Environmental Product Declaration

THE INTERNATIONAL EPD® SYSTEM

ECO PLATFORM EPD VERIFIED

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

Polyethylene Wood-Like Foam Board

from

NINGBO HELONG NEW MATERIAL CO., LTD

YARDCOM

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
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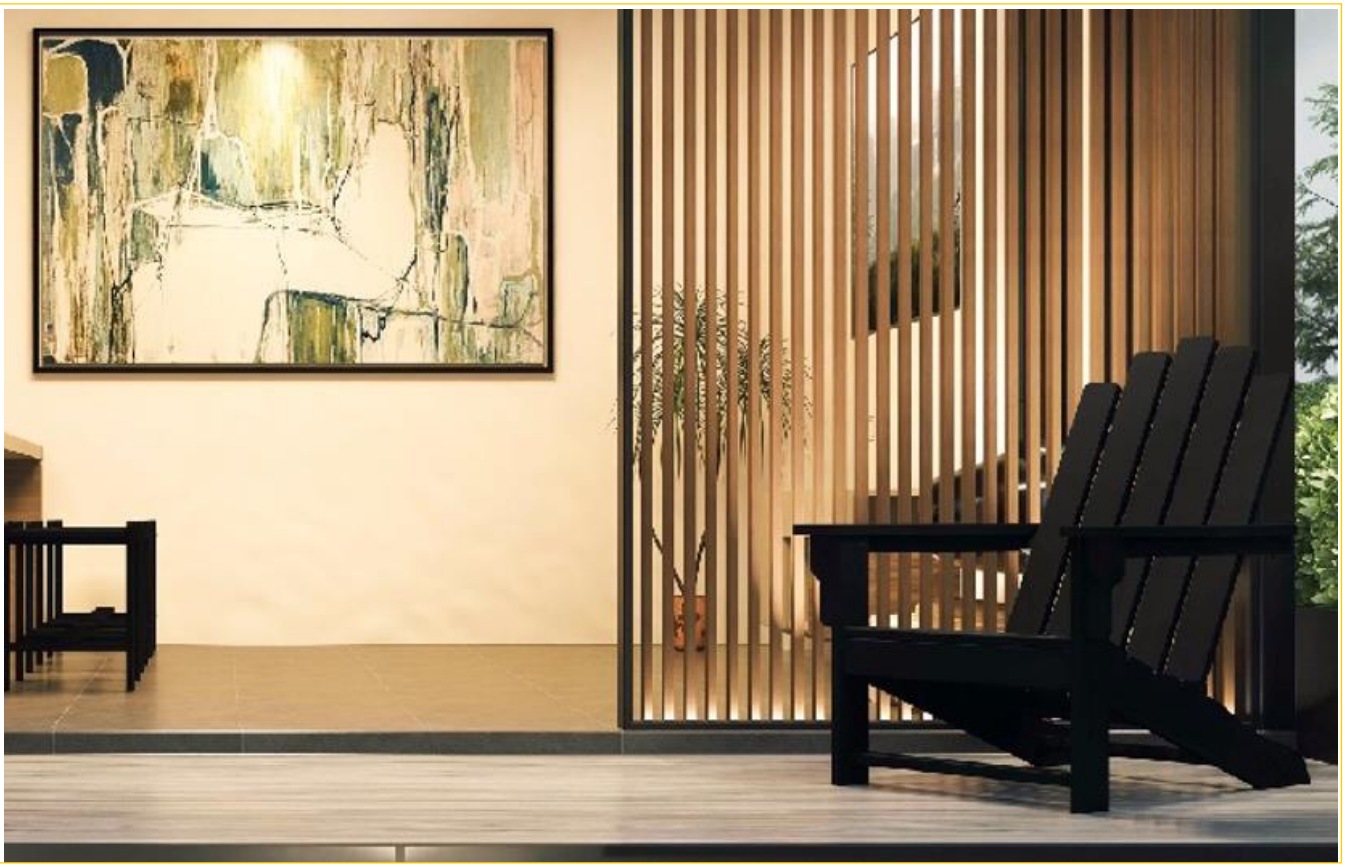
An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com



