-03
5256	4.82E-01	1.86E-01	3.23E-02	2.68E-02	6.75E-01	5.96E-02	6.68E-03	6.75E-03
5256GR	4.82E-01	1.86E-01	3.41E-02	2.68E-02	7.65E-01	6.14E-02	9.67E-02	7.65E-03
5257	1.09E+00	8.62E-02	6.44E-02	5.05E-02	1.18E+00	1.16E-01	1.17E-02	1.18E-02
5257GR	1.09E+00	8.62E-02	6.82E-02	5.05E-02	1.27E+00	1.20E-01	1.02E-01	1.27E-02
5258	3.53E+00	8.57E-02	3.18E-01	1.47E-01	3.65E+00	4.69E-01	3.62E-02	3.65E-02
5259	5.31E+00	1.29E-01	3.24E-01	2.95E-01	5.50E+00	6.24E-01	5.44E-02	5.50E-02
5260	1.06E+01	2.57E-01	3.33E-01	5.53E-01	1.09E+01	8.96E-01	1.08E-01	1.09E-01
5335GR	3.67E-01	1.41E-01	6.90E-02	7.37E-02	6.04E-01	1.44E-01	9.51E-02	6.04E-03
5337	5.08E-01	8.62E-02	6.33E-02	1.81E-02	6.01E-01	8.17E-02	5.95E-03	6.01E-03
5337GR	7.12E-01	1.06E-01	6.70E-02	1.81E-02	8.85E-01	8.54E-02	6.64E-02	2.04E-02
5337-HT	5.08E-01	8.62E-02	3.66E-02	1.81E-02	6.01E-01	5.50E-02	5.95E-03	6.01E-03
5338	1.30E+00	1.01E-01	6.35E-02	2.36E-02	1.41E+00	8.75E-02	1.40E-02	1.41E-02
5338GR	1.30E+00	1.01E-01	6.78E-02	3.93E-02	1.50E+00	1.08E-01	1.04E-01	1.50E-02
5338-HT	1.35E+00	1.01E-01	3.61E-02	2.36E-02	1.48E+00	6.08E-02	3.06E-02	3.06E-02
5339	1.83E+00	1.29E-01	6.47E-02	5.90E-02	1.98E+00	1.25E-01	1.96E-02	1.98E-02
5339GR	1.83E+00	1.29E-01	3.37E-01	1.47E-01	2.07E+00	4.87E-01	1.10E-01	2.07E-02
5340	3.02E+00	1.81E-01	3.17E-01	1.01E-01	3.24E+00	4.19E-01	3.21E-02	3.24E-02
5340GR	3.02E+00	1.81E-01	3.36E-01	1.18E-01	3.33E+00	4.56E-01	1.22E-01	3.33E-02
5346	3.77E-01	1.45E-01	3.21E-02	2.11E-02	5.27E-01	5.35E-02	5.21E-03	5.27E-03
5346GR	3.77E-01	1.45E-01	3.39E-02	2.11E-02	6.17E-01	5.54E-02	9.52E-02	6.17E-03
5346-HT	3.77E-01	1.45E-01	1.87E-02	2.11E-02	5.27E-01	4.02E-02	5.21E-03	5.27E-03
5347	8.72E-01	8.62E-02	6.37E-02	3.02E-02	9.68E-01	9.45E-02	9.58E-03	9.68E-03
5347GR	8.72E-01	8.62E-02	7.27E-02	1.77E-01	1.06E+00	2.53E-01	9.96E-02	1.06E-02
5347-HT	8.72E-01	8.62E-02	3.75E-02	4.21E-02	9.68E-01	8.04E-02	9.58E-03	9.68E-03
5348	2.50E+00	6.07E-02	3.18E-01	1.42E-01	2.59E+00	4.62E-01	2.56E-02	2.59E-02
5349	3.26E+00	7.91E-02	3.24E-01	2.95E-01	3.37E+00	6.24E-01	3.34E-02	3.37E-02
5349GR	3.26E+00	7.91E-02	3.38E-01	1.77E-01	3.46E+00	5.18E-01	1.23E-01	3.46E-02
5350	4.63E+00	1.12E-01	3.26E-01	3.54E-01	4.78E+00	6.86E-01	4.74E-02	4.78E-02
5350GR	4.63E+00	1.12E-01	3.44E-01	3.54E-01	4.87E+00	7.05E-01	1.37E-01	4.87E-02

