

CARLON BLUE™ PVC BOXES

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"

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STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00340-V03.01-EN	1	en	1/26



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.



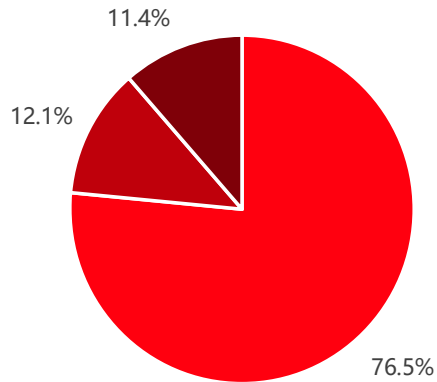
General Information

Reference product	B118A Carlon Blue™ PVC box
Description of the product	Carlon Blue™ PVC boxes family is a low-voltage structured cable management system makes it easy for you to run wiring and install outlets for data, voice and cable TV in walls or floors in any room. Carlon Blue™ non-metallic boxes feature PVC construction for easier installation, greater performance and lower installation cost. Designed and listed for use with non-metallic sheathed cable in accordance with Article 314 of the National Electrical Code®, they make fast work of any residential or light commercial application.
Functional unit	The functional unit is to connect a workstation remote from the wall to the energy and communication networks for 20 years, via the following wiring accessories: - 120 volt ac electrical switches and outlets with a maximum of 20 amps; - 220 volt ac electrical outlets typically used for dryers and electric stoves that have a maximum 30 amp circuit capabilities; - low voltage data and voice cables. The reference product is B118A box with a weight of 0.0831 kg and its packaging of 0.0108 kg. .
Other products covered	List of other products covered in this PEP is presented in the paragraph which concerned the extrapolation rules

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00340-V03.01-EN		1 en	2/26



Constituent Materials



■ Plastics 71.87 g ■ Metals 11.31 g ■ Others 10.71 g

Total weight of Reference product included packaging (g)

93.9

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%
PVC	76.4	Steel	12.1	Label	0.1
Polyethylene	0.1	-	-	Carton	5.0
-	-	-	-	Glue	0.1
-	-	-	-	Wood	6.2

Total weight of the reference product 0.0831 kg plus packaging 0.0108 kg.

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00340-V03.01-EN	1	en	3/26



Additional Environmental Information

Manufacturing	The manufacturing stage includes the production and transportation to the manufacturer's last logistic platform of Carlon Blue™ PVC Boxes and its packaging. The final assembly of the product is carried out at ABB's plant located in Portland (TN)
Distribution	The transport from the ABB factory (Portland, TN) to the warehouses (Byhalia, Phoenix, NEDC Carson Court Easton) was taken into account. For the distribution of the product from warehouses 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 of about 20%.
Installation	This phase includes packaging disposal
Use	No material and energy consumption occurs 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 Carlon Blue™ PVC Boxes (100% incineration).
Benefits and loads beyond the system boundaries	No benefits and loads beyond the system boundaries has been considered.

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00340-V03.01-EN		1 en	4/26



Environmental Impacts

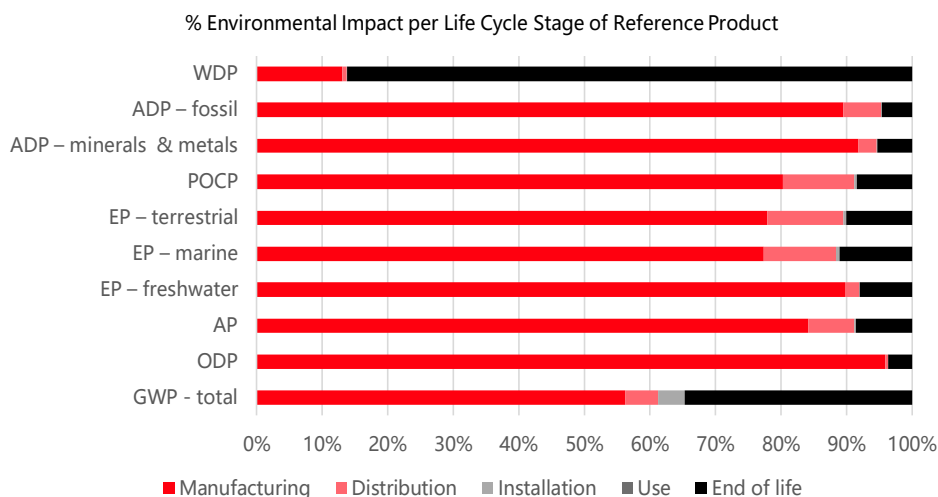
Reference lifetime	20 years
Product category	Other Cable Management Products - Non-equipped service poles, service posts, multi-outlets extensions and floor boxes
Installation elements	No installation materials are required in the life cycle of the product.
Use scenario	No material and energy consumption occur during the use stage. No maintenance phase is planned for the Carlon Blue™ PVC Boxes.
Geographical representativeness	The suppliers are collocated all over the world, the products are fabricated in Portland (TN) 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