General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
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Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): PCR 2019:14 Construction products Version 1.3.4 [valid until: 2025-06-20]
PCR review was conducted by: The Technical Committee of the International EPD System. The review panel may be contacted via info@environdec.com.
Life Cycle Assessment (LCA)
LCA accountability: Sijia YANG from IVL Swedish Environmental Research Institute and Shuhan HUANG from IVL Environmental Technologies (Beijing) Company Ltd.
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:
☒ EPD verification by individual verifier Third-party verifier: Matthew Fishwick from Fishwick Environmental Ltd.      Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No [Procedure for follow-up the validity of the EPD is at minimum required once a year with the aim of confirming whether the information in the EPD remains valid or if the EPD needs to be updated during its validity period. The follow-up can be organized entirely by the EPD owner or together with the original verifier via an agreement between the two parties. In both approaches, the EPD owner is responsible for the procedure being carried out. If a change that requires an update is identified, the EPD shall be re-verified by a verifier]

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs;

cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

It is discouraged to use of the results of modules A1-A3 without considering the results of module C.

Company information

Owner of the EPD: NINGBO HELONG NEW MATERIAL CO., LTD

Contact: Yun ZHOU (+86 138 5832 8002)

Website: yardcom.net

Description of the organisation:

Ningbo Helong New Materials Co., Ltd. was established in May 2011. It is a green and high-tech enterprise specialising in the research and development of plastic wood decking, plastic wood siding, plastic wood decorative materials and landscape materials.

The first phase of the factory covers an area of more than 100 acres, with nearly 30 high-strength quality plastic wood composite material production lines, and the current annual capacity of 50,000 tons. The company adheres "He" culture as the core, always putting people first, being humble, innovative quality, restoring nature, and benefiting mankind for the mission, focus on the creation of quality new wood materials. Building a new economy of circular ecology. The new generation of high-quality wood-plastic decking, wood-plastic wallboard, wood-plastic gallery frames, wood-plastic fences, wood-plastic flower boxes and other products developed by the company, embodies the core technology of Helong people's ingenuity and innovation for many years, and completes the revolutionary reshaping and upgrading of wood-plastic composite new materials. More than a dozen performance test indicators in the industry are internationally advanced, defining the next generation of high-quality wood-plastic standards. At the same time, the wood-plastic landscape of Helong all over the world has become a new natural landmark of many public scenic spots. The company's innovative research and development of high-end co-extruded wood plastic products with double-sided matte imitation wood effect is the world's first, has been widely recognised in the world, and sold in more than 30 countries. The product has been able to compete with the United States of the world's top brand similar products and some of the core indicators are world's leading. After years of research and development, through advanced unique technology, the production of products with high strength and hardness can replace the use of preserved wood and natural wood.

Product-related or management system-related certifications:

For products:

The product follows the standards and/or certificates of GB/T 24508-2020 "Wood-plastic composite flooring", EN 15534-1:2014+A1 "2017 Composites made from cellulose-based materials and thermoplastics (usually called wood-polymer composites (WPC) or natural fibre composites (NFC) Part 1: "Test methods for characterisation of compounds and products", GB/T 35612-2017 "Green product assessment. Wood plastic composites products", and ASTM F 1838-19 "Standard Performance Requirements for Adult and Children's Plastic Chairs for Outdoor Use".

For management system:

Helong company has the management system-related certifications including ISO 9001 - Quality Management System, ISO 14001 – Environmental Management System, ISO 45001 - Occupational Health and Safety Management Systems, Chain of Custody Certification of Forest Stewardship Council, Global Recycled Standard, WWF Low Carbon Manufacturing Programme.

Name and location of production site:

The address of the production plant is West Three Farmland Road No.218, Zhouxiang Town, Cixi City, Zhejiang Province, PRC China.

Product information

Product name:

Polyethylene Wood-Like Foam Board

Product description:

The product is made of marine plastic waste, household waste plastics and other recycled plastics as the main raw materials. The core layer adopts microcellular foaming technology with a variety of recycled polyolefin mixing system, the outer surface layer is made of modified HDPE as the main material, and the products are extruded through the integration of co-extruding technology, and the products have the characteristics of surface aging-resistance, anti-bacteria, anti-mould, and high bonding strength. The surface of the product adopts the original imitation wood colour mixing technology and surface wood texture processing technology, which makes the product present the effect of high simulation natural wood texture. The products are mainly used in construction, furniture, packaging, art and other fields, the main features of the products are stable structure, lightweight and high strength, high internal bonding strength, strong nail holding power, can be a variety of handmade art processing, carving. The main material of the product, HDPE recycled plastic, has a durability of not less than 25 years, and can be recycled and crushed for 100% secondary use at the end of the product life cycle. The density of the product is 0.80 g/cm^3. The performance of the product is shown in the table below.