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T&B Liquid tight Systems™ Heavy weight products								
Catalog Number	Iron Weight (kg)	Steel Weight (kg)	Cardboard Weight (kg)	Wood Weight (kg)	SKU Weight (kg)	Packaging Weight (kg)	Remaining SKU Weight (kg)	Nylon Weight (kg)
5355	3.70E-01	1.43E-01	1.32E-02	1.77E-02	5.18E-01	3.12E-02	5.13E-03	5.18E-03
5355GR	3.70E-01	1.43E-01	7.27E-02	1.77E-01	6.08E-01	2.53E-01	9.51E-02	6.08E-03
5355-HT	3.70E-01	1.43E-01	7.82E-03	1.77E-02	5.18E-01	2.58E-02	5.13E-03	5.18E-03
5356	4.82E-01	1.86E-01	3.21E-02	2.11E-02	6.75E-01	5.35E-02	6.68E-03	6.75E-03
5356GR	4.82E-01	1.86E-01	3.41E-02	2.68E-02	7.65E-01	6.14E-02	9.67E-02	7.65E-03
5356-HT	4.82E-01	1.86E-01	1.89E-02	2.53E-02	6.75E-01	4.46E-02	6.68E-03	6.75E-03
5357	1.10E+00	8.62E-02	6.44E-02	5.05E-02	1.20E+00	1.16E-01	1.19E-02	1.20E-02
5357GR	1.10E+00	8.62E-02	6.82E-02	5.05E-02	1.29E+00	1.20E-01	1.02E-01	1.29E-02
5357-HT	1.10E+00	8.62E-02	3.75E-02	4.21E-02	1.20E+00	8.04E-02	1.19E-02	1.20E-02
5358	3.62E+00	8.78E-02	3.18E-01	1.47E-01	3.74E+00	4.69E-01	3.70E-02	3.74E-02
5359	5.41E+00	1.31E-01	3.24E-01	2.95E-01	5.60E+00	6.24E-01	5.54E-02	5.60E-02
5359GR	5.41E+00	1.31E-01	3.38E-01	1.77E-01	5.69E+00	5.18E-01	1.45E-01	5.69E-02
5360	9.65E+00	1.81E-01	3.33E-01	5.53E-01	9.88E+00	5.00E-01	5.32E-02	5.32E-02
5360GR	9.65E+00	1.95E-01	3.33E-01	5.53E-01	9.98E+00	9.15E-01	1.44E-01	5.22E-02
5386GR	1.93E+01	3.89E-01	3.44E-01	3.54E-01	2.00E+01	7.05E-01	2.87E-01	2.00E-01

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Extrapolation rules

The extrapolation rules have been calculated based on the environmental impact assessment results considering all the 15 products, and the sensitivity analysis carried out and explained in the sensibility analysis.

For the manufacturing stage and distribution stage, the influential parameters considered for the calculation of the LCIA impacts of the variants are the iron and steel weights, cardboard weight (packaging), wood weight (packaging) and the remaining SKU weight. For the installation stage, the influential parameters considered for the calculation of the LCIA impacts of the variants are cardboard weight (packaging) and wood weight (packaging). For the EoL stage, the influential parameters considered for the calculation of the LCIA impacts of the variants are iron weight, steel weight and nylon weight.

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 a multiple linear correlation. Using the SimaPro impact results and the weights of multiple variables (iron, steel, cardboard, wood, nylon, SKU weight, Packaging weight and remaining SKU weight) the best fit equation was found. This equations shows the impact based on each of the 15 SKUs analysed with an average error for each impact category of <10.5%. To calculate the best fit equation the data was plugged into a data analysis software (Python).

Each environmental indicator value shall be calculated using the following formulas:

- For the manufacturing and distribution stage of heavy weight variants:

$$y \text{ (Heavy weight)} = ax_1 + bx_2 + cx_3 + dx_4 + e$$

where x_1 = Weight of iron
 x_2 = Weight of steel
 x_3 = Remaining SKU Weight
 x_4 = Packaging

- For the manufacturing stage of the light weight variants:

$$y \text{ (Light weight)} = ax_1 + bx_2 + cx_3 + dx_4 + ex_5 + f$$

where x_1 = weight of iron
 x_2 = weight of steel
 x_3 = Remaining SKU Weight
 x_4 = weight of cardboard
 x_5 = weight of wood

- For the distribution stage of the light weight variants:

$$y \text{ (Light weight)} = ax_1 + bx_2 + cx_3 + dx_4 + e$$

where x_1 = weight of iron
 x_2 = weight of steel
 x_3 = Remaining SKU Weight
 x_4 = weight of packaging

- For the installation stage:

$$y \text{ (Heavy and Light weight)} = ax_1 + bx_2 + c$$

where x_1 = Weight of cardboard
 x_2 = Weight of wood

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- For the end of life stage:

$$y \text{ (Heavy and Light weight)} = ax_1 + bx_2 + cx_3 + d$$

where x1 = Weight of iron
x2 = Weight of steel
x3 = Weight of Nylon

For the weights of the components above reported for all the variants, please refer to the tables above.

