Environmental Product Declaration

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

Formica® Group Europe HPL non-FR 0.7mm

by Nemho, center of excellence for innovation and technology for Arpa Industriale S.p.A., Formica Group, Homapal GmbH, Trespa International B.V. and Westag AG.

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-06281
Publication date:	2022-11-29
Valid until:	2027-11-23

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
E-mail:	info@environdec.com

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 1.2.4
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: Marius Bakken Støle m.b.stole@nemho.com, Sara Corrado s.corrado@nemho.com (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.

Company information

Owner of the EPD: Nemho, Wetering 20, 6002 SM Weert

Contact: s.corrado@nemho.com

Description of the organisation:
Nemho is the Innovation Centre of the all material companies of the Broadview Holding Arpa Industriale, Trespa International, Formica, Homapal, Westag and DOS. Nemho carries out all sustainability-related activities, including LCA studies, for the above-mentioned companies.

Description of the manufacturing company:
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 of companies, a leading provider of branded, designed surfacing solutions for commercial and residential customers. Formica Group Europe work 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 have a global network of factories, distribution centres, showrooms and customers. In Europe, Formica Group manufacturing plants are located in Finland, Spain and the United Kingdom.

Product-related or management system-related certifications: All the plants of Formica Limited are certified according to ISO 14001 and FSC.

Name and location of production sites: Kolho (Finland), North Shields (United Kingdom), Albal (Spain).

Product information

Product name: HPL non-FR

Product identification: High pressure decorative thin panels (high-pressure laminates, HPL) tested in accordance with the European standard EN 438 part 2.

Product description: Formica® Group Europe HPL non-FR 0.7mm are decorative thin laminates.
They comprise individual layers of natural fibres, treated with thermosetting resins and pressed by simultaneous application of heat and pressure, in order to obtain a homogeneous non-porous high density product. The panels are attributed with an integrated decorative layer on one side and the backside is sanded. They are available in a number of color and decor range. The manufacturing plants are located in Kolho (Finland), North Shields (United Kingdom), and Albal (Spain).

UN CPC code: n.a.

LCA information

Declared unit: 1 square meter of finished panel, 0.7 mm thick, weighting 1,03 kg, plus primary packaging. All the possible product décor layers, different for the color and for the finishing, are covered by this EPD.

Formica® Group Europe HPL non-FR 0.7mm corresponds to a weighted average of panels produced in the plants of Kolho, North Shields, and Albal.

Reference service life: n.a.

Time representativeness: Primary data were collected internally. The reference year is 2021.

Database(s) and LCA software used: The LCA study was performed with the support of the Simapro LCA software (version 9.3) and Ecoinvent 3.8 ad Carbon Minds database.

Description of system boundaries:
The system boundaries of this EPD are 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 HPL non-FR 0.7mm, carried out in the plants of Formica located in Kolho, North Shields, and Albal, the production of raw materials, electricity, and natural gas.
The deconstruction of Formica HPL non-FR 0.7mm (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 panel at the end of life is sent to incineration (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).

System diagram:

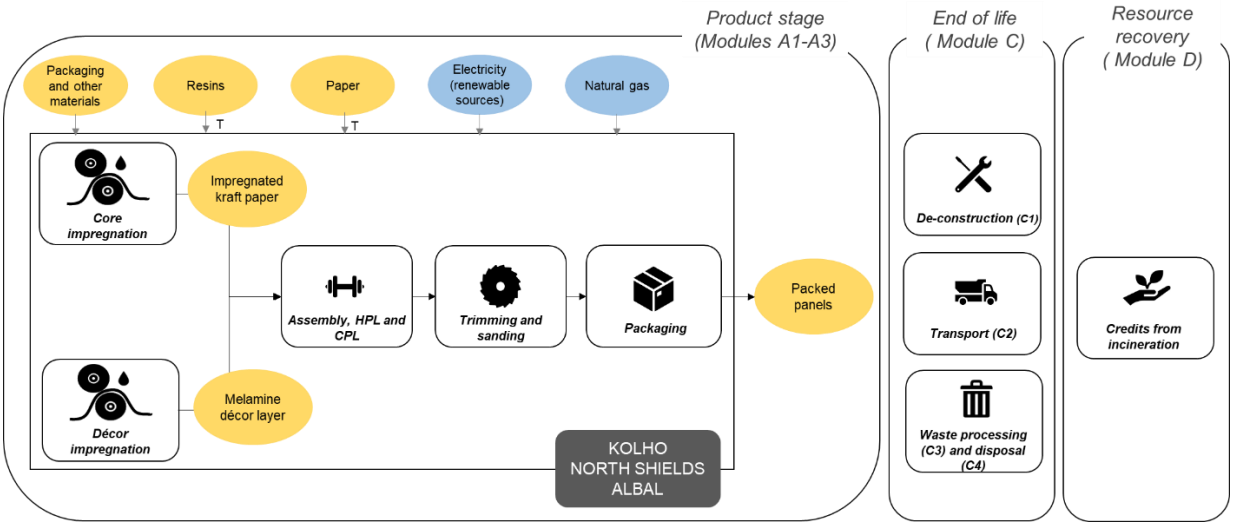

Figure 1: System boundary diagram for Formica Limited HPL standard core 0.7mm. T=transport

More information

The electricity mixes for the Kolho and Albal plants are modelled based on guarantees of origin (GOs), while the electricity mixes for the North Shields plant are modelled based on Carbon Trust certified annual energy labels for the periods 1 January 2021 – 31 March 2021 and 1 April 2021 – 31 December 2021.

- Kolho: hydro 100%.
- North Shields (1 January 2021 – 31 March 2021): solar 42,0%, hydro 31,5%, geothermal 20,3%, biomass 3,6%, wind 2,5%, waste 0,1%.
- North Shields (1 April 2021 – 31 December 2021): wind 37,67%, geothermal 31,57%, solar 29,85%, hydro 0,91%.
- Albal: solar 49,2%, biomass 48,3%, wind 2,5%.

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	9%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Content information

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Paper	0,715 ± 0,014	0%	69,5% ± 1,4% 0,382 ± 0,008
Phenolic resin	0,192 ± 0,004	0%	
Melamine resin	0,121 ± 0.002	0%	
TOTAL	**1,028 ± 0,021**	**0%**	**69,5% ± 1,4% 0,382 ± 0,008**
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C/kg**
Carton boxes	0,002	0,16%	4,64%
Coating film	0,009	0,89%	
Wood crates	0,001	0,09%	2,68%
Edge protection	0,001	0,14%	
Core roll formers	0,002	0,17%	
TOTAL	**0,015**	**1,46%**	**7,33%**

Dangerous substances from the candidate list of SVHC for Authorisation
Formica HPL panels do 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 Information