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00340-V03.01-EN	1	en	5/26

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.	4.44E-01	2.49E-01	2.24E-02	1.80E-02	0.00E+00	1.54E-01	-
GWP-fossil	kg CO ₂ eq.	4.38E-01	2.61E-01	2.24E-02	8.55E-04	0.00E+00	1.54E-01	-
GWP-biogenic	kg CO ₂ eq.	5.41E-03	-1.22E-02	8.26E-06	1.72E-02	0.00E+00	3.93E-04	-
GWP-luluc	kg CO ₂ eq.	3.03E-04	2.72E-04	1.12E-05	1.82E-07	0.00E+00	2.02E-05	-
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.	8.15E-08	7.82E-08	3.69E-10	1.15E-11	0.00E+00	2.98E-09	-
ODP = Depletion potential of the stratospheric ozone layer								
AP	H+ eq.	1.38E-03	1.16E-03	9.82E-05	3.25E-06	0.00E+00	1.19E-04	-
AP = Acidification potential, Accumulated Exceedance								
EP-freshwater	kg P eq.	8.52E-05	7.65E-05	1.82E-06	7.73E-08	0.00E+00	6.82E-06	-
EP-marine	kg N eq.	3.26E-04	2.52E-04	3.60E-05	1.56E-06	0.00E+00	3.62E-05	-
EP-terrestrial	mol N eq.	3.33E-03	2.59E-03	3.85E-04	1.48E-05	0.00E+00	3.35E-04	-
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.	1.26E-03	1.01E-03	1.38E-04	4.08E-06	0.00E+00	1.07E-04	-
POCP = Formation potential of tropospheric ozone								
ADP-minerals & metals	kg Sb eq.	2.14E-06	1.96E-06	6.09E-08	1.12E-09	0.00E+00	1.14E-07	-
ADP-fossil	MJ	5.66E+00	5.07E+00	3.28E-01	4.83E-03	0.00E+00	2.63E-01	-
ADP-minerals & metals = Abiotic depletion potential for non-fossil resources ADP-fossil = Abiotic depletion for fossil resources potential								
WDP	m ³ eq. depr.	2.45E-01	3.20E-02	1.67E-03	1.88E-04	0.00E+00	2.11E-01	-
WDP = Water Deprivation potential * The result of the WPD for the end-of-life phase derived from the ecoinvent datasets and should be interpreted with caution.								

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00340-V03.01-EN	1	en	6/26

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	8.80E-01	8.53E-01	4.15E-03	1.03E-04	0.00E+00	2.28E-02	-
PERM	MJ	1.66E-01	1.66E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-
PERT	MJ	1.05E+00	1.02E+00	4.15E-03	1.03E-04	0.00E+00	2.28E-02	-
PENRE	MJ	4.09E+00	3.49E+00	3.28E-01	4.83E-03	0.00E+00	2.63E-01	-
PENRM	MJ	1.57E+00	1.57E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-
PENRT	MJ	5.66E+00	5.07E+00	3.28E-01	4.83E-03	0.00E+00	2.63E-01	-

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-03	3.46E-03	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	-
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-
FW	m³	6.85E-03	2.98E-04	5.24E-05	6.67E-06	0.00E+00	6.49E-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
 * The result of the FW for the end-of-life phase derived from the ecoinvent datasets and should be interpreted with caution.

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	1.88E-05	1.55E-05	2.07E-06	2.88E-08	0.00E+00	1.24E-06	-
Non- hazardous waste disposed	kg	1.11E-01	3.99E-02	2.86E-02	3.33E-04	0.00E+00	4.24E-02	-
Radioactive waste disposed	kg	3.73E-06	3.38E-06	7.16E-08	1.43E-09	0.00E+00	2.75E-07	-

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00340-V03.01-EN	1	en	7/26

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	-
Materials for recycling	kg	6.79E-03	6.79E-03	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	-
Exported energy	MJ	8.26E-04	8.26E-04	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	-
Biogenic carbon content of the associated packaging	kg of C	5.39E-03	5.39E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00340-V03.01-EN	1	en	8/26

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	6.71E+00	6.09E+00	3.32E-01	4.93E-03	0.00E+00	2.86E-01	-
Emissions of fine particles	incidence of diseases	1.77E-08	1.42E-08	2.31E-09	3.86E-11	0.00E+00	1.11E-09	-
Ionizing radiation, human health	kBq U235 eq.	1.47E-02	1.34E-02	3.01E-04	5.82E-06	0.00E+00	1.08E-03	-
Ecotoxicity (fresh water)	CTUe	9.69E+00	1.43E+00	1.74E-01	1.08E-02	0.00E+00	8.07E+00	-
Human toxicity, carcinogenic effects	CTUh	3.98E-10	3.57E-10	9.74E-12	7.86E-13	0.00E+00	3.04E-11	-
Human toxicity, non-carcinogenic effects	incidence of diseases	4.27E-09	3.03E-09	2.39E-10	3.08E-11	0.00E+00	9.72E-10	-
Impact related to land use/soil quality		3.52E+00	3.05E+00	3.32E-01	2.33E-03	0.00E+00	1.37E-01	-

Other indicators

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

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00340-V03.01-EN	1	en	9/26

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)

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00340-V03.01-EN	1	en	10/26

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 Carlon Blue™ PVC boxes 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 for cable management products are set in the PSR, thus 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+packaging weight;
- product composition (weights of steel and PVC);

The representative product considered for the calculation of the extrapolation rules is B118A Carlon Blue™ PVC box. 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 Carlon Blue™ PVC boxes family and considered for the application of the extrapolation rules are presented in the following tables for Low steel weight product, High steel weight product, No steel weight product and PVC Outlet Box with Hanger product.