The calculation of the coefficients for the Use Stage was not performed because the selected parameters do not affect the values for this stage.

The following tables reports the linear coefficients (a, b, c, ecc) for each life cycle stage.

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MANUFACTURING STAGE – HEAVY WEIGHT					
	a	b	c	d	e
GWP-total	1.03E+01	-1.18E+02	5.67E+01	-1.96E+00	9.21E+00
GWP-fossil	9.91E+00	-1.05E+02	5.22E+01	-3.21E-01	8.32E+00
GWP-biogenic	4.03E-01	-1.30E+01	4.40E+00	-1.64E+00	8.75E-01
GWP-luluc	8.82E-03	-1.40E-01	7.98E-02	2.56E-04	9.71E-03
ODP	1.71E-07	-1.35E-06	6.32E-07	7.72E-09	1.20E-07
AP	4.13E-02	2.08E-02	1.10E+00	1.04E-02	1.79E-04
EP-freshwater	3.17E-03	-1.11E-02	9.50E-02	-7.56E-04	-1.35E-03
EP-marine	9.43E-03	-8.43E-02	8.52E-02	4.42E-04	6.75E-03
EP-terrestrial	1.17E-01	2.88E-02	4.93E-01	8.89E-02	1.23E-01
POCP	3.79E-02	-2.24E-01	3.02E-01	1.25E-03	1.61E-02
ADPE	-2.60E-05	2.88E-03	1.42E-02	-1.58E-04	-6.18E-04
ADPF	1.14E+02	-1.26E+03	6.42E+02	-3.29E+00	9.97E+01
WDP	1.27E-01	5.23E+01	-4.64E+00	1.02E+00	-3.09E+00
PERT+PENRT	1.40E+02	-1.33E+03	7.57E+02	2.21E+01	1.05E+02
PERE	2.54E+01	-7.52E+01	1.09E+02	1.10E+01	5.62E+00
PERM	6.33E-01	4.67E+00	5.98E+00	1.44E+01	-6.39E-01
PERT	2.60E+01	-7.05E+01	1.15E+02	2.54E+01	4.98E+00
PENRE	1.14E+02	-1.25E+03	6.41E+02	-4.16E+00	9.82E+01
PENRM	3.90E-01	-7.30E+00	1.26E+00	8.63E-01	1.44E+00
PENRT	1.14E+02	-1.26E+03	6.42E+02	-3.30E+00	9.97E+01
SM	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
NRSF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	1.45E-02	1.05E+00	-3.21E-02	2.28E-02	-5.94E-02
HWD	1.21E-03	-4.13E-03	2.65E-03	1.77E-05	4.59E-04
NHWD	1.61E+00	-1.51E+00	7.94E+00	1.29E-01	2.19E-01
RWD	9.28E-05	-1.60E-03	9.83E-04	-1.48E-05	1.11E-04
CRU	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	1.15E+00	2.22E+00	-1.81E+00	3.51E-01	2.80E-01
MER	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
PM	7.84E-07	-4.96E-06	3.70E-06	2.17E-07	6.79E-07
IRP	3.83E-01	-6.67E+00	3.96E+00	-5.99E-02	4.65E-01
ETP-fw	5.25E+01	-4.53E+02	1.49E+03	-1.28E+01	3.56E+00
HTP-c	4.40E-08	1.01E-07	8.40E-08	1.13E-08	3.30E-09
HTP-nc	1.02E-07	2.93E-06	1.44E-05	-1.24E-07	-6.18E-07
SQP	3.84E+01	-1.69E+02	5.49E+02	1.87E+02	1.78E+00
Biogenic C content_packaging	2.13E-02	9.74E-02	1.96E-01	4.66E-01	-1.45E-02
Biogenic C content_product	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00699-V01.01-EN	0	en	18/27

