Type III Environmental Product Declaration No. 381/2022

Issuance date: 07.12.2022
Validity date: 07.12.2027

EGS MPB compact board

Owner of the EPD:
Kronospan HPL Sp. z o. o.
Address: Wojska Polskiego 3
39-300 Mielec, Poland
Tel.: +48 014 6709 510
Website: https://kronosfera.pl/
Contact: kontakt@kronosfera.pl

EPD Program Operator:
Instytut Techniki Budowlanej (ITB)
Address: Filtrowa 1
00-611 Warsaw, Poland
Website: www.itb.pl
Contact: energia@itb.pl

ITB is the verified member of The European Platform for EPD program operators and LCA practitioner www.eco-platform.org

Basic information

This declaration is the Type III Environmental Product Declaration (EPD) based on EN 15804 + A2 and verified according to ISO 14025 by an external auditor. It contains the information on the impacts of the declared construction materials on the environment and their aspects verified by the independent body according to ISO 14025. Basically, comparison or evaluation of EPD data is possible only if all the compared data were created according to EN 15804 + A2.

Life cycle analysis (LCA): A1-A3, C1-C4 and D modules in accordance with EN 15804 + A2 (Cradle-to-Gate with options)

The year of preparing the EPD: 2022

Product standard: PN-EN 438-6

Service Life: > 50 years

PCR: ITB-PCR A

Declared unit: 1 m^3

Reasons for performing LCA: B2B

Representativeness: Polish, European

MANUFACTURER

Kronospan is a producer of wood-based materials and products for the furniture industry made of certified, post-consumer and recycled wood. The company's offer includes a range of products that are widely used in construction, furniture and interior design.
It carries out production as part of sustainable development, using innovative technologies. In Poland, Kronospan has branches in Szczecinek, Mielec, Strzelce Opolskie, Pustków, Poznań, Rudawa, Szczecin and Rytel. It employs about 3,000 people, and indirectly creates jobs for about 18,000 people.
Kronospan EGS MPB compact boards are manufactured in Pustków. In 1996, Kronospan started its operations there. The factory was established on the basis of one of the then existing departments of the local company - the laminate production department. In 1996-2006, the company underwent a series of complex technological changes related to the production of laminates. As a result of these changes, a new production plant was established, which uses the latest technological, technical and product solutions in the production of decorative laminates, countertops, compact boards or facade panels.

Fig. 1. A view of Kronospan HPL Sp. z o. o. in Pustków (Poland).

PRODUCTS DESCRIPTION AND APPLICATION

Construction board for indoor and outdoor vertical usage. Typical areas of use: roof soffits, DIY applications outside and inside, interior wall coverings, dividing walls, bookcases, school and office furniture, furniture for pools, equipment of shops, approved for use in humid areas.

The MPB board belongs to the group of compact HPL boards according to EN 438-6, fire classification EGS. MPB is both side covered with a decorative melamine and phenolic layer.

Formats: 2800 x 1250 [mm], 3050 x 1250 [mm].