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
In Review	Public	ABBG-00340-V03.01-EN	0	en	11/26

Carlton Blue™ PVC boxes – Low steel weight product

Variant	SKU weight (kg)	PVC weight (kg)	Steel weight (kg)	Packaging weight (kg)	SKU+Packaging weight (kg)
B118B-UPC	0.0816	0.0775	0.0042	0.03874225	0.1204
SNO-18	0.1202	0.1098	0.0104	0.032913214	0.1531
SNO18-6R	0.1202	0.1098	0.0104	0.097494921	0.2177
RD-30-6R	0.1542	0.1439	0.0104	0.094880322	0.2491
B232A-UPC	0.1315	0.1212	0.0104	0.0717745	0.2033
SN-236-V	0.1315	0.1212	0.0104	0.076990625	0.2085
B125AB	0.1433	0.1320	0.0113	0.078193854	0.2215
B432A-UPC	0.1547	0.1443	0.0104	0.0717745	0.2265
BH235A	0.1814	0.1711	0.0104	0.042488212	0.2239
BH235AR	0.1814	0.1711	0.0104	0.053097083	0.2345
BH353A	0.2631	0.2527	0.0104	0.072408302	0.3355
BH353AR	0.2631	0.2527	0.0104	0.078290625	0.3414
BH464A	0.3221	0.3117	0.0104	0.090400833	0.4125
BH464AR	0.3221	0.3117	0.0104	0.103484167	0.4255
B418AR-UPC	0.1107	0.1003	0.0104	0.097810781	0.2085
B432ARR-UPC	0.1547	0.1443	0.0104	0.093290625	0.2480
B455AR-UPC	0.1996	0.1892	0.0104	0.132110893	0.3317
B117RSWR	0.1066	0.1024	0.0042	0.044421458	0.1510
B114R-UPC	0.0916	0.0875	0.0042	0.03894225	0.1306
B120R	0.1152	0.1111	0.0042	0.03894225	0.1542
E-18-4-DVR	0.1043	0.0940	0.0104	0.065277188	0.1696
B355R	0.2776	0.2692	0.0084	0.097494921	0.3751
B468R	0.2676	0.2592	0.0084	0.127844375	0.3955
BH118R	0.1560	0.1519	0.0042	0.031266713	0.1873
BH234R	0.2023	0.1981	0.0042	0.059823426	0.2621
B114RB	0.0758	0.0695	0.0042	0.011559433	0.0874
B118A (ref)	0.0831	0.0718	0.0113	0.0108483	0.0939
B120AUPC	0.0903	0.0789	0.0113	0.0134667	0.1037
B122AUPC	0.0984	0.0871	0.0113	0.014196109	0.1126
B225RUPC	0.1114	0.1051	0.0042	0.032717917	0.1441
B232ACP	0.1238	0.1134	0.0104	0.0346579	0.1584
B344AB	0.1646	0.1542	0.0104	0.0576935	0.2223
B455AUPC	0.1991	0.1887	0.0104	0.0692122	0.2683
BH122AUPC	0.1370	0.1235	0.0113	0.015636025	0.1526

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
In Review	Public	ABBG-00340-V03.01-EN	0	en	12/26

Carlton Blue™ PVC boxes – High steel weight product

Variant	SKU weight (kg)	PVC weight (kg)	Steel weight (kg)	Packaging weight (kg)	SKU+Packaging weight (kg)
B121ADJ-40R	0.1724	0.0867	0.0857	0.039097083	0.2115
B121ADJH	0.1671	0.0841	0.0831	0.065734182	0.2328
B234ADJC	0.2041	0.1210	0.0831	0.073002318	0.2771
B234ADJ	0.1968	0.1167	0.0801	0.046501068	0.2433
B349ADJ	0.2373	0.1572	0.0801	0.046501068	0.2838
B121ADJ	0.1601	0.0805	0.0796	0.033510625	0.1936

Carlton Blue™ PVC boxes – PVC Outlet Box with Hanger product

Variant	SKU weight (kg)	PVC weight (kg)	Steel weight (kg)	Packaging weight (kg)	SKU+Packaging weight (kg)
B455AH	0.308954	0.1934	0.115554	0.082067	0.3910

Carlton Blue™ PVC boxes – No steel weight product

Variant	SKU weight (kg)	PVC weight (kg)	Steel weight (kg)	Packaging weight (kg)	SKU+Packaging weight (kg)
B108R-UPC	0.0567	0.0567	0.0000	0.0244124	0.0811
B249B	0.1497	0.1497	0.0000	0.083207778	0.2329
A400R-CAR	0.0408	0.0408	0.0000	0.013869733	0.0547
A410R-CAR	0.0363	0.0363	0.0000	0.022024	0.0583
A413	0.0499	0.0499	0.0000	0.0218845	0.0718
A414	0.0680	0.0680	0.0000	0.028276	0.0963
A420	0.0318	0.0318	0.0000	0.0129364	0.0447
E460R-CAR	0.0272	0.0272	0.0000	0.010681238	0.0379
SCDIVS	0.0227	0.0227	0.0000	0.025829467	0.0485
B108B-UPC	0.0413	0.0413	0.0000	0.0128604	0.0542
A410	0.0333	0.0333	0.0000	0.005047063	0.0383
A470D	0.0246	0.0246	0.0000	0.002541031	0.0271
B1MGEXT-2	0.0982	0.0982	0.0000	0.044129345	0.1423

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
In Review	Public	ABBG-00340-V03.01-EN	0	en	13/26

Extrapolation rules

The extrapolation rules have been calculated based on the environmental impact assessment results considering all the 16 products, and the sensitivity analysis carried out and explained in the sensibility analysis.

