

# Environmental Product Declaration



In accordance with ISO 14025 and EN 15804:2012+A2:2019 for:

## ***Formica®Compact HPL 0,5 inches*** ***Formica Corporation***

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:

Programme operator:

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The International EPD® System, [www.environdec.com](http://www.environdec.com)

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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](http://www.environdec.com)*



## General information

### Programme information

<b>Programme:</b>	The International EPD® System
<b>Address:</b>	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
<b>Website:</b>	<a href="http://www.environdec.com">www.environdec.com</a>
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CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): PCR 2019:14. CONSTRUCTION PRODUCTS. VERSION 1.11
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 <a href="mailto:info@environdec.com">info@environdec.com</a>
Independent third-party verification of the declaration and data, according to ISO 14025:2006:  <input checked="" type="checkbox"/> EPD process certification <input type="checkbox"/> EPD verification
Third party verifier: SGS Italia S.p.A. Via Caldera 21, 20153 Milano. <a href="http://www.it.sgs.com">www.it.sgs.com</a> Accredited by: <i>Accredia, certificate n.006H</i>
Procedure for follow-up of data during EPD validity involves third party verifier:  <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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

EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. 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:

Formica Corporation was founded in 1913 in Cincinnati, Ohio as The Formica Products Company by former Westinghouse engineers Daniel J. O'Connor and Herbert Faber. The two discovered high-pressure plastic resins could be used as an effective substitute "for mica" in electrical componentry, and with their invention, they created a new category of materials known as high-pressure laminate (HPL). By the 1930s, the Formica Products Company had shifted away from industrial applications to decorative surfaces. Formica® Brand Laminates became well known for its fashionable designs, durability and ease of cleaning, and Formica surfaces were broadly used in cafes, railway cars and ocean liners. Fast forward to today, the modern-day Formica Corporation remains committed to innovation and maintaining a leading position in design and manufacture of high quality HPL surfaces for applications ranging from health care to single-family homes, education to hospitality, retail to multi-family residences. Today, Formica Corporation operates manufacturing facilities in Cincinnati, Ohio and St. Jean-sur-Richelieu, Quebec along with a network of distribution warehouses across the United States, Canada and Mexico.

Product-related or management system-related certifications: Formica St Jean is certified according to FSC.

Name and location of production site(s): Formica St. Jean (Canada)

## Product information

Product name: Formica®Compact HPL, 0,5 inches

Product identification: High pressure decorative thick panels (high-pressure laminates, HPL) are tested in accordance to the NEMA LD3-2005 standard.

Product description: Formica®Compact panels 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 both sides of the panels. The decorative layer consist either on a decor paper impregnated with thermosetting melamine resin or a dry printed decor paper with an overlay.

UN CPC code: Not available.

## LCA information

Declared unit: 1 square meter of finished panel plus primary packaging

Reference service life: not applicable

Time representativeness: Primary data were collected internally. The reference year is 2020.

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: Cradle to gate with modules C1–C4 and module D (A1–A3 + C + D);

System diagram:

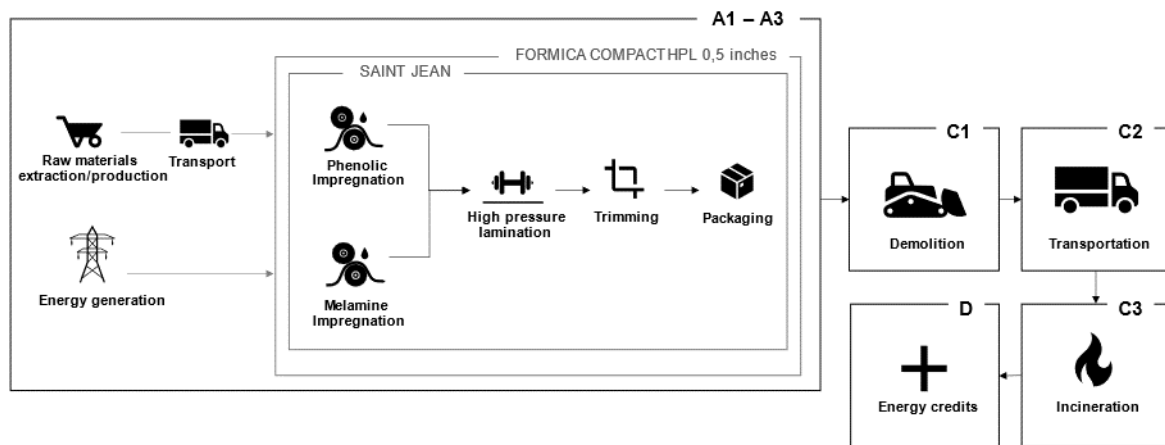


Figure 1: System boundary diagram for Formica Compact HPL 0,5 inches

## More information:

Name and contact information of LCA practitioner: d.sette@nemho.com, i.akal@nemho.com

Modelling of electricity in module A3: According to the specific electricity mix purchased by Formica St Jean, which corresponds to 93,6% hydroelectricity, 5,15% Wind electricity, 0,81% biomass, 0,05% biogas, waste, solar, 0,32% nuclear, and 0,04% fossil (coal, fuel oil, gas). The impact on climate change of 1 kWh is 0,011 kgCO<sub>2</sub>eq.