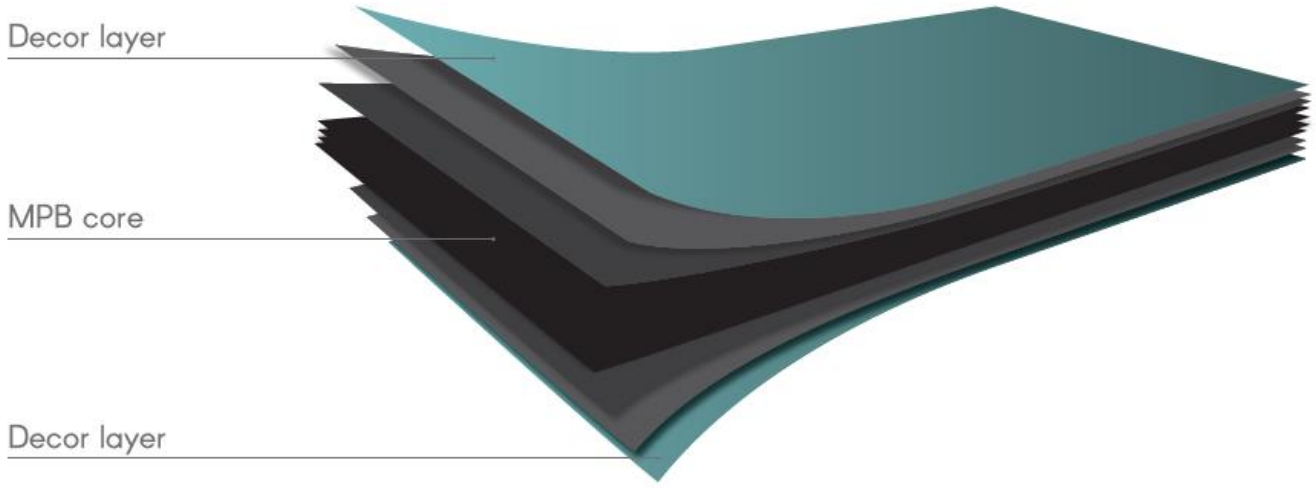

Figure 2. Construction of EGS MPB compact board

Table 1. Specification of EGS MPB compact board produced by Kronospan HPL Sp. z o. o.

Parameter	Unit	EGS MPB - declared performance	Standard
Thickness	mm	6.0 ± 0.40	EN 438-2.5
Legth	mm	+ 10 / - 0	EN 438-2.6
Width	mm	+ 10 / - 0	EN 438-2.6
Density	g/cm^3	≥ 1.35	EN ISO 1183-1
Flexural strength	MPa	> 80	EN ISO 178
Flexural modulus	MPa	> 9000	EN ISO 178
Dimension stability at elevated temperature	cumulative dimensional change (%)	0.30 (along) / 0.60 (across)	EN 438-2.17
Edges squareness	mm/m	≤ 1.5	EN 438-2.8

More information can be found on the Kronospan HPL Sp. z o. o. website: https://kronosfera.pl/.

LIFE CYCLE ASSESSMENT (LCA) – general rules applied

Declared Unit

The declaration refers to declared unit (DU) – 1 m^3 of EGS MPB compact board

Allocation

The allocation rules used for this EPD are based on general ITB-PCR A. EGS MPB compact board production is a line process in one factory located in Pustków (Poland). Allocation is done on product mass basis.

All impacts from raw materials extraction and processing are allocated in A1 module of EPD. Above 99.5% of impacts from line production were inventoried and allocated to the production of EGS MPB compact board. Municipal waste and waste water of whole factory were allocated to module A3. Energy supply was inventoried for whole production process. Emissions in Kronospan HPL Sp. z o. o. are calculated (energy combustion factors based) and were allocated to module A3. Packaging materials were taken into consideration.

System limits

The life cycle analysis (LCA) of the declared products covers product stage – modules A1-A3, end of life – modules C1-C4 and benefits and loads beyond the system boundary – module D (cradle-to-gate with options) in accordance with EN 15804 + A2 and ITB PCR A. The details of systems limits are provided in product technical report. All materials and energy consumption inventoried in factory were included in calculation. Office impacts were also taken into consideration. In the assessment, all significant parameters from gathered production data are considered, i.e. all material used per formulation, utilised thermal energy, internal fuel and electric power consumption, direct production waste, and all available emission measurements. It can be assumed that the total sum of omitted processes does not exceed 5% of all impact categories. In accordance with EN 15804 + A2, machines and facilities (capital goods) required for the production as well as transportation of employees were not included in LCA.

Modules A1 and A2: *Raw materials supply and transport*

Raw materials such as MDF core board, phenol, melamine, formalin, kraft and decor paper come from external suppliers. Data on transport of the different products to the manufacturing plants is collected and modelled for factory by assessor. Means of transport include small trucks (< 10 t), big truck (>16 t) are applied.