For manufacturing stage of Low steel weight products, the influential parameters considered for the calculation of LCIA impacts of variants are steel, PVC and packaging weight; for manufacturing stage of High steel weight products the influential parameters are SKU weight and Packaging weight, for manufacturing stage of No steel weight product the influential parameter is SKU + packaging weight. For the distribution stage, of Low steel products, High steel products and No steel products the influential parameters considered for the calculation of LCIA impacts of the variants are SKU weight and packaging weight. For the installation stage, of Low steel products, High steel products and No steel products the influential parameter considered for the calculation of LCIA impacts of the variants is packaging weight. For the end of life stage, of Low steel weight products the influential parameters considered for the calculation of LCIA impacts of the variants are steel weight and PVC weight, for end of life stage of High steel weight products and no steel weight products, the influential parameter is the SKU 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 linear correlation, for distribution and installation stages, and a multiple linear/linear correlation, for manufacturing and end of life stages. Using the SimaPro impact results and the weights of multiple variables (steel, PVC, packaging) the best fit equation was found. These equations show the impact based on each of the 16 SKUs analysed with an average error for each impact category less than 9%. To calculate the best fit equation for manufacturing stage and end of life stage the data was plugged into a data analysis software (Python). To calculate the best fit equation for distribution and installation stages which have a linear correlation, the data have been processed by excel. For the PVC Outlet Box with Hanger product, multiplication factors for each stage have been calculated to convert the impact results of B118A (reference product) into PVC Outlet Box with Hanger product impact results.

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

- For the manufacturing of Low steel weight products:

$$y = ax_1 + bx_2 + cx_3 + d$$

where x1 = weight of steel
x2 = weight of PVC
x3 = packaging weight

- For the manufacturing of High steel weight products:

$$y = ax_1 + bx_2 + c$$

where x1 = product weight
x2 = packaging weight

- For manufacturing of No steel weight products:

$$y = ax_1 + b$$

where x1 = product+packaging weight

- For distribution stage of Low steel weight product, High steel weight product, No steel weight product:

$$y = ax_1 + b$$

where x1 = product+packaging weight

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
In Review	Public	ABBG-00340-V03.01-EN	0	en	14/26

- For installation stage of Low steel weight products, High steel weight products and No steel weight product:

$$y = ax_1 + b$$

where x_1 = packaging weight

- For the end of life stage of Low steel weight products:

$$y = ax_1 + bx_2 + c$$

where x_1 = steel weight
 x_2 = PVC weight

- For end of life stage High steel weight product and No steel weight product:

$$y = ax_1 + b$$

where x_1 = product weight

- For all stages of PVC Outlet Box with Hanger product:

$$y = ax_1$$

where x_1 = impact chosen category of B118A (reference product)
 y = impact chosen category
 a = multiplication factor

The use stage impacts are equal to zero for all the variants.

For all the variants, please refer to the table above.

For the PVC Outlet Box with Hanger the parameter (B118A impacts) has been reported in tables p 6-9. To determinate the environmental impacts associated with the PVC Outlet Box with Hanger product, the multiplication factor "a" must be multiplied by the impacts of the reference product (B118A).

The following tables report the multiple linear/linear coefficients for each life cycle stage, subdivided by the four subfamilies:

- Low steel weight products;
- High steel weight products;
- No steel weight products;
- PVC Outlet Box with Hanger;

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
In Review	Public	ABBG-00340-V03.01-EN	0	en	15/26

MANUFACTURING STAGE – Low steel weight products				
	a	b	c	d
GWP-total	-3.49E-01	3.11E+00	-4.44E-01	3.26E-02
GWP-fossil	-3.80E-01	3.14E+00	4.26E-01	3.27E-02
GWP-biogenic	3.44E-02	-3.89E-02	-8.74E-01	-1.41E-04
GWP-luluc	-3.47E-03	3.06E-03	3.68E-03	4.28E-05
ODP	-8.05E-08	1.07E-06	2.44E-08	1.65E-09
AP	-6.10E-03	1.40E-02	2.97E-03	1.78E-04
EP-freshwater	3.58E-04	8.28E-04	2.09E-04	9.85E-06
EP-marine	-3.97E-04	2.90E-03	1.14E-03	3.21E-05
EP-terrestrial	-1.03E-03	3.00E-02	8.92E-03	3.24E-04
POCP	3.77E-03	1.13E-02	2.79E-03	1.18E-04
ADPE	-6.34E-05	2.70E-05	1.93E-06	6.71E-07
ADPF	-2.55E+01	6.73E+01	2.60E+00	4.57E-01
WDP	-1.09E+00	4.24E-01	5.94E-02	1.23E-02
PERT+PENRT	-2.81E+01	7.81E+01	1.90E+01	5.46E-01
PERE	-1.85E+00	1.00E+01	6.40E+00	8.18E-02
PERM	-7.68E-01	7.63E-01	1.00E+01	6.98E-03
PERT	-2.62E+00	1.08E+01	1.64E+01	8.88E-02
PENRE	-1.50E+01	4.38E+01	5.14E+00	4.29E-01
PENRM	-1.05E+01	2.35E+01	-2.57E+00	2.80E-02
PENRT	-2.55E+01	6.73E+01	2.57E+00	4.57E-01
SM	-1.53E-01	1.14E-02	2.72E-01	8.04E-04
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	-2.76E-02	3.21E-03	2.14E-03	3.33E-04
HWD	2.48E-04	1.62E-04	2.63E-05	7.13E-07
NHWD	-1.62E+00	4.37E-01	1.69E-01	2.32E-02
RWD	-4.24E-05	4.48E-05	7.34E-06	5.29E-07
CRU	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	6.09E-02	7.61E-02	5.29E-02	2.70E-05
MER	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE	6.33E-03	1.04E-02	-9.93E-04	1.45E-05
PM	2.69E-08	1.49E-07	7.38E-08	2.23E-09
IRP	-1.70E-01	1.76E-01	3.11E-02	2.12E-03
ETP-fw	-7.68E+01	1.81E+01	1.57E+00	9.59E-01
HTP-c	5.84E-09	1.86E-09	1.38E-09	1.33E-10
HTP-nc	-5.07E-08	3.84E-08	1.08E-08	6.73E-10
SQP	5.65E+00	2.27E+01	1.08E+02	1.69E-01
Biogenic C content_packaging	-2.89E-02	2.50E-02	3.28E-01	2.17E-04
Biogenic C content_product	0.00E+00	0.00E+00	0.00E+00	0.00E+00

