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Environmental Product Declaration

In accordance with ISO 14025:2006, EN 15804:2012+A2:2019/AC:2021, and ISO 21930:2017

Formica® Compact Standard Grade High Pressure Laminate (12mm)

Formica Group Europe

By Nemho, centre of excellence for innovation and technology for Broadview Holding B.V.

Programme	The International EPD® System www.environdec.com
Programme operator	EPD International AB
EPD registration number	S-P-09988
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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

EPD®

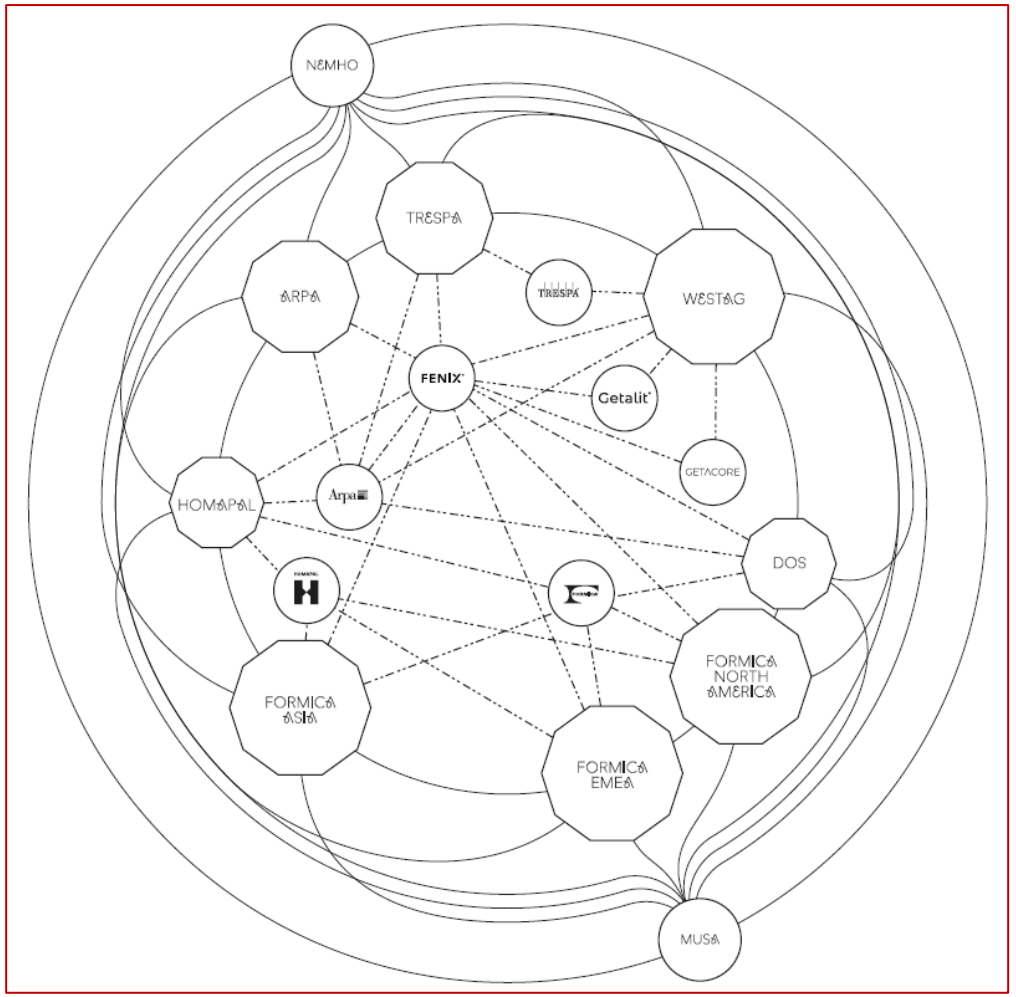
ECO PLATFORM EPD VERIFIED

NEMHO

Nemho is located in Weert in the Netherlands and it is the Innovation Centre of the material companies of the Broadview Holding, namely Arpa Industriale, Trespa International, Formica, Homapal, Westag and DOS. Nemho carries out all sustainability-related activities, including LCA studies, for the above-mentioned companies.

Nemho is the owner of this EPD.

Contact Person: Sara Corrado (s.corrado@nemho.com).