Table 1. Product performance of the Polyethylene Wood-Like Foam Board product

Test Item	Test Standard	Test Result
Linear Thermal Expansion Coefficient	EN 15534-1:2014	123.5· 10^{-6} K^{-1}
UV Aging (2000 hours)	ISO 4892-2:2013	ΔE: 1.92 Grey scale: 4
Soluble 8 heavy metals (Pb,Cd, Hg,Cr,Sb, As, Se, Ba)	ASTM F963-17	Not detected
Formaldehyde	EN 717-1：2004	Not detected
RoHS (Cd, Pb, Hg, Cr6+, PBBs, PBDEs, DEHP, BBP, DBP, DIBP)	RoHS	Not detected
REACH Regulation (SVHC)	REACH	Not detected
Colour fastness to rubbing	ISO 105-X12	Dry: Grade 4 Wet: Grade 4

UN CPC code:

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Geographical scope:

Modules A1-A3 represent production of the products in China. Module A4 and A5 represent the shipping and construction from China to all over the world. Module B, C, and D represent the use and end-of-life treatment with benefits out of the system boundary of the products worldwide.

LCA information

Declared unit:

1 tonne of the studied product

Reference service life:

25 years

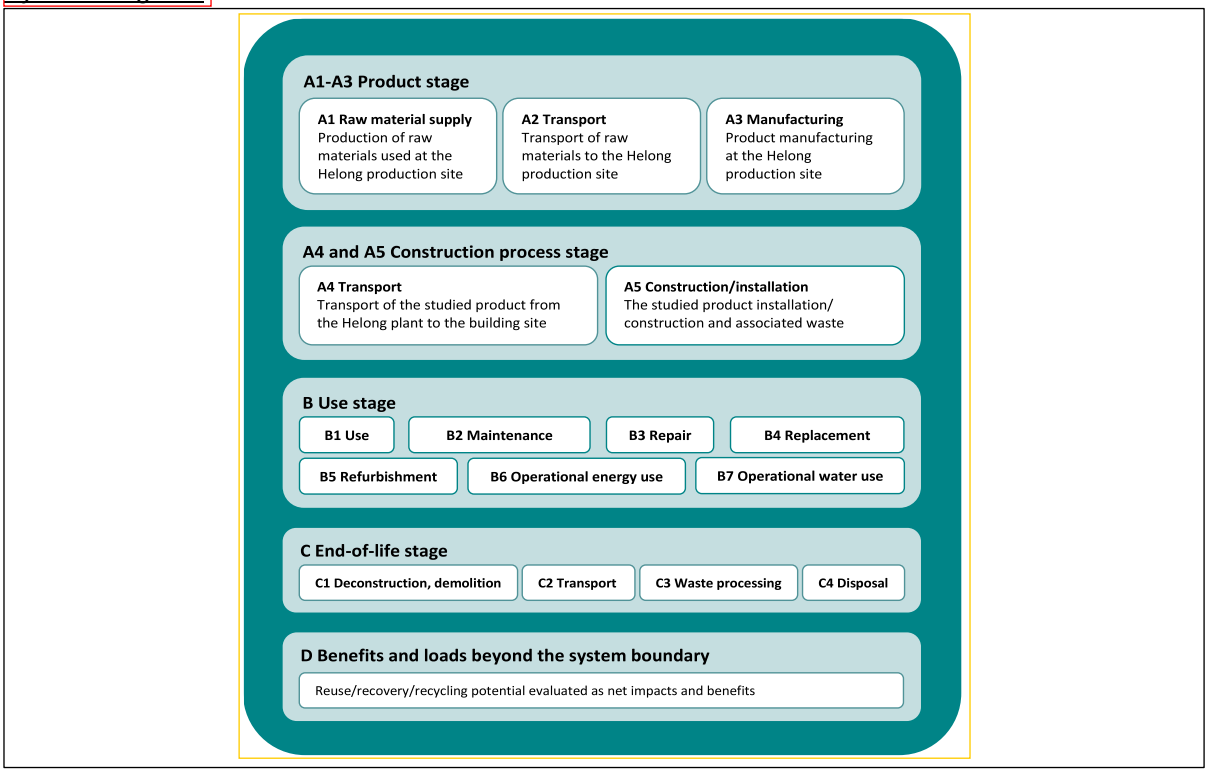
Time representativeness:

2023 (January to December).