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
In Review	Public	ABBG-00340-V03.01-EN	0	en	16/26

MANUFACTURING STAGE – High steel weight products			
	a	b	c
GWP-total	4.28E+00	4.64E+00	-2.17E-02
GWP-fossil	4.31E+00	5.32E+00	-2.05E-02
GWP-biogenic	-2.95E-02	-6.80E-01	-1.25E-03
GWP-luluc	4.00E-03	8.94E-03	8.65E-05
ODP	1.06E-06	3.07E-07	-8.44E-08
AP	6.73E-02	-7.92E-02	6.93E-03
EP-freshwater	1.28E-03	1.96E-03	1.99E-05
EP-marine	5.47E-03	3.16E-03	2.26E-04
EP-terrestrial	2.47E-01	-3.86E-01	2.99E-02
POCP	1.57E-02	2.50E-02	6.05E-07
ADPE	1.06E-04	-1.20E-04	1.02E-05
ADPF	7.80E+01	6.53E+01	-2.62E+00
WDP	9.47E-01	-4.41E-02	7.31E-02
PERT+PENRT	7.95E+01	1.21E+02	-1.57E+00
PERE	1.33E+00	4.43E+01	1.02E+00
PERM	2.24E-01	1.19E+01	2.62E-02
PERT	1.55E+00	5.62E+01	1.04E+00
PENRE	5.68E+01	6.04E+01	-8.32E-01
PENRM	2.12E+01	4.84E+00	-1.79E+00
PENRT	7.80E+01	6.53E+01	-2.62E+00
SM	-5.71E-02	5.24E-01	3.44E-03
RSF	0.00E+00	0.00E+00	0.00E+00
NRSF	0.00E+00	0.00E+00	0.00E+00
FW	1.78E-02	1.45E-03	2.66E-03
HWD	4.30E-04	-1.25E-04	3.04E-05
NHWD	1.93E+00	-2.33E-01	1.97E-01
RWD	6.91E-05	2.71E-05	6.17E-07
CRU	0.00E+00	0.00E+00	0.00E+00
MFR	-8.58E-02	1.46E+00	-2.72E-02
MER	0.00E+00	0.00E+00	0.00E+00
EE	9.94E-03	2.82E-15	7.11E-17
PM	6.82E-07	-4.79E-07	7.01E-08
IRP	2.74E-01	1.16E-01	2.77E-03
ETP-fw	3.83E+01	-4.58E+00	2.06E+00
HTP-c	1.13E-08	1.27E-08	1.30E-09
HTP-nc	8.02E-08	7.82E-09	4.24E-09
SQP	2.91E+01	1.27E+02	-1.85E-01
Biogenic C content_packaging	5.57E-03	3.95E-01	9.24E-04
Biogenic C content_product	0.00E+00	0.00E+00	0.00E+00

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
In Review	Public	ABBG-00340-V03.01-EN	0	en	17/26

MANUFACTURING STAGE – No steel weight products		
	a	b
GWP-total	3.26E+00	3.24E-03
GWP-fossil	3.61E+00	-4.02E-03
GWP-biogenic	-3.51E-01	7.30E-03
GWP-luluc	5.09E-03	-4.30E-05
ODP	1.15E-06	1.53E-09
AP	1.65E-02	-2.82E-05
EP-freshwater	9.94E-04	-2.05E-06
EP-marine	3.75E-03	-1.34E-05
EP-terrestrial	3.71E-02	-9.74E-05
POCP	1.37E-02	-3.10E-05
ADPE	2.95E-05	8.47E-09
ADPF	7.34E+01	-2.07E-02
WDP	4.64E-01	-2.04E-03
PERT+PENRT	9.09E+01	-1.57E-01
PERE	1.28E+01	-4.44E-02
PERM	4.70E+00	-9.21E-02
PERT	1.75E+01	-1.37E-01
PENRE	5.01E+01	-5.27E-02
PENRM	2.33E+01	3.24E-02
PENRT	7.34E+01	-2.03E-02
SM	1.55E-01	-3.64E-03
RSF	0.00E+00	0.00E+00
NRSF	0.00E+00	0.00E+00
FW	4.07E-03	-7.15E-05
HWD	1.91E-04	-2.05E-07
NHWD	5.90E-01	-2.27E-03
RWD	5.12E-05	-4.07E-08
CRU	0.00E+00	0.00E+00
MFR	5.19E-01	-6.85E-03
MER	0.00E+00	0.00E+00
EE	6.07E-03	8.66E-05
PM	2.13E-07	-1.06E-09
IRP	2.03E-01	-1.91E-04
ETP-fw	2.16E+01	-4.34E-02
HTP-c	2.62E-09	-1.15E-11
HTP-nc	4.72E-08	-1.14E-10
SQP	6.42E+01	-8.90E-01
Biogenic C content_packaging	1.53E-01	-2.99E-03
Biogenic C content_product	0.00E+00	0.00E+00