FORMICA GROUP EUROPE

The first and original Formica Group invented high pressure laminates in 1913. Pioneers by definition, our iconic Formica® brand represents the quintessence of laminates.

Formica Limited (UK), Formica IKI Oy (Finland) and Formica S.A. (Spain) are part of the Formica Group, a leading provider of branded, designed surfacing solutions for commercial and residential customers. Formica Group works closely with architects, designers, fabricators, specifiers and developers, to meet their demands for attractive, multifunctional, practical and durable surfaces.

Formica® laminate is a contemporary, versatile and high performance material. It is easy to machine, to design with, to clean and maintain and it combines effortlessly with other materials. Typical applications include wall panelling, doors, cubicles, furniture, worktops and more.

Formica Group has a global network of factories, distribution centres, showrooms and customers. In Europe, Formica Group's manufacturing plants are located in Finland, Spain and the United Kingdom.

Formica Group Europe is amongst other certification schemes, certified according to ISO 14001 and FSC® CoC, FSC-C106553.

FORMICA® COMPACT STANDARD GRADE HIGH PRESSURE LAMINATE (12MM)

PRODUCT DESCRIPTION

Formica® Compact Standard Grade High Pressure Laminates (12mm) are decorative high-pressure compact panels (high pressure laminates, HPL). HPL products comprise individual layers of natural fibres, treated with thermosetting resins and pressed under high pressure. The panels are attributed with an integrated decorative layer on one or both sides. The decorative layers consist either on a decor paper impregnated with thermosetting melamine resin or a dry printed decor paper with an overlay impregnated with thermosetting melamine resin.

The panel is used for both vertical and horizontal interior applications.

PRODUCT IDENTIFICATION

High pressure decorative thin and solid panels tested in accordance with the European standard EN 438 part 4 and solid panels CE marked according to EN 438 part 7.

UN CPC CODE

Not applicable.

METHODOLOGY

This EPD has been developed based on the PCR for construction products 2019:14, Version 1.2.5.

DECLARED UNIT

The declared unit is 1 square meter of finished panel, 12 mm thick, weighing 17,52 kg, plus primary packaging. All the possible product décor layers, different for the color and for the finishing, are covered by this EPD.

Formica® Compact Standard Grade High Pressure Laminate (12mm) corresponds to a weighted average of panels produced in the plants of Formica Limited (North Shields, UK), Formica IKI Oy (Kolho, Finland) and Formica S.A (Albal, Spain).

REFERENCE SERVICE LIFE

Not applicable.

TIME REPRESENTATIVENESS

Data used for the LCA calculation refer to the production year 2022.

DATA, DATABASE(S) AND LCA SOFTWARE

Activities under the direct control of the company are modelled using specific data.

The LCA study was performed with the support of the Simapro LCA software (version 9.5).

Generic data are taken from Ecoinvent 3.9.1 ad Carbon Minds database.

ELECTRICITY MODELLING

The electricity mixes for the plants in Kolho and Albal are modelled based on guarantees of origin (GOs), while the electricity mix for the North Shields plant is modelled based on Carbon Trust certified annual energy labels provided by the supplier.

- Kolho: hydro 100%.
- North Shields: wind 37,67%, geothermal 31,57%, solar 29,85%, hydro 0,91%.
- Albal: wind 100%.