Database(s) and LCA software used:
Managed LCA Content 2023.2 Databases and ecoinvent 3.9.1 (cut-off), LCA for Experts (Gabi)

Description of system boundaries:
The scope of the EPD generated corresponds to “cradle to gate with options” which serves type (b) EPD, assessing the potential environmental impacts associated with the studied product. The information module included in the study is A1-A3, A4-A5, B1-B7, C1-C4, and D, no processes are omitted or excluded in this study.

System diagram:



Manufacturing processes:
As the manufacturing process is important to understand the whole studied system, the description of the main manufacturing processes for producing the studied product is explained as below. A flow chart of product manufacturing is shown below.

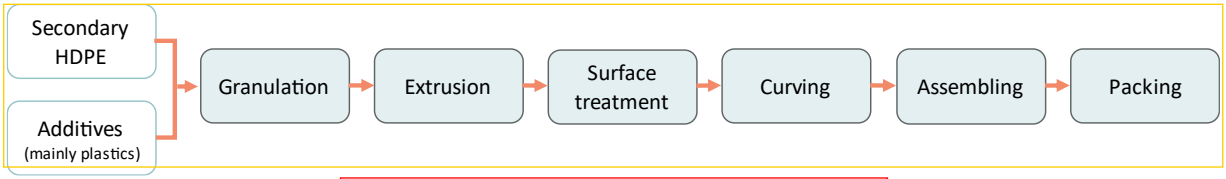


Figure 1 The main production process of studied product.

Polyethylene wood-like foam board product is made of secondary HDPE plastic as the main raw material, and then add foaming agent, conditioning agent and other additives, and then made into all kinds of specifications of foam profiles through the process of granulation and extrusion.

The GWP-GHG of electricity mix for Zhejiang province in this study is 0.807 kg CO_2 eq./kWh. Note that the Guarantees of Origin market in China represents an extremely small proportion of production and consumption, and therefore the consumption mix is effectively the same as the residual mix.

Table 2. Electricity structure of the Zhejiang province and the dataset chosen for it

Electricity generation sources	Dataset used in the model	GWP-GHG (CO_2 eq./kWh)	Percentage in Zhejiang province
Electricity from fossil fuel(1)	CN: Electricity from hard coal Sphera	1.11	72.23%
Electricity from hydro power	CN: Electricity from hydro powe	0.00745	5.63%
Electricity from nuclear power	CN: Electricity from nuclear power Sphera	0.00446	17.32%
Electricity from wind power	CN: Electricity from wind power Sphera	0.0171	1.16%
Electricity from photovoltaic	CN: Electricity from photovoltaic Sphera	0.0288	3.67%

(1) In the 2022 China Electricity Yearbook, the percentage of electricity from fossil fuel for each province is not specified. A brief description of electricity from fossil fuel for the whole country is given in the yearbook, i.e. it covers coal, gas, oil, biomass, and a small amount of unidentified sources for generating electricity. Based on the information in the yearbook, i.e., electricity from hard coal accounts for more than 80% of the thermal power generation types, and considering that China is a country where coal-fired power generation is the main source of thermal power generation, the LCA practitioner (IVL) decide to use electricity from hard coal as 100% of the dataset selection for electricity from fossil fuel in this study for modelling.

More information:

Scenarios and additional technical information:

- The product is manufactured in China, and the waste treatment of the waste generated during the manufacturing process was included in the system boundary.
- The product is sent to and used globally. For the A4 module, the longest shipping distance is applied for the model as the conservative consideration, which is selling to the United States. The specific data of the longest transportation information from the manufacturing plants to the overseas selling destination is collected by the client, which is the specific data.
- With regard to module A5, during the construction stage, the product requires some screws, which are included in the study. The energy consumption of the construction, i.e., electricity, is included in the study. Besides, according to the information provided by the client, the packaging of the studied products is assumed to become to waste in this stage and is treated to end-of-life stage.
- In module B, the product in this study do not generate emissions and consume energy and water during the whole use phase, so the use phase environmental impact is deemed to be zero.
- The modelling of module C1 is assumed that the consumption of additional materials and energy used in the deconstruction stage for installation is zero. The 76% of the rest of the waste product would be sent to C4 for disposal, and 24% to energy recovery according to the data from the United States Environmental Protection Agency, which is based on A4 scenario setting. For module C2, conservative assumptions have been made that the waste product would be transported for 500 km by truck. For the waste processing module C3, disposal module C4, and module D (benefits and loads beyond the system boundary), the generic data has been applied.
- Regarding the module D calculation, since the product has post-consumer materials as the raw material, all post-consumer materials are substrated from output flows in the calculation of the benefit to avoid the double counting of the benefit. Meanwhile, this study does not consider the co-product allocation in this project, so there is no co-product allocation issue for the module D calculation.