MANUFACTURING STAGE – LIGHT WEIGHT						
	a	b	c	d	e	f
GWP-total	5.35E+00	5.72E+00	1.97E+01	2.64E+01	4.67E+01	-1.61E-01
GWP-fossil	5.48E+00	6.01E+00	1.94E+01	2.67E+01	4.78E+01	-1.79E-01
GWP-biogenic	-1.28E-01	-2.91E-01	2.59E-01	-2.74E-01	-1.17E+00	1.86E-02
GWP-luluc	2.21E-03	1.11E-03	2.96E-02	2.73E-02	5.90E-02	-2.96E-05
ODP	1.10E-07	1.23E-07	2.50E-07	6.15E-07	8.73E-07	-3.56E-09
AP	1.32E-02	-1.73E-02	7.04E-01	6.49E-01	7.55E-01	1.18E-03
EP-freshwater	-3.92E-04	-3.77E-03	5.81E-02	-2.58E-03	5.81E-02	1.53E-04
EP-marine	4.80E-03	4.41E-03	4.48E-02	4.61E-02	6.85E-02	-1.38E-04
EP-terrestrial	1.34E-01	1.67E-01	4.35E-01	3.25E+00	1.11E+00	-4.44E-03
POCP	2.11E-02	1.80E-02	1.79E-01	8.97E-02	2.97E-01	-5.96E-04
ADPE	-4.25E-04	-1.07E-03	9.50E-03	-2.20E-03	6.90E-03	4.22E-05
ADPF	6.27E+01	7.03E+01	2.35E+02	3.18E+02	5.12E+02	-2.00E+00
WDP	2.05E+00	3.12E+00	1.46E+01	2.28E+00	7.73E+00	-1.49E-01
PERT+PENRT	8.40E+01	9.14E+01	2.92E+02	3.55E+02	6.02E+02	-2.10E+00
PERE	2.06E+01	2.04E+01	5.71E+01	2.00E+01	7.06E+01	-8.09E-02
PERM	6.14E-01	7.05E-01	3.47E-01	1.63E+01	1.93E+01	-2.56E-02
PERT	2.12E+01	2.11E+01	5.74E+01	3.64E+01	8.99E+01	-1.06E-01
PENRE	6.11E+01	6.65E+01	2.33E+02	3.09E+02	5.35E+02	-1.86E+00
PENRM	1.66E+00	3.81E+00	2.00E+00	9.28E+00	-2.28E+01	-1.34E-01
PENRT	6.27E+01	7.03E+01	2.35E+02	3.18E+02	5.12E+02	-2.00E+00
SM	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
NRSF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	5.19E-02	7.63E-02	3.65E-01	9.24E-02	2.46E-01	-3.57E-03
HWD	8.53E-04	6.85E-04	5.12E-03	9.00E-04	6.14E-03	-2.31E-06
NHWD	1.10E+00	1.19E+00	5.97E+00	6.38E+00	1.44E+01	-5.15E-02
RWD	2.13E-05	1.25E-05	3.97E-04	2.32E-04	5.67E-04	-2.74E-07
CRU	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	1.18E+00	1.63E+00	2.60E+00	4.85E+00	1.10E+01	-8.70E-02
MER	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
PM	5.85E-07	6.95E-07	2.01E-06	8.88E-06	5.77E-06	-2.32E-08
IRP	8.85E-02	5.33E-02	1.54E+00	9.80E-01	2.31E+00	-1.25E-03
ETP-fw	-1.65E+01	-7.59E+01	9.99E+02	3.66E+01	1.00E+03	2.92E+00
HTP-c	4.01E-08	4.83E-08	1.76E-07	1.53E-07	4.57E-07	-2.52E-09
HTP-nc	-3.16E-07	-9.18E-07	9.56E-06	-1.54E-06	8.05E-06	3.34E-08
SQP	1.90E+01	1.16E+01	2.55E+02	1.90E+02	6.21E+02	-4.03E-01
Biogenic C content_packaging	2.57E-02	3.89E-02	-1.42E-02	5.08E-01	6.95E-01	-1.78E-03
Biogenic C content_product	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00699-V01.01-EN	0	en	19/27