ALLOCATION APPROACH

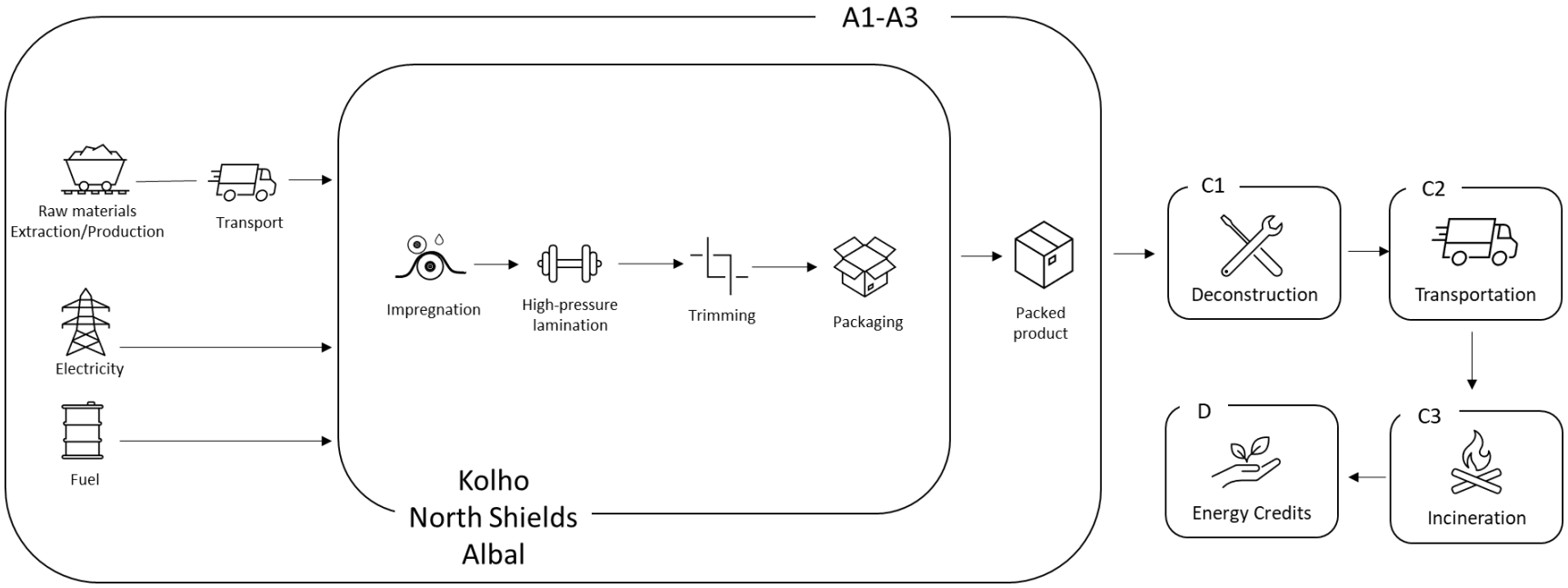
Environmental impacts of multi-output processes at the plant level are allocated to the outputs based on their mass.

SYSTEM BOUNDARIES

The system boundary of this EPD is from cradle to gate with modules C1–C4 and module D (A1–A3 + C + D).

The product stage (modules A1-A3) includes the manufacturing process of Formica® Compact Standard Grade High Pressure Laminates (12mm), carried out in the plants of Kolho, North Shields, and Albal the production of raw materials, electricity, and natural gas.

The deconstruction of Formica® Compact Standard Grade High Pressure Laminates (12mm) (module C1) is modelled according to Gervasio et al. (2018). The transport of HPLs at the end of life (module C2) assumed an average transport distance equal to 100km. HPLs are commonly used as secondary material for energy recovery, therefore it is assumed that 100% of the HPL at the end of life is sent to incineration with thermal efficiency higher than 60% (module C3). Loads from material incineration and resulting energy credits (module D) are declared. Energy credits are calculated considering a lower heating value (LHV) of panels equal to 19 MJ/kg as reported by ICDLI (2015).



MODULES DECLARED, GEOGRAPHICAL SCOPE, SHARE OF SPECIFIC DATA (IN GWP-GHG INDICATOR) AND DATA VARIATION

	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	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO	GLO	FI UK ES	-	-	-	-	-	-	-	-	-	GLO	GLO	GLO	GLO	GLO
Specific data used	>90%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	10%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

X: module declared, ND: module not declared.

CONTENT INFORMATION

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Paper/woodchips	12,878 ± 0,258	0%	73,5% ± 1,5% 0,373 ± 0,007
Phenolic resin	4,414 ± 0,088	0%	0% 0
Melamine resin	0,231 ± 0,005	0%	0% 0
TOTAL	**17,522 ± 0,350**	**0%**	**73,5% ± 1,5% 0,373 ± 0,007**

Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/kg
Carton boxes & corner protector	0,074	0,4%	16,9%
Protective plastic film	0,129	0,7%	0,0%
TOTAL	**0,203**	**1,2%**	**16,9%**

Formica® Compact Standard Grade High Pressure Laminates (12mm) does not contain substances listed on the candidate list of Substances of Very High Concern, as published on the ECHA website, in concentrations exceeding 0,1 percentage by mass.