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
In Review	Public	ABBG-00340-V03.01-EN	0	en	18/26

DISTRIBUTION STAGE – Low steel weight products, High steel weight products, No steel weight products		
	a	b
GWP-total	2.39E-01	-3.15E-12
GWP-fossil	2.38E-01	-3.15E-12
GWP-biogenic	8.79E-05	-1.16E-15
GWP-luluc	1.19E-04	-1.57E-15
ODP	3.93E-09	-5.19E-20
AP	1.05E-03	-1.38E-14
EP-freshwater	1.94E-05	-2.56E-16
EP-marine	3.83E-04	-5.06E-15
EP-terrestrial	4.09E-03	-5.41E-14
POCP	1.47E-03	-1.95E-14
ADPE	6.48E-07	-8.56E-18
ADPF	3.49E+00	-4.61E-11
WDP	1.78E-02	-2.35E-13
PERT+PENRT	3.54E+00	-4.67E-11
PERE	4.42E-02	-5.84E-13
PERM	0.00E+00	0.00E+00
PERT	4.42E-02	-5.84E-13
PENRE	3.49E+00	-4.61E-11
PENRM	0.00E+00	0.00E+00
PENRT	3.49E+00	-4.61E-11
SM	0.00E+00	0.00E+00
RSF	0.00E+00	0.00E+00
NRSF	0.00E+00	0.00E+00
FW	5.57E-04	-7.36E-15
HWD	2.20E-05	-2.91E-16
NHWD	3.04E-01	-4.02E-12
RWD	7.62E-07	-1.01E-17
CRU	0.00E+00	0.00E+00
MFR	0.00E+00	0.00E+00
MER	0.00E+00	0.00E+00
EE	0.00E+00	0.00E+00
PM	2.45E-08	-3.24E-19
IRP	3.20E-03	-4.23E-14
ETP-fw	1.85E+00	-2.44E-11
HTP-c	1.04E-10	-1.37E-21
HTP-nc	2.54E-09	-3.36E-20
SQP	3.54E+00	-4.67E-11
Biogenic C content_packaging	0.00E+00	0.00E+00
Biogenic C content_product	0.00E+00	0.00E+00

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
In Review	Public	ABBG-00340-V03.01-EN	0	en	19/26

INSTALLATION STAGE Low steel weight products, High steel weight products, No steel weight products		
	a	b
GWP-total	1.67E+00	-4.66E-05
GWP-fossil	8.03E-02	-2.72E-05
GWP-biogenic	1.59E+00	-1.95E-05
GWP-luluc	1.64E-05	4.09E-09
ODP	1.01E-09	6.77E-13
AP	2.94E-04	7.35E-08
EP-freshwater	7.16E-06	-1.32E-09
EP-marine	1.41E-04	3.75E-08
EP-terrestrial	1.34E-03	2.72E-07
POCP	3.71E-04	7.05E-08
ADPE	1.02E-07	2.29E-11
ADPF	4.40E-01	6.44E-05
WDP	1.58E-02	2.12E-05
PERT+PENRT	4.49E-01	6.84E-05
PERE	9.20E-03	3.96E-06
PERM	0.00E+00	0.00E+00
PERT	9.20E-03	3.96E-06
PENRE	4.40E-01	6.44E-05
PENRM	0.00E+00	0.00E+00
PENRT	4.40E-01	6.44E-05
SM	0.00E+00	0.00E+00
RSF	0.00E+00	0.00E+00
NRSF	0.00E+00	0.00E+00
FW	5.67E-04	6.98E-07
HWD	2.62E-06	3.44E-10
NHWD	2.97E-02	9.59E-06
RWD	1.28E-07	5.44E-11
CRU	0.00E+00	0.00E+00
MFR	0.00E+00	0.00E+00
MER	0.00E+00	0.00E+00
EE	0.00E+00	0.00E+00
PM	3.53E-09	3.53E-13
IRP	5.21E-04	2.12E-07
ETP-fw	9.27E-01	1.02E-03
HTP-c	6.99E-11	3.15E-14
HTP-nc	2.77E-09	9.39E-13
SQP	2.12E-01	2.75E-05
Biogenic C content_packaging	0.00E+00	0.00E+00
Biogenic C content_product	0.00E+00	0.00E+00

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
In Review	Public	ABBG-00340-V03.01-EN	0	en	20/26