DISTRIBUTION STAGE – HEAVY WEIGHT					
	a	b	c	d	e
GWP-total	4.03E-01	4.80E-01	4.72E-01	3.92E-01	-9.53E-03
GWP-fossil	4.03E-01	4.79E-01	4.71E-01	3.92E-01	-9.52E-03
GWP-biogenic	4.58E-05	5.45E-05	5.36E-05	4.46E-05	-1.08E-06
GWP-luluc	2.50E-04	2.97E-04	2.92E-04	2.43E-04	-5.90E-06
ODP	6.41E-09	7.62E-09	7.49E-09	6.23E-09	-1.51E-10
AP	6.31E-03	7.50E-03	7.38E-03	6.14E-03	-1.49E-04
EP-freshwater	2.42E-05	2.88E-05	2.83E-05	2.36E-05	-5.73E-07
EP-marine	1.69E-03	2.01E-03	1.98E-03	1.64E-03	-3.99E-05
EP-terrestrial	1.86E-02	2.21E-02	2.17E-02	1.81E-02	-4.39E-04
POCP	5.36E-03	6.38E-03	6.27E-03	5.22E-03	-1.27E-04
ADPE	7.83E-07	9.32E-07	9.16E-07	7.62E-07	-1.85E-08
ADPF	5.48E+00	6.51E+00	6.40E+00	5.33E+00	-1.29E-01
WDP	2.17E-02	2.58E-02	2.54E-02	2.11E-02	-5.13E-04
PERT+PENRT	5.53E+00	6.58E+00	6.47E+00	5.38E+00	-1.31E-01
PERE	5.71E-02	6.79E-02	6.68E-02	5.56E-02	-1.35E-03
PERM	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	5.71E-02	6.79E-02	6.68E-02	5.56E-02	-1.35E-03
PENRE	5.48E+00	6.51E+00	6.40E+00	5.33E+00	-1.29E-01
PENRM	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	5.48E+00	6.51E+00	6.40E+00	5.33E+00	-1.29E-01
SM	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
NRSF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	7.01E-04	8.34E-04	8.20E-04	6.82E-04	-1.66E-05
HWD	3.16E-05	3.76E-05	3.69E-05	3.07E-05	-7.46E-07
NHWD	2.92E-01	3.47E-01	3.41E-01	2.84E-01	-6.90E-03
RWD	9.58E-07	1.14E-06	1.12E-06	9.31E-07	-2.26E-08
CRU	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	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
PM	2.84E-08	3.37E-08	3.32E-08	2.76E-08	-6.70E-10
IRP	4.07E-03	4.84E-03	4.76E-03	3.96E-03	-9.61E-05
ETP-fw	2.82E+00	3.36E+00	3.30E+00	2.75E+00	-6.67E-02
HTP-c	1.75E-10	2.08E-10	2.05E-10	1.70E-10	-4.13E-12
HTP-nc	3.03E-09	3.60E-09	3.54E-09	2.94E-09	-7.15E-11
SQP	3.49E+00	4.15E+00	4.09E+00	3.40E+00	-8.25E-02
Biogenic C content_packaging	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic C content_product	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00699-V01.01-EN	0	en	20/27

DISTRIBUTION STAGE – LIGHT WEIGHT					
	a	b	c	d	e
GWP-total	4.01E-01	3.98E-01	4.10E-01	4.21E-01	2.75E-04
GWP-fossil	4.00E-01	3.98E-01	4.10E-01	4.21E-01	2.75E-04
GWP-biogenic	4.55E-05	4.52E-05	4.66E-05	4.78E-05	3.13E-08
GWP-luluc	2.48E-04	2.46E-04	2.54E-04	2.61E-04	1.71E-07
ODP	6.36E-09	6.32E-09	6.51E-09	6.68E-09	4.37E-12
AP	6.27E-03	6.22E-03	6.41E-03	6.58E-03	4.31E-06
EP-freshwater	2.41E-05	2.39E-05	2.46E-05	2.53E-05	1.65E-08
EP-marine	1.68E-03	1.67E-03	1.72E-03	1.76E-03	1.15E-06
EP-terrestrial	1.84E-02	1.83E-02	1.89E-02	1.94E-02	1.27E-05
POCP	5.33E-03	5.29E-03	5.45E-03	5.59E-03	3.66E-06
ADPE	7.78E-07	7.73E-07	7.96E-07	8.17E-07	5.35E-10
ADPF	5.44E+00	5.40E+00	5.56E+00	5.71E+00	3.74E-03
WDP	2.16E-02	2.14E-02	2.20E-02	2.26E-02	1.48E-05
PERT+PENRT	5.50E+00	5.46E+00	5.62E+00	5.77E+00	3.78E-03
PERE	5.67E-02	5.64E-02	5.80E-02	5.96E-02	3.90E-05
PERM	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	5.67E-02	5.64E-02	5.80E-02	5.96E-02	3.90E-05
PENRE	5.44E+00	5.40E+00	5.57E+00	5.71E+00	3.74E-03
PENRM	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	5.44E+00	5.40E+00	5.57E+00	5.71E+00	3.74E-03
SM	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
NRSF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	6.96E-04	6.91E-04	7.12E-04	7.31E-04	4.79E-07
HWD	3.14E-05	3.12E-05	3.21E-05	3.30E-05	2.16E-08
NHWD	2.90E-01	2.88E-01	2.97E-01	3.05E-01	1.99E-04
RWD	9.51E-07	9.45E-07	9.73E-07	9.99E-07	6.54E-10
CRU	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	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
PM	2.82E-08	2.80E-08	2.88E-08	2.96E-08	1.94E-11
IRP	4.04E-03	4.01E-03	4.13E-03	4.24E-03	2.78E-06
ETP-fw	2.81E+00	2.79E+00	2.87E+00	2.95E+00	1.93E-03
HTP-c	1.74E-10	1.73E-10	1.78E-10	1.83E-10	1.19E-13
HTP-nc	3.01E-09	2.99E-09	3.08E-09	3.16E-09	2.07E-12
SQP	3.47E+00	3.45E+00	3.55E+00	3.64E+00	2.38E-03
Biogenic C content_packaging	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic C content_product	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00699-V01.01-EN	0	en	21/27