ENVIRONMENTAL PERFORMANCE

POTENTIAL ENVIRONMENTAL IMPACT – MANDATORY INDICATORS ACCORDING TO EN 15804

Results for 1 m² of Formica® Compact Standard Grade High Pressure Laminates (12mm)							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Climate change – total	kg CO_2 eq.	2,35E+01	1,14E+00	1,88E-01	3,88E+01	0,00E+00	-2,41E+01
Climate change - fossil	kg CO_2 eq.	4,52E+01	1,14E+00	1,88E-01	1,50E+01	0,00E+00	-2,41E+01
Climate change – biogenic	kg CO_2 eq.	-2,18E+01	0,00E+00	0,00E+00	2,39E+01	0,00E+00	0,00E+00
Climate change – land use and land use change	kg CO_2 eq.	1,08E-01	2,31E-03	9,20E-05	1,69E-04	0,00E+00	-2,91E-02
Ozone depletion	kg CFC 11 eq.	4,66E-06	7,06E-09	3,02E-09	1,35E-08	0,00E+00	-2,81E-07
Acidification	mol H^+ eq.	1,55E-01	5,42E-03	8,04E-04	6,16E-03	0,00E+00	-7,34E-02
Eutrophication aquatic freshwater	kg P eq.	1,87E-02	5,02E-04	1,49E-05	1,26E-04	0,00E+00	-6,29E-03
Eutrophication aquatic marine	kg N eq.	5,31E-02	1,08E-03	2,95E-04	3,79E-03	0,00E+00	-1,54E-02
Eutrophication terrestrial	mol N eq.	4,23E-01	1,08E-02	3,15E-03	3,09E-02	0,00E+00	-1,57E-01
Photochemical ozone formation	kg NMVOC eq.	1,59E-01	3,22E-03	1,13E-03	7,77E-03	0,00E+00	-5,77E-02
Depletion of abiotic resources - minerals and metals*	kg Sb eq.	1,26E-04	1,01E-06	4,99E-07	9,66E-07	0,00E+00	-2,21E-05
Depletion of abiotic resources - fossil fuels*	MJ	7,69E+02	1,44E+01	2,68E+00	4,67E+00	0,00E+00	-3,17E+02
Water use	m^3 eq.	1,13E+01	1,93E-01	1,38E-02	1,83E-02	0,00E+00	-2,53E+00

** 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.*

POTENTIAL ENVIRONMENTAL IMPACT – ADDITIONAL MANDATORY AND VOLUNTARY INDICATORS

Results per for 1 m² of Formica® Compact Standard Grade High Pressure Laminates (12mm)							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG**	kg CO2 eq.	4,89E+01	1,11E+00	1,83E-01	1,49E+01	0,00E+00	-2,36E+01

POTENTIAL ENVIRONMENTAL IMPACT – ADDITIONAL VOLUNTARY INDICATORS. RESULTS FOR NORTH AMERICA CALCULATED ACCORDING TO ISO 21930

Results per for 1 m² of Formica® Compact Standard Grade High Pressure Laminates (12mm)							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Climate change – GWP 100 (ISO 21930)	kg CO2 eq.	4,52E+01	1,10E+00	1,81E-01	1,49E+01	0,00E+00	-2,32E+01
Ozone depletion - ODP (ISO 21930)	kg CFC-11 eq.	4,92E-06	1,28E-08	3,31E-09	1,44E-08	0,00E+00	-3,62E-07
Eutrophication potential - EP (ISO 21930)	kg N eq	1,99E-01	3,87E-03	1,70E-04	7,30E-03	0,00E+00	-4,90E-02
Acidification potential - AP (ISO 21930)	kg SO2 eq	1,32E-01	4,65E-03	7,19E-04	5,70E-03	0,00E+00	-6,31E-02
Photochemical ozone formation potential – POCP (ISO 21930)	kg O3 eq.	2,42E+00	6,15E-02	1,81E-02	1,78E-01	0,00E+00	-8,92E-01