Allocation:

Allocation rules for co-products are mentioned in the PCR. In this study, there are no co-products produced. No co-product allocation has been applied in this study i.e. all burdens are allocated to the final studied product. For the allocation of waste, module D calculation, and scarp, this study strictly follows the PCR.

For the post-consumer materials (secondary polymer), they are bought from the third parties and the environmental burden from the waste material of last life cycle to the ready-to-use secondary material is considered. In the end-of-life stage, the environmental impacts of the entire waste product are considered (including the scarp contained therein), e.g., in the case of incineration, the environmental impacts of all materials burned are considered. For the calculation of Module D, it only considered environmental benefits from primary materials contained in the product, not calculated benefits from the post-consumer material part.

Cut-off rules:

The cut-off criteria established by the PCR is that data for elementary flows to and from the product system contributing to a minimum of 95% of the declared environmental impacts shall be included (not including processes that are explicitly outside the system boundary).

This study strictly follows the cut-off rule. Raw materials with high environmental impacts were reserved in calculation even though their mass is smaller than 5% of the whole product. The cut-off rule is only applied on auxiliary materials of the studied product. The total amount of cut-off materials in the product system is fully below 1% and no high emission material is used for those materials. Besides, the transportation of A3 manufacturing waste which are sent third-party for treatment is cut-off. The sensitivity analysis is applied on the cut-off part to ensure the environmental impact of the cut-off part is below 5%.

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Geography	CN	CN	CN	CN to GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO
Specific data used	53.08%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	0%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%					-	-	-	-	-	-	-	-	-	-	-	-

(1) Modules included in the EPD (X) and the modules not declared (ND).

Content information

Product components	Weight, kg	Post-consumer material, weight-% of total product	Biogenic material, kg C/product
Secondary HDPE	953.00	95.30%	0.00
Primary polymer	30.00	0.00%	0.00
Foaming agent	12.00	0.00%	0.00
Conditioning agent	5.00	0.00%	0.00
TOTAL	1000.00	95.30%	0.00
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C/product**
PET package	4.80	0.48%	0.00
Paper package	1.70	0.17%	0.04
PE package (LDPE)	18.00	1.80%	0.00
Corrugated cardboard box	100.00	10.00%	17.78
TOTAL	124.50	12.45%	17.82

At the time of data collection, no substance included in the Candidate List of Substances of Very High Concern (SVHC) for authorization under the REACH Regulations is present in the products covered by this LCA and EPD either above the threshold for registration with the European Chemicals Agency or above 0.1% (wt/wt).

Depending on the PCR, in general, the production and end-of-life processes of infrastructure or capital goods used in the product system should be excluded, unless there is evidence that they are relevant in terms of their environmental impact, or when a generic LCI dataset includes infrastructure/capital goods, and it is not possible, within reasonable effort, to subtract the data on infrastructure/capital goods from this dataset (directly citation from section 4.3.2 of PCR 1.3.4). In this study, the infrastructure and capital goods are not included in the LCA analysis since they are used plenty of times for several years for the product manufacturing. According to the PCR, it should be excluded.

All results in this LCA analysis are calculated by the EN 15804+A2. The “EN 15804 reference package” is calculated based on EF 3.1.

Results of the environmental performance indicators

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

All results are calculated on the declared unit, which is 1 tonne of studied product in this study.