INSTALLATION STAGE – HEAVY WEIGHT			
	a	b	c
GWP-total	1.78E+00	1.70E+00	1.50E-03
GWP-fossil	5.93E-02	9.04E-02	-9.62E-06
GWP-biogenic	1.72E+00	1.61E+00	1.51E-03
GWP-luluc	2.12E-05	1.42E-05	4.31E-08
ODP	1.70E-09	5.81E-10	2.88E-12
AP	3.81E-04	2.52E-04	8.30E-07
EP-freshwater	6.23E-06	8.36E-06	1.96E-08
EP-marine	1.84E-04	1.20E-04	4.66E-07
EP-terrestrial	1.68E-03	1.19E-03	3.71E-06
POCP	4.61E-04	3.31E-04	9.79E-07
ADPE	1.30E-07	8.89E-08	2.23E-10
ADPF	5.30E-01	4.06E-01	9.43E-04
WDP	3.61E-02	2.17E-03	1.03E-05
PERT+PENRT	5.44E-01	4.13E-01	9.65E-04
PERE	1.34E-02	6.80E-03	2.24E-05
PERM	0.00E+00	0.00E+00	0.00E+00
PERT	1.34E-02	6.80E-03	2.24E-05
PENRE	5.30E-01	4.06E-01	9.43E-04
PENRM	0.00E+00	0.00E+00	0.00E+00
PENRT	5.30E-01	4.06E-01	9.43E-04
SM	0.00E+00	0.00E+00	0.00E+00
RSF	0.00E+00	0.00E+00	0.00E+00
NRSF	0.00E+00	0.00E+00	0.00E+00
FW	1.24E-03	1.15E-04	6.46E-07
HWD	3.06E-06	2.48E-06	5.25E-09
NHWD	3.87E-02	2.53E-02	1.43E-04
RWD	1.86E-07	9.47E-08	3.16E-10
CRU	0.00E+00	0.00E+00	0.00E+00
MFR	0.00E+00	0.00E+00	0.00E+00
MER	0.00E+00	0.00E+00	0.00E+00
EE	0.00E+00	0.00E+00	0.00E+00
PM	4.11E-09	3.35E-09	6.72E-12
IRP	7.50E-04	3.92E-04	1.27E-06
ETP-fw	1.92E+00	2.73E-01	1.78E-03
HTP-c	1.02E-10	5.20E-11	3.55E-13
HTP-nc	3.76E-09	2.24E-09	1.17E-11
SQP	2.49E-01	2.00E-01	5.46E-04
Biogenic C content_packaging	0.00E+00	0.00E+00	0.00E+00
Biogenic C content_product	0.00E+00	0.00E+00	0.00E+00