Potential environmental impact – mandatory indicators according to EN 15804

Results per functional or declared unit							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	3,20E+00	6,49E-02	9,55E-03	8,76E-01	0,00E+00	-1,39E+00
GWP-biogenic	kg CO_2 eq.	-1,34E+00	0,00E+00	0,00E+00	1,44E+00	0,00E+00	0,00E+00
GWP-luluc	kg CO_2 eq.	5,61E-03	1,19E-04	3,59E-06	8,87E-06	0,00E+00	-1,49E-03
GWP-total	kg CO_2 eq.	1,86E+00	6,50E-02	9,56E-03	2,32E+00	0,00E+00	-1,40E+00
ODP	kg CFC 11 eq.	5,08E-07	2,15E-09	2,17E-09	2,54E-09	0,00E+00	-1,17E-07
AP	mol H^+ eq.	1,50E-02	3,20E-04	4,86E-05	3,66E-04	0,00E+00	-4,43E-03
EP-freshwater	kg P eq.	1,11E-03	3,05E-05	6,96E-07	7,23E-06	0,00E+00	-3,76E-04
EP-marine	kg N eq.	3,50E-03	6,12E-05	1,65E-05	2,22E-04	0,00E+00	-8,72E-04
EP-terrestrial	mol N eq.	3,51E-02	6,12E-04	1,80E-04	1,81E-03	0,00E+00	-8,84E-03
POCP	kg NMVOC eq.	1,03E-02	1,65E-04	5,37E-05	4,39E-04	0,00E+00	-2,58E-03
ADP-minerals&metals*	kg Sb eq.	1,58E-05	8,44E-08	2,20E-08	8,20E-08	0,00E+00	-1,75E-06
ADP-fossil*	MJ	5,47E+01	8,46E-01	1,47E-01	2,75E-01	0,00E+00	-1,97E+01
WDP	m^3 eq.	1,57E+00	1,03E-02	5,65E-04	2,00E-03	0,00E+00	-1,30E-01
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.*

Potential environmental impact – additional mandatory and voluntary indicators

Results per functional or declared unit							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	3,38E+00	6,38E-02	9,48E-03	8,75E-01	0,00E+00	-1,36E+00

Potential environmental impact – additional voluntary indicators. Results for North America calculated according to ISO 21930

Results per functional or declared unit							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP (ISO 21930)	kg CO2 eq.	3,20E+00	6,30E-02	9,45E-03	8,75E-01	0,00E+00	-1,34E+00
ODP (ISO 21930)	kg CFC-11 eq.	5,35E-07	2,56E-09	2,29E-09	2,67E-09	0,00E+00	-1,25E-07
EP (ISO 21930)	kg N eq	1,17E-02	2,36E-04	1,02E-05	4,28E-04	0,00E+00	-2,94E-03
AP (ISO 21930)	kg SO2 eq	1,24E-02	2,74E-04	4,32E-05	3,38E-04	0,00E+00	-3,79E-03
POCP (ISO 21930)	kg O_3 eq.	1,72E-01	3,45E-03	1,04E-03	1,04E-02	0,00E+00	-5,01E-02

Use of resources

Results per functional or declared unit							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	4,22E+00	8,41E-02	1,22E-03	4,41E-03	0,00E+00	-1,04E+00
PERM	MJ	3,61E+01	1,30E-02	4,08E-04	2,18E-03	0,00E+00	-1,62E-01
PERT	MJ	4,03E+01	9,71E-02	1,63E-03	6,60E-03	0,00E+00	-1,20E+00
PENRE	MJ	4,49E+01	8,46E-01	1,47E-01	2,75E-01	0,00E+00	-1,97E+01
PENRM	MJ	9,78E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	5,47E+01	8,46E-01	1,47E-01	2,75E-01	0,00E+00	-1,97E+01
SM	kg	2,81E-02	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
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

[1] 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.

FW	m^3	4,15E-02	4,71E-04	1,85E-05	1,77E-04	0,00E+00	-5,87E-03
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						

Waste production and output flows

Waste production

Results per functional or declared unit							
Indicator	**Unit**	**Tot.A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1,32E-02	3,10E-04	1,13E-05	6,55E-02	0,00E+00	-3,85E-03
Non-hazardous waste disposed	kg	5,37E-01	4,10E-03	1,36E-02	3,42E-02	0,00E+00	-5,52E-02
Radioactive waste disposed	kg	1,95E-04	2,63E-06	9,74E-07	5,54E-07	0,00E+00	-3,26E-05

Output flows

Results per functional or declared unit							
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	9,32E-03	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	3,87E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,85E+00

The result tables shall only contain values or the letters "ND" (Not Declared). It is not possible to specify ND for mandatory indicators. ND shall only be used for voluntary parameters that are not quantified because no data is available.

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. (https://www.formica.com/en-gb/campaigns/sustainability).

References

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