END OF LIFE STAGE – Low steel weight products			
	a	b	c
GWP-total	1.61E-01	2.88E+00	4.04E-02
GWP-fossil	-8.69E-01	3.37E+00	2.53E-02
GWP-biogenic	1.04E+00	-4.92E-01	1.51E-02
GWP-luluc	-7.69E-03	4.97E-03	-2.16E-05
ODP	-1.08E-07	1.09E-06	1.23E-09
AP	-9.51E-03	1.56E-02	1.27E-04
EP-freshwater	1.18E-04	9.36E-04	6.21E-06
EP-marine	-1.70E-03	3.49E-03	1.22E-05
EP-terrestrial	-1.13E-02	3.46E-02	1.69E-04
POCP	5.71E-04	1.28E-02	6.94E-05
ADPE	-6.57E-05	2.80E-05	6.38E-07
ADPF	-2.85E+01	6.87E+01	4.12E-01
WDP	-1.16E+00	4.55E-01	1.13E-02
PERT+PENRT	-5.00E+01	8.80E+01	2.14E-01
PERE	-9.19E+00	1.33E+01	-3.00E-02
PERM	-1.23E+01	5.97E+00	-1.68E-01
PERT	-2.15E+01	1.93E+01	-1.98E-01
PENRE	-2.09E+01	4.65E+01	3.39E-01
PENRM	-7.54E+00	2.22E+01	7.30E-02
PENRT	-2.85E+01	6.87E+01	4.12E-01
SM	-4.65E-01	1.53E-01	-3.95E-03
RSF	0.00E+00	0.00E+00	0.00E+00
NRSF	0.00E+00	0.00E+00	0.00E+00
FW	-3.01E-02	4.32E-03	2.96E-04
HWD	2.18E-04	1.76E-04	2.53E-07
NHWD	-1.82E+00	5.24E-01	2.02E-02
RWD	-5.08E-05	4.86E-05	4.01E-07
CRU	0.00E+00	0.00E+00	0.00E+00
MFR	2.29E-04	1.03E-01	-8.96E-04
MER	0.00E+00	0.00E+00	0.00E+00
EE	7.47E-03	9.93E-03	3.19E-05
PM	-5.78E-08	1.87E-07	9.42E-10
IRP	-2.05E-01	1.92E-01	1.58E-03
ETP-fw	-7.86E+01	1.90E+01	9.32E-01
HTP-c	4.25E-09	2.58E-09	1.09E-10
HTP-nc	-6.31E-08	4.40E-08	4.84E-10
SQP	-1.18E+02	7.88E+01	-1.72E+00
Biogenic C content_packaging	-4.05E-01	1.95E-01	-5.50E-03
Biogenic C content_product	0.00E+00	0.00E+00	0.00E+00

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
In Review	Public	ABBG-00340-V03.01-EN	0	en	21/26

END OF LIFE STAGE – High steel weight products		
	a	b
GWP-total	1.63E+00	-7.04E-02
GWP-fossil	1.62E+00	-7.07E-02
GWP-biogenic	5.82E-03	3.38E-04
GWP-luluc	2.16E-04	-8.36E-06
ODP	3.15E-08	-1.38E-09
AP	1.27E-03	-4.99E-05
EP-freshwater	7.37E-05	-2.61E-06
EP-marine	3.88E-04	-1.49E-05
EP-terrestrial	3.60E-03	-1.35E-04
POCP	1.15E-03	-4.23E-05
ADPE	1.21E-06	-4.99E-08
ADPF	2.82E+00	-1.05E-01
WDP	2.23E+00	-9.87E-02
PERT+PENRT	3.07E+00	-1.15E-01
PERE	2.41E-01	-1.04E-02
PERM	0.00E+00	0.00E+00
PERT	2.41E-01	-1.04E-02
PENRE	2.82E+00	-1.05E-01
PENRM	0.00E+00	0.00E+00
PENRT	2.82E+00	-1.05E-01
SM	0.00E+00	0.00E+00
RSF	0.00E+00	0.00E+00
NRSF	0.00E+00	0.00E+00
FW	6.84E-02	-3.03E-03
HWD	1.34E-05	-4.70E-07
NHWD	4.50E-01	-1.90E-02
RWD	2.91E-06	-1.24E-07
CRU	0.00E+00	0.00E+00
MFR	0.00E+00	0.00E+00
MER	0.00E+00	0.00E+00
EE	0.00E+00	0.00E+00
PM	1.22E-08	-3.52E-10
IRP	1.14E-02	-4.88E-04
ETP-fw	8.50E+01	-3.76E+00
HTP-c	3.25E-10	-1.26E-11
HTP-nc	1.03E-08	-4.42E-10
SQP	1.50E+00	-4.82E-02
Biogenic C content_packaging	0.00E+00	0.00E+00
Biogenic C content_product	0.00E+00	0.00E+00

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
In Review	Public	ABBG-00340-V03.01-EN	0	en	22/26

END OF LIFE STAGE – No steel weight products		
	a	b
GWP-total	2.14E+00	1.53E-16
GWP-fossil	2.13E+00	-8.33E-17
GWP-biogenic	3.36E-03	7.30E-17
GWP-luluc	2.77E-04	5.25E-20
ODP	4.15E-08	8.27E-24
AP	1.63E-03	8.81E-20
EP-freshwater	9.26E-05	1.69E-21
EP-marine	4.96E-04	1.49E-19
EP-terrestrial	4.58E-03	-1.62E-16
POCP	1.46E-03	7.45E-20
ADPE	1.58E-06	8.60E-23
ADPF	3.59E+00	5.69E-16
WDP	2.94E+00	-1.39E-16
PERT+PENRT	3.90E+00	-6.66E-16
PERE	3.16E-01	-1.91E-16
PERM	0.00E+00	0.00E+00
PERT	3.16E-01	-1.91E-16
PENRE	3.59E+00	5.27E-16
PENRM	0.00E+00	0.00E+00
PENRT	3.59E+00	5.27E-16
SM	0.00E+00	0.00E+00
RSF	0.00E+00	0.00E+00
NRSF	0.00E+00	0.00E+00
FW	9.04E-02	-1.08E-16
HWD	1.68E-05	-1.27E-21
NHWD	5.87E-01	8.33E-17
RWD	3.81E-06	-6.09E-22
CRU	0.00E+00	0.00E+00
MFR	0.00E+00	0.00E+00
MER	0.00E+00	0.00E+00
EE	0.00E+00	0.00E+00
PM	1.48E-08	2.07E-25
IRP	1.50E-02	1.68E-17
ETP-fw	1.12E+02	1.24E-14
HTP-c	4.17E-10	-4.85E-26
HTP-nc	1.35E-08	-1.14E-24
SQP	1.85E+00	1.67E-16
Biogenic C content_packaging	0.00E+00	0.00E+00
Biogenic C content_product	0.00E+00	0.00E+00