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00699-V01.01-EN	0	en	22/27

INSTALLATION STAGE – LIGHT WEIGHT			
	a	b	c
GWP-total	1.77E+00	3.08E+00	-3.73E-03
GWP-fossil	5.52E-02	1.40E-01	-1.24E-04
GWP-biogenic	1.71E+00	2.94E+00	-3.60E-03
GWP-luluc	2.13E-05	3.24E-05	-4.69E-08
ODP	1.84E-09	1.70E-09	-3.49E-12
AP	3.82E-04	5.88E-04	-8.54E-07
EP-freshwater	5.21E-06	1.67E-05	-1.63E-08
EP-marine	1.83E-04	2.93E-04	-4.24E-07
EP-terrestrial	1.67E-03	2.71E-03	-3.80E-06
POCP	4.57E-04	7.44E-04	-1.04E-06
ADPE	1.32E-07	1.94E-07	-2.81E-10
ADPF	5.29E-01	8.60E-01	-1.17E-03
WDP	4.31E-02	1.27E-02	-6.19E-05
PERT+PENRT	5.43E-01	8.76E-01	-1.20E-03
PERE	1.41E-02	1.65E-02	-2.82E-05
PERM	0.00E+00	0.00E+00	0.00E+00
PERT	1.41E-02	1.65E-02	-2.82E-05
PENRE	5.29E-01	8.60E-01	-1.17E-03
PENRM	0.00E+00	0.00E+00	0.00E+00
PENRT	5.29E-01	8.60E-01	-1.17E-03
SM	0.00E+00	0.00E+00	0.00E+00
RSF	0.00E+00	0.00E+00	0.00E+00
NRSF	0.00E+00	0.00E+00	0.00E+00
FW	1.46E-03	5.48E-04	-2.20E-06
HWD	3.04E-06	5.11E-06	-6.74E-09
NHWD	3.66E-02	6.95E-02	-9.69E-05
RWD	1.96E-07	2.31E-07	-3.93E-10
CRU	0.00E+00	0.00E+00	0.00E+00
MFR	0.00E+00	0.00E+00	0.00E+00
MER	0.00E+00	0.00E+00	0.00E+00
EE	0.00E+00	0.00E+00	0.00E+00
PM	4.09E-09	6.86E-09	-9.02E-12
IRP	7.87E-04	9.44E-04	-1.58E-06
ETP-fw	2.21E+00	1.12E+00	-3.57E-03
HTP-c	9.95E-11	1.58E-10	-2.47E-13
HTP-nc	3.68E-09	6.06E-09	-8.98E-12
SQP	2.43E-01	4.35E-01	-5.70E-04
Biogenic C content_packaging	0.00E+00	0.00E+00	0.00E+00
Biogenic C content_product	0.00E+00	0.00E+00	0.00E+00