Module A3: *Production*

Fig. 3 shows the manufacturing process during the production of the EGS MPB compact board. The laminate manufacturing is basically a process including impregnation of kraft and decor paper, assembling with MDF core board, pressing, trimming and sanding. Then the EGS MPB compact board product is packaged and then stored prior to the shipment of the final product. The facility is PN-EN ISO 9001 certified.

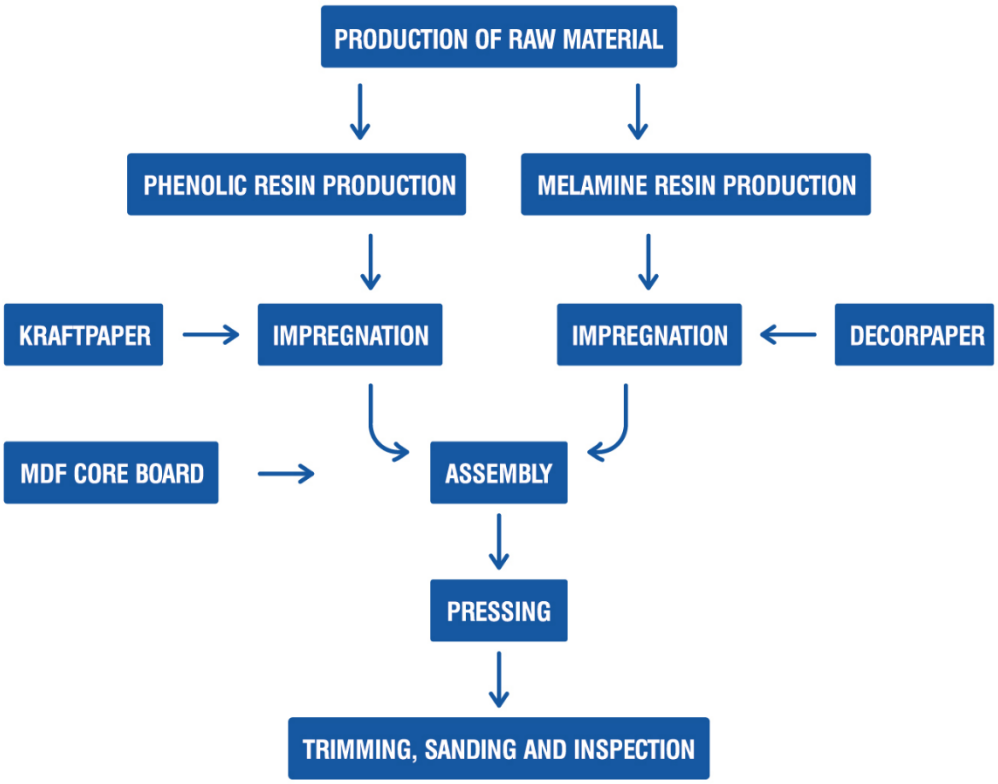

Fig. 3. A scheme of EGS MPB compact board production by Kronospan HPL Sp. z o. o. (Poland)

Modules C1-C4 and D: *End-of-life (EoL)*

In the adapted scenario, deconstruction of the EGS MPB compact board is performed with the use of electrical tools (module C1). The resulting waste is transported to a waste processing plant distant about 50 km, on 16-32 t lorry EURO 5 (module C2). It is assumed that at the EoL cycle 50% of the EGS MPB compact board are recovered in municipal incineration (module C3) while the second part goes to landfilling (50%) and it is stored in landfills (module C4). Module D presents credits resulting from the benefits from avoided thermal energy production (gas).

Data quality

The data selected for LCA originate from ITB-LCI questionnaires completed by Kronospan HPL Sp. z o. o. using the inventory data, ITB and Ecoinvent v. 3.8 databases. No specific data collected is older than five years and no generic datasets used are older than ten years. The representativeness, completeness, reliability, and consistency are judged as good. Polish electricity was calculated based on Ecoinvent v. 3.8. supplemented by actual national KOBiZE data.

Data collection period

Primary data provided by Kronospan HPL Sp. z o. o. covers a period of 01.01.2021 – 31.12.2021 (1 year). The life cycle assessments were prepared for Poland and Europe as reference area.