Mandatory impact category indicators according to EN 15804

Results per tonne of Polyethylene Wood-Like Foam Board

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-fossil	kg CO_2 eq.	2.67E+03	2.41E+02	1.34E+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	4.12E+01	6.09E+02	5.18E+01	-7.17E+00
GWP-biogenic	kg CO_2 eq.	-6.08E+01	8.44E-02	1.41E+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	1.57E-02	2.08E-02	7.50E-01	1.40E-02
GWP-luluc	kg CO_2 eq.	1.77E+00	1.59E-02	2.77E-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	4.81E-02	1.01E-02	4.28E-02	-1.77E-03
GWP-total	kg CO_2 eq.	2.61E+03	2.41E+02	2.74E+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	4.13E+01	6.09E+02	5.12E+01	-7.16E+00
ODP	kg CFC 11 eq.	3.68E-06	8.39E-12	2.61E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.18E-12	1.19E-10	8.74E-11	-3.43E-11
AP	mol H^+ eq.	1.59E+01	4.52E+00	2.66E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.97E-02	7.59E-02	1.56E-01	-2.36E-02
EP-freshwater	kg P eq.	8.77E-02	7.09E-05	1.34E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.08E-04	3.19E-05	1.00E-02	-6.33E-05
EP-marine	kg N eq.	4.01E+00	1.91E+00	6.35E-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	1.68E-02	2.06E-02	3.57E-02	-6.19E-03
EP-terrestrial	mol N eq.	4.33E+01	2.09E+01	7.18E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.89E-01	3.48E-01	3.92E-01	-6.04E-02
POCP	kg NMVOC eq.	1.13E+01	5.19E+00	1.93E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.85E-02	5.91E-02	1.13E-01	-1.67E-02
ADP-minerals&metals*	kg Sb eq.	2.05E-03	1.98E-06	1.61E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.78E-06	1.06E-06	1.37E-06	-7.40E-07
ADP-fossil*	MJ	3.65E+04	3.14E+03	8.16E+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	5.55E+02	2.72E+02	7.76E+02	-1.21E+02
WDP*	m^3	6.35E+02	1.12E+00	2.65E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.47E+00	5.78E+01	-7.34E-01	-1.94E+00
Acronyms	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, 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 = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption															

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Additional mandatory and voluntary impact category indicators

Results per tonne of Polyethylene Wood-Like Foam Board																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	2.68E+03	2.41E+02	1.34E+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	4.13E+01	6.09E+02	5.19E+01	-7.17E+00

To be noted, the contribution of the GWP-GHG from post-consumer materials of the HDPE foam product is 34.87% in A1-A3 stage. In particular, The GWP-GHG of secondary HDPE is 0.654 kg CO_2 eq. per kg material. They are bought from the third parties and the environmental burden from the waste material of last life cycle to the ready-to-use secondary material is considered.

Resource use indicators

Results per tonne of Polyethylene Wood-Like Foam Board																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	6.31E+03	1.14E+01	1.59E+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	2.37E+01	6.53E+01	7.00E+01	-1.38E+02
PERM	MJ	1.31E+03	0.00E+00	-1.31E+03	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
PERT	MJ	7.62E+03	1.14E+01	-1.15E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.37E+01	6.53E+01	7.00E+01	-1.38E+02
PENRE	MJ	3.34E+04	3.15E+03	8.20E+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	5.95E+02	2.72E+02	7.76E+02	-1.21E+02
PENRM	MJ	6.35E+04	0.00E+00	-8.75E+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	0.00E+00	-1.53E+04	-4.74E+04	0.00E+00
PENRT	MJ	9.69E+04	3.15E+03	-5.42E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.95E+02	-1.50E+04	-4.66E+04	-1.21E+02
SM	kg	1.42E+03	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	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	1.56E+01	3.45E-02	7.16E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.13E-02	1.38E+00	7.66E-03	-5.88E-02
Acronyms	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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water															

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Waste indicators

Results per tonne of Polyethylene Wood-Like Foam Board															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	9.61E-07	1.59E-09	1.30E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.71E-09	2.16E-09	6.54E-08	1.37E-09
Non-hazardous waste disposed	kg	2.49E+02	1.21E-01	1.20E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.18E-02	5.53E+01	7.53E+02	-1.23E-01
Radioactive waste disposed	kg	1.51E+00	1.17E-03	2.17E-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	1.71E-03	9.74E-03	9.19E-03	-1.16E-02

Output flow indicators

Results per tonne of Polyethylene Wood-Like Foam Board																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.44E+02	0.00E+00	0.00E+00
Exported energy, electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E+03	0.00E+00	0.00E+00
Exported energy, thermal	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.98E+03	0.00E+00	0.00E+00

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