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

*.** The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product.*

USE OF RESOURCES

Results per for 1 m^2 of Formica® Compact Standard Grade High Pressure Laminates (12mm)							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy excluding renewable primary energy resources used as raw materials (PERE)	MJ	1,14E+02	1,51E+00	2,56E-02	7,66E-02	0,00E+00	-1,86E+01
Use of renewable primary energy resources used as raw materials (PERM)	MJ	5,04E+02	2,42E-01	8,38E-03	3,88E-02	0,00E+00	-3,06E+00
Total use of renewable primary energy resources (PERT)	MJ	6,18E+02	1,75E+00	3,40E-02	1,15E-01	0,00E+00	-2,17E+01
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials (PENRE)	MJ	6,31E+02	1,44E+01	2,68E+00	4,67E+00	0,00E+00	-3,17E+02
Use of non-renewable primary energy resources used as raw materials (PENRM)	MJ	1,38E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy re-sources (PENRT)	MJ	7,69E+02	1,44E+01	2,68E+00	4,67E+00	0,00E+00	-3,17E+02
Use of secondary material (SM)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable secondary fuels (RSF)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non-renewable secondary fuels (NRSF)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water (FW)	m^3	3,71E-01	7,67E-03	4,29E-04	2,63E-03	0,00E+00	-9,78E-02

WASTE PRODUCTION

Results per for 1 m² of Formica® Compact Standard Grade High Pressure Laminates (12mm)							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1,25E-01	4,51E-04	7,55E-05	1,12E+00	0,00E+00	-6,41E-03
Non-hazardous waste disposed	kg	8,24E+00	6,57E-02	2,34E-01	5,86E-01	0,00E+00	-1,00E+00
Radioactive waste disposed	kg	1,64E-03	3,87E-05	5,86E-07	1,49E-06	0,00E+00	-4,73E-04

OUTPUT FLOWS

Results per for 1 m² of Formica® Compact Standard Grade High Pressure Laminates (12mm)							
Indicator	**Unit**	**Tot.A1-A3**	**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
Material for recycling	kg	2,19E-01	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
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,59E+01
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,34E+02

ADDITIONAL INFORMATION

Reducing the carbon footprint is key for our overall sustainability policy and it is based on our core belief that it is the right thing to do. We are also convinced that reducing our overall environmental footprint is essential to the long-term success of our business and the environment around us. That is why sustainability is embedded in our business philosophy with the credo ‘do no harm, do good, do better.’

At the core of our sustainability strategy is the principle that we should start with ourselves when we seek to improve the world: ‘do no harm.’ Our approach is straightforward: we measure our impact, select targets to reduce this impact and monitor and report on progress. To measure our impact, we use the Life Cycle Assessment (LCA) methodology.

The second element of our strategy is to look for opportunities that support the environment beyond the direct scope of our own manufacturing footprint: ‘do good.’ This includes creating highly durable products that have a long lifespan that limit the need for replacement. Additionally, we will develop projects that absorb or reduce carbon emissions that are not directly linked to our factories or product portfolio.

We believe that addressing sustainability challenges will allow our company to continue to grow and ‘do better’ in the future. Investing in sustainability should – in the end – ensure that these efforts go beyond established regulatory requirements and the net effect of our efforts will positively impact the environment in which we operate.

Further details on our philosophy, approach and goals can be found in our position paper available online.

PROGRAM INFORMATION

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

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 1.2.5:
PCR review was conducted by: the Technical Committee of the International EPD® System. Chair of the review is Claudia A. Peña. The review panel may be contacted via info@environdec.com
Life Cycle Assessment (LCA)
LCA accountability: Sara Corrado, Marius Bakken Støle (Nemho)
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006 via: ☒ EPD verification by EPD Process Certification* Internal auditor: Lara Naested (Nemho) Third-party verification: SGS Italia S.p.A. Via Caldera 21, 20153 Milano.(www.it.sgs.com) is an approved certification body accountable for third-party verification Third-party verifier is accredited by: *Accredia, certificate n.006H* *For EPD Process Certification, an accredited certification body certifies and reviews the management process and verifies EPDs published on a regular basis. For details about third-party verification procedure of the EPDs, see GPI v.4, Section 7.5.
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No

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.

REFERENCES

- General Programme instructions of the International EPD® System. Version 4.0.
- Gervasio, Dimova, Pinto (2018). Benchmarking the Life-Cycle Environmental Performance of Buildings. Sustainability.
- ICDLI (2015). Technical characteristics and physical properties of HPL (Technical leaflet).
- LCA background report for Formica® Compact Standard Grade High Pressure Laminates (12mm).
- PCR 2019:14 Construction products, Version 1.2.5.