Assumptions and estimates

In order to estimate the impact on 1 m^2, the obtained values should be multiplied by 0.006 for board thicknesses of 6 mm. Impacts were inventoried and calculated for all products in EGS MPB compact board product group.

Calculation rules

LCA was performed using ITB-LCA tool developed in accordance with EN 15804 + A2.

Databases

The data for the processes comes from Ecoinvent v.3.8 and ITB-Database. Specific data quality analysis was a part of external audit. Polish electricity mix used (production) is 0.698 kg CO_2/kWh (KOBiZE 2021). European electricity mix used is 0.430 kg CO_2/kWh for the end of life (Ecoinvent v. 3.8, RER).

LIFE CYCLE ASSESSMENT (LCA) – Results

Declared unit

The declaration refers to declared unit (DU) – 1 m^3 of EGS MPB compact board manufactured by Kronospan HPL Sp. z o. o.

Table 2. System boundaries for the environmental characteristic EGS MPB compact board manufactured by Kronospan HPL Sp. z o. o.

Environmental assessment information (MD – Module Declared, MND – Module Not Declared, INA – Indicator Not Assessed)																
Product stage			Construction process		Use stage							End of life				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse-recovery-recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
MD	MD	MD	MND	MND	MND	MND	MND	MND	MND	MND	MND	MD	MD	MD	MD	MD

Table 3. LCA results of EGS MPB compact board manufactured by Kronospan HPL Sp. z o. o - environmental impacts (DU = 1m^3)

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Global Warming Potential	eq. kg CO_2	-9.76E+02	8.52E+01	2.12E+03	1.23E+03	4.77E-02	4.51E-03	7.86E-02	6.85E+01	-9.38E+02
Greenhouse gas potential - fossil	eq. kg CO_2	1.61E+03	8.49E+01	2.09E+03	3.78E+03	4.68E-02	4.49E-03	7.86E-02	6.84E+01	-9.38E+02
Greenhouse gas potential - biogenic	eq. kg CO_2	-2.59E+03	2.91E-01	2.24E+01	-2.57E+03	8.45E-04	1.53E-05	1.68E-05	4.78E-02	-9.16E-01
Global warming potential - land use and land use change	eq. kg CO_2	6.87E+00	3.34E-02	3.58E-01	7.26E+00	1.10E-05	1.76E-06	8.75E-06	6.67E-03	-3.68E-02
Stratospheric ozone depletion potential	eq. kg CFC 11	4.06E-05	1.96E-05	5.77E-05	1.18E-04	8.97E-10	1.04E-09	1.24E-09	1.90E-07	-1.47E-04
Soil and water acidification potential	eq. mol H+	9.93E+00	3.44E-01	1.43E+01	2.46E+01	4.96E-04	1.82E-05	4.28E-04	6.12E-02	-8.96E-01
Eutrophication potential - freshwater	eq. kg P	5.94E-01	5.72E-03	2.22E+00	2.82E+00	8.50E-05	3.02E-07	2.39E-06	1.20E-03	-1.17E-02
Eutrophication potential - seawater	eq. kg N	2.77E+00	1.04E-01	2.21E+00	5.08E+00	7.06E-05	5.50E-06	1.93E-04	1.45E+00	-2.58E-01
Eutrophication potential - terrestrial	eq. mol N	2.85E+01	1.13E+00	1.93E+01	4.89E+01	6.05E-04	6.00E-05	2.08E-03	2.35E-01	-2.76E+00
Potential for photochemical ozone synthesis	eq. kg NMVOC	1.02E+01	3.47E-01	6.33E+00	1.69E+01	1.70E-04	1.84E-05	6.61E-04	9.51E-02	-9.53E-01
Potential for depletion of abiotic resources - non-fossil resources	eq. kg Sb	9.53E-03	3.02E-04	2.28E-03	1.21E-02	6.76E-08	1.59E-08	2.73E-08	1.88E-05	-3.16E-04
Abiotic depletion potential - fossil fuels	MJ	2.87E+04	1.26E+03	3.23E+04	6.22E+04	7.64E-01	6.66E-02	1.03E+00	1.78E+02	-1.60E+04
Water deprivation potential	eq. m^3	1.39E+03	5.84E+00	4.31E+02	1.83E+03	1.55E-02	3.08E-04	2.54E-03	1.07E+00	-2.39E+01