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
In Review	Public	ABBG-00340-V03.01-EN	0	en	23/26

PVC Outlet Box with Hanger	MANUFACTURING STAGE	DISTRIBUTION STAGE	INSTALLATION STAGE	END OF LIFE STAGE
	a	a	a	a
GWP-total	6.67E+00	4.16E+00	7.56E+00	2.72E+00
GWP-fossil	6.61E+00	4.16E+00	7.31E+00	2.71E+00
GWP-biogenic	5.44E+00	4.16E+00	7.57E+00	5.59E+00
GWP-luluc	7.50E+00	4.16E+00	7.64E+00	2.81E+00
ODP	3.45E+00	4.16E+00	7.89E+00	2.71E+00
AP	1.76E+01	4.16E+00	7.66E+00	2.80E+00
EP-freshwater	7.45E+00	4.16E+00	7.35E+00	2.88E+00
EP-marine	8.50E+00	4.16E+00	7.66E+00	2.82E+00
EP-terrestrial	2.77E+01	4.16E+00	7.64E+00	2.84E+00
POCP	6.76E+00	4.16E+00	7.63E+00	2.85E+00
ADPE	1.64E+01	4.16E+00	7.65E+00	2.76E+00
ADPF	5.26E+00	4.16E+00	7.61E+00	2.85E+00
WDP	1.11E+01	4.16E+00	8.21E+00	2.70E+00
PERT+PENRT	5.38E+00	4.16E+00	7.62E+00	2.84E+00
PERE	5.88E+00	4.16E+00	7.76E+00	2.72E+00
PERM	6.48E+00	1.00E+00	1.00E+00	1.00E+00
PERT	5.97E+00	4.16E+00	7.76E+00	2.72E+00
PENRE	6.15E+00	4.16E+00	7.61E+00	2.85E+00
PENRM	3.28E+00	1.00E+00	1.00E+00	1.00E+00
PENRT	5.26E+00	4.16E+00	7.61E+00	2.85E+00
SM	8.55E+00	1.00E+00	1.00E+00	1.00E+00
RSF	1.00E+00	1.00E+00	1.00E+00	1.00E+00
NRSF	1.00E+00	1.00E+00	1.00E+00	1.00E+00
FW	2.70E+01	4.16E+00	8.17E+00	2.70E+00
HWD	9.64E+00	4.16E+00	7.56E+00	2.89E+00
NHWD	1.89E+01	4.16E+00	7.57E+00	2.74E+00
RWD	7.05E+00	4.16E+00	7.76E+00	2.73E+00
CRU	1.00E+00	1.00E+00	1.00E+00	1.00E+00
MFR	9.99E+00	1.00E+00	1.00E+00	1.00E+00
MER	1.00E+00	1.00E+00	1.00E+00	1.00E+00
EE	3.72E+00	1.00E+00	1.00E+00	1.00E+00
PM	1.65E+01	4.16E+00	7.60E+00	3.02E+00
IRP	7.15E+00	4.16E+00	7.75E+00	2.73E+00
ETP-fw	9.24E+00	4.16E+00	8.11E+00	2.70E+00
HTP-c	1.60E+01	4.16E+00	7.71E+00	2.81E+00
HTP-nc	9.59E+00	4.16E+00	7.67E+00	2.72E+00
SQP	6.27E+00	4.16E+00	7.57E+00	2.95E+00
Biogenic C content_packaging	6.54E+00	1.00E+00	1.00E+00	1.00E+00
Biogenic C content_product	1.00E+00	1.00E+00	1.00E+00	1.00E+00

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
In Review	Public	ABBG-00340-V03.01-EN	0	en	24/26

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

Carlton® Carlton Blue™ PVC boxes are listed to UL514C and are listed for masonry walls. PVC boxes are UL Classified for two-hour fire wall and/or fire ceiling and meet NEMA OS-2. They are permissible for use with 90°C conductors and are published in UL File E11461 and R9140.

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.

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
In Review	Public	ABBG-00340-V03.01-EN	0	en	25/26

Registration number: ABBG-00340-V03.01-EN	Drafting Rules: PCR-ed4-EN-2021 09 06
	Supplemented by: PSR-0003-ed2.1-EN-2023 12 08
Verifier accreditation number: VH44	Information and reference documents: www.pep-ecopassport.org
Date of issue: 12-2024	Validity period: 5 years
Independent verification of the declaration and data, in compliance with ISO 14025: 2006	
Internal: <input type="radio"/>	External: <input checked="" type="radio"/>
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"	
	

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00340-V03.01-EN	1	en	26/26