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END-OF-LIFE STAGE – HEAVY WEIGHT				
	a	b	c	d
GWP-total	4.53E-02	9.65E-02	2.15E+00	1.05E-03
GWP-fossil	3.23E-02	4.23E-02	2.09E+00	6.34E-03
GWP-biogenic	1.30E-02	5.40E-02	5.78E-02	-5.28E-03
GWP-luluc	2.74E-05	1.38E-04	1.23E-04	-1.26E-05
ODP	5.25E-10	2.32E-09	4.02E-09	-1.97E-10
AP	1.43E-04	6.29E-04	9.55E-04	-5.30E-05
EP-freshwater	1.47E-05	4.21E-05	6.15E-05	-3.92E-06
EP-marine	5.18E-05	2.26E-04	4.55E-04	-1.90E-05
EP-terrestrial	5.50E-04	2.40E-03	4.16E-03	-2.00E-04
POCP	1.95E-04	8.57E-04	1.23E-03	-7.24E-05
ADPE	9.01E-08	3.74E-07	3.56E-07	-3.07E-08
ADPF	4.52E-01	2.01E+00	1.81E+00	-1.71E-01
WDP	7.61E-03	-5.22E-03	1.25E-01	7.12E-04
PERT+PENRT	4.59E-01	2.04E+00	1.85E+00	-1.74E-01
PERE	7.17E-03	3.23E-02	4.15E-02	-2.83E-03
PERM	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	7.17E-03	3.23E-02	4.15E-02	-2.83E-03
PENRE	4.52E-01	2.01E+00	1.81E+00	-1.71E-01
PENRM	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	4.52E-01	2.01E+00	1.81E+00	-1.71E-01
SM	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
NRSF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	2.02E-04	-8.27E-06	3.89E-03	6.82E-06
HWD	2.73E-06	1.17E-05	1.01E-05	-9.73E-07
NHWD	2.31E-02	9.71E-02	1.08E-01	-8.13E-03
RWD	1.06E-07	4.75E-07	5.62E-07	-4.12E-08
CRU	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	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
PM	4.16E-09	1.91E-08	1.78E-08	-1.72E-09
IRP	4.41E-04	1.98E-03	2.29E-03	-1.72E-04
ETP-fw	4.64E-01	1.55E+00	6.15E+00	-1.34E-01
HTP-c	4.42E-11	5.47E-11	-1.03E-10	6.43E-12
HTP-nc	3.37E-10	1.03E-09	6.87E-09	-4.97E-11
SQP	3.96E-01	1.99E+00	1.61E+00	-1.80E-01
Biogenic C content_packaging	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic C content_product	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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END-OF-LIFE STAGE – LIGHT WEIGHT				
	a	b	c	d
GWP-total	4.38E-02	5.09E-02	2.40E+00	-4.79E-04
GWP-fossil	3.05E-02	3.79E-02	2.38E+00	-4.76E-04
GWP-biogenic	1.32E-02	1.29E-02	1.63E-02	-2.42E-06
GWP-luluc	2.72E-05	2.55E-05	1.33E-04	-1.10E-08
ODP	5.09E-10	4.69E-10	5.48E-09	-6.50E-13
AP	1.41E-04	1.33E-04	1.20E-03	-1.52E-07
EP-freshwater	1.47E-05	1.42E-05	3.92E-05	-4.46E-09
EP-marine	5.13E-05	4.92E-05	5.20E-04	-7.71E-08
EP-terrestrial	5.43E-04	5.17E-04	4.95E-03	-6.93E-07
POCP	1.93E-04	1.84E-04	1.43E-03	-1.91E-07
ADPE	8.71E-08	7.90E-08	6.61E-07	-5.34E-11
ADPF	4.49E-01	4.25E-01	2.21E+00	-2.28E-04
WDP	7.42E-03	7.61E-03	1.16E-01	-2.27E-05
PERT+PENRT	4.56E-01	4.31E-01	2.27E+00	-2.34E-04
PERE	6.95E-03	6.32E-03	6.08E-02	-5.73E-06
PERM	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	6.95E-03	6.32E-03	6.08E-02	-5.73E-06
PENRE	4.49E-01	4.25E-01	2.21E+00	-2.28E-04
PENRM	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	4.49E-01	4.25E-01	2.21E+00	-2.28E-04
SM	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
NRSF	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	1.96E-04	2.01E-04	3.78E-03	-7.14E-07
HWD	2.36E-06	1.67E-06	4.37E-05	-1.60E-09
NHWD	1.78E-02	8.84E-03	5.70E-01	-1.85E-05
RWD	1.03E-07	9.50E-08	7.96E-07	-7.65E-11
CRU	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	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
PM	4.17E-09	3.99E-09	1.55E-08	-1.65E-12
IRP	4.31E-04	3.97E-04	3.22E-03	-3.09E-07
ETP-fw	4.66E-01	4.69E-01	5.52E+00	-1.04E-03
HTP-c	4.13E-11	3.98E-11	3.40E-10	-5.05E-14
HTP-nc	1.84E-10	-2.45E-11	2.05E-08	-1.62E-12
SQP	3.94E-01	3.67E-01	1.84E+00	-1.38E-04
Biogenic C content_packaging	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic C content_product	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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Comparability

EPDs published within the same product category, though originating from different programs, may not be comparable. Full conformance with a PCR allows PEP comparability only when all stages of a life cycle have been considered. However, variations and deviations are possible.

Applicable product standards

List of applicable product standards and certifications for Liquid Tight Fitting products: UL 514B; CSA C22.2; No. 18.3., IEC/EN 61386-1,-23; RoHS.

References

- PEP ecopassport® PROGRAM, PCR-ed4-EN-2021 09 06, Product Category Rules for Electrical, Electronic and HVAC-R Products.
- PEP ecopassport® PROGRAMME, PSR-0003-ed2-EN-2023 06 06, Specific rules for Cable Management Solutions.
- ISO 14040: Life cycle assessment. Environmental management. Principles and Framework. International Organization for Standardization, 2006.
- ISO 14044: Life cycle assessment. Environmental management. Requirements and guidelines. International Organization for Standardization, 2006.
- PRé Consultants, Software SimaPro 9.6, 2024 (www.simapro.com).
- Ecoinvent, 2022. Swiss Centre for Life Cycle Assessment, v 3.9.1 (Home - ecoinvent).
- UNI EN 15804:2012+A2:2019: Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products.
- EN 50693:2019: Product category rules for life cycle assessments of electronic and electrical products and systems.

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Registration number: ABBG-00699-V01.01-EN		Drafting Rules: PCR-ed4-EN-2021 09 06	
		Supplemented by: -	
Verifier accreditation number: VH44		Information and reference documents: www.pep-ecopassport.org	
Date of issue: 11-2024		Validity period: 5 years	
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"			

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