Table 4. LCA results of EGS MPB compact board manufactured by Kronospan HPL Sp. z o. o.- additional impacts indicators (DU = 1 m^3)

Indicator	Unit	A1	A2	A3	A1-A3	C2	C3	C4	D
Particulate matter	disease incidence	INA	INA	INA	INA	INA	INA	INA	INA
Potential human exposure efficiency relative to U235	eg. kBq U235	INA	INA	INA	INA	INA	INA	INA	INA
Potential comparative toxic unit for ecosystems	CTUe	INA	INA	INA	INA	INA	INA	INA	INA
Potential comparative toxic unit for humans (cancer effects)	CTUh	INA	INA	INA	INA	INA	INA	INA	INA
Potential comparative toxic unit for humans (non-cancer effects)	CTUh	INA	INA	INA	INA	INA	INA	INA	INA
Potential soil quality index	dimensionless	INA	INA	INA	INA	INA	INA	INA	INA

Table 5. LCA results of EGS MPB compact board manufactured by Kronospan HPL Sp. z o. o - the resource use (DU = 1m^3)

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	1.06E+04	1.81E+01	1.48E+03	1.21E+04	5.54E-02	9.56E-04	5.79E-03	3.67E+00	-4.23E+01
Consumption of renewable primary energy resources used as raw materials	MJ	2.93E+04	0.00E+00	0.00E+00	2.93E+04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total consumption of renewable primary energy resources	MJ	2.46E+04	1.81E+01	1.48E+03	2.61E+04	5.54E-02	9.56E-04	5.79E-03	3.67E+00	-4.23E+01
Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	2.36E+04	1.26E+03	3.32E+04	5.81E+04	8.09E-01	6.66E-02	1.03E+00	-2.06E+04	-1.61E+04
Consumption of non-renewable primary energy resources used as raw materials	MJ	5.08E+03	0.00E+00	2.79E+02	5.36E+03	0.00E+00	0.00E+00	0.00E+00	2.08E+04	0.00E+00
Total consumption of non-renewable primary energy resources	MJ	1.14E+04	1.26E+03	3.35E+04	4.62E+04	8.09E-01	6.66E-02	1.03E+00	1.78E+02	-1.61E+04
Consumption of secondary materials	kg	1.01E+02	4.24E-01	3.56E+00	1.05E+02	6.17E-05	2.23E-05	4.22E-04	6.68E-02	-6.75E+02
Consumption of renewable secondary fuels	MJ	2.24E+03	4.68E-03	1.24E-02	2.24E+03	3.37E-07	2.46E-07	1.11E-06	2.28E-03	-1.09E-03
Consumption of non-renewable secondary fuels	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
Net consumption of freshwater resources	m^3	4.01E+01	1.59E-01	1.54E+01	5.56E+01	2.49E-04	8.38E-06	5.49E-05	1.76E-01	-6.18E-01

Table 6. LCA results of EGS MPB compact board manufactured by Kronospan HPL Sp. z o. o – waste categories (DU = 1m^3)

Indicator	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
Hazardous waste. neutralized	kg	6.10E+01	1.42E+00	2.69E+00	6.51E+01	1.58E-07	7.48E-05	4.73E-04	1.70E-01	-3.13E+00
Non-hazardous waste. neutralised	kg	2.38E+03	2.52E+01	2.01E+02	2.61E+03	4.51E-03	1.33E-03	9.42E-03	5.35E+00	-4.78E+01
Radioactive waste	kg	3.54E-02	8.67E-03	1.79E-02	6.19E-02	6.57E-07	4.59E-07	1.12E-07	6.74E-05	-2.26E-04
Components for re-use	kg	0.00E+00	0.00E+00	1.28E+00	1.28E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	1.42E+01	3.91E-03	3.83E+01	5.25E+01	4.64E-06	2.06E-07	3.24E-06	1.61E-03	-3.68E-03
Materials for energy recovery	kg	4.53E-01	3.16E-05	5.00E+02	5.00E+02	6.49E-09	1.67E-09	1.27E-08	6.13E-06	-5.52E-05
Energy exported	MJ	5.24E+01	1.40E+00	6.05E+01	1.14E+02	2.22E-03	7.39E-05	6.69E-05	3.46E-02	-5.33E+00

Verification

The process of verification of this EPD is in accordance with ISO 14025 and ISO 21930.
After verification, this EPD is valid for a 5-year-period. EPD does not have to be recalculated after 5 years, if the underlying data have not changed significantly.

The basis for LCA analysis was EN 15804 + A2 and ITB PCR A
Independent verification corresponding to ISO 14025 (subclause 8.1.3) [x] external [ ] internal
External verification of EPD: Halina Prejzner, PhD Eng LCA, LCI audit and input data verification: Mateusz Kozicki, PhD Verification of LCA: Michał Piasecki, PhD, D.Sc. Eng

Note: The declaration owner has the sole ownership, liability, and responsibility for the declaration. Declarations within the same product category but from different programmes may not be comparable. Declarations of construction products may not be comparable if they do not comply with EN 15804 + A2. For further information about comparability, see EN 15804 + A2 and ISO 14025. Depending on the application, a corresponding conversion factor such as the specific weight per surface area must be taken into consideration.

Normative references

- ITB PCR A General Product Category Rules for Construction Products
- EN 438-6:2016 High-pressure decorative laminates (HPL) - Thermosetting resin sheets (commonly called laminates) - Part 6: Classification and specifications of compact laminates for outdoor applications 2 mm thick and thicker
- ISO 178:2019 Plastics - Determination of flexural properties
- ISO 527-2:2012 Plastics - Determination of tensile properties - Part 2: Test conditions for moulding and extrusion plastics
- ISO 1183-1:2019 Plastics — Methods for determining the density of non-cellular plastics - Part 1: Immersion method, liquid pycnometer method and titration method
- ISO 14025:2006, Environmental labels and declarations – Type III environmental declarations – Principles and procedures
- ISO 21930:2017 Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services
- ISO 14044:2006 Environmental management – Life cycle assessment – Requirements and guidelines
- ISO 15686-1:2011 Buildings and constructed assets – Service life planning – Part 1: General principles and framework
- ISO 15686-8:2008 Buildings and constructed assets – Service life planning – Part 8: Reference service life and service-life estimation
- EN 15804 + A2: Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products
- ISO 14067:2018 Greenhouse gases - Carbon footprint of products - Requirements and guidelines for quantification
- EN 15942:2012 Sustainability of construction works - Environmental product declarations – Communication format business-to-business
- KOBiZE Wskaźniki emisyjności CO_2, SO_2, NO_x, CO i pyłu całkowitego dla energii elektrycznej, 2021

Instytut Techniki Budowlanej
00-611 Warsaw, Filtrowa 1

Thermal Physics, Acoustics and Environment Department
02-656 Warsaw, Ksawerów 21

CERTIFICATE № 381/2022
of TYPE III ENVIRONMENTAL DECLARATION

Product:

EGS MPB compact board

Manufacturer:

Kronospan HPL Sp. z o.o.

ul. Wojska Polskiego 3, 39-300 Mielec, Poland

confirms the correctness of the data included in the development of
Type III Environmental Declaration and accordance with the requirements of the standard

EN 15804

Sustainability of construction works.
Environmental product declarations.
Core rules for the product category of construction products.

This certificate, issued for the first time on 7th December 2022 is valid for 5 years
or until amendment of mentioned Environmental Declaration

Head of the Thermal Physic, Acoustics and Environment Department
Agnieszka Winkler-Skalna, PhD

INSTYTUT TECHNIKI BUDOWLANEJ

Deputy Director for Research and Innovation
Krzysztof Kuczyński, PhD

Warsaw, December 2022