End of life scenario for Formica®Compact HPL:

HPL panels are commonly used as secondary material for energy recovery, therefore it is assumed that 100% of the HPL panel at the end of life us sent to incineration. Loads from material incineration and resulted energy credits (module D) are declared. Energy credits are calculated considering a lower heating value (LHV) of panels equal to 19 MJ/kg as declared by ICDLI (2015) and an efficiency of incineration respectively equal to 20% for electricity and 40% for heat.

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	CA	ND	ND	ND	ND	ND	ND	ND	ND	ND	GLO	GLO	GLO	GLO	GLO		
Specific data used	>90%					-	-	-	-	-	-	-	-	-	-	-	-	-	
Variation – products	Not relevant					-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	Not relevant					-	-	-	-	-	-	-	-	-	-	-	-	-	-

## Content information

Product components	Weight, kg	Post-consumer material, weight-%	Renewable material, weight-%
Phenolic resin	4,53 ± 0,09	0%	0%
Kraft paper	13,37 ± 0.27	0%	100%
Melamine resin	0,239 ± 0,005	0%	0%
Décor paper	0,181 ± 0,004	0%	100%
Total	18,31 ± 0,37	0%	72-76%
Packaging materials	Weight, kg	Weight-% (versus the product)	
Spiral tube	0,005	0,026%	
Protective foam	0,004	0,024%	
Steel belt	0,006	0,033%	
Cardboard and corners	0,983	5,366%	
LLDPE (linear low density polyethylene) film	0,069	0,375%	
TOTAL	1,067	5.83%	

### Dangerous substances from the candidate list of SVHC for Authorisation

Formica Compact 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 <sub>2</sub> eq.	4,50E+01	1,80E-02	1,70E-01	1,17E+01	0,00E+00	-1,14E+01
GWP-biogenic	kg CO <sub>2</sub> eq.	-1,99E+01	0,00E+00	0,00E+00	2,36E+01	0,00E+00	0,00E+00
GWP-luluc	kg CO <sub>2</sub> eq.	2,88E-01	1,38E-02	6,40E-05	1,60E-04	0,00E+00	-1,48E-01
GWP-total	kg CO <sub>2</sub> eq.	2,54E+01	3,18E-02	1,70E-01	3,53E+01	0,00E+00	-1,16E+01
ODP	kg CFC 11 eq.	1,13E-05	1,44E-09	3,87E-08	4,60E-08	0,00E+00	-1,65E-06
AP	mol H <sup>+</sup> eq.	1,91E-01	1,50E-04	8,67E-04	6,36E-03	0,00E+00	-1,35E-02
EP-freshwater	kg PO <sub>4</sub> <sup>3-</sup> eq.	5,45E-02	1,82E-05	3,81E-05	4,33E-04	0,00E+00	-1,17E-03
EP-freshwater	kg P eq.	1,77E-02	5,92E-06	1,24E-05	1,41E-04	0,00E+00	-3,82E-04
EP-marine	kg N eq.	5,22E-02	2,91E-05	2,94E-04	3,80E-03	0,00E+00	-3,05E-03
EP-terrestrial	mol N eq.	4,62E-01	3,67E-04	3,21E-03	3,11E-02	0,00E+00	-3,34E-02
POCP	kg NMVOC eq.	1,38E-01	9,43E-05	9,57E-04	7,56E-03	0,00E+00	-1,23E-02
ADP-minerals&metals*	kg Sb eq.	1,41E-04	9,59E-07	3,92E-07	1,48E-06	0,00E+00	-2,30E-05
ADP-fossil*	MJ	7,37E+02	2,49E-01	2,62E+00	4,87E+00	0,00E+00	-1,76E+02
WDP	m <sup>3</sup>	1,53E+01	2,44E-01	1,01E-02	5,07E-02	0,00E+00	-2,79E+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.

**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 <sup>1</sup>	kg CO <sub>2</sub> eq.	4,73E+01	1,82E-02	1,69E-01	1,17E+01	0,00E+00	-1,12E+01
PM**	Disease incidences	1,95E-06	1,67E-09	2,01E-08	4,49E-08	0,00E+00	-7,22E-08
IRP**	kBq U235 eq.	2,17E+00	9,92E-03	1,23E-02	1,17E-02	0,00E+00	-1,71E-01
ETP-fw**	CTUe	6,91E+02	8,43E-01	2,20E+00	2,12E+01	0,00E+00	-3,89E+01
HTP-c**	CTUh	3,56E-08	4,58E-11	5,72E-11	2,15E-09	0,00E+00	-2,39E-09
HTP-nc**	CTUh	4,72E-07	8,01E-10	2,27E-09	9,77E-08	0,00E+00	-3,00E-08
SQP**	dimensionless	2,65E+03	-3,65E+00	2,97E+00	2,11E+00	0,00E+00	3,53E+01
Acronyms	PM= Particulate matter emissions; IRP= Ionizing radiation, human health; ETP-fw= Eco-toxicity – freshwater; HTP-C= -Human toxicity, cancer effect; HTP-nc= Human toxicity, non-cancer effects; SQP= Land use related impacts/Soil quality; GWP (ISO 21930)= Global Warming Potential calculated with TRACI; ODP (ISO 21930)= Ozone Depletion Potential calculated with TRACI; EP (ISO 21930)= Eutrophication Potential calculated with TRACI; AP (ISO 21930)= Acidification Potential calculated with TRACI; POCP (ISO 21930)= Photochemical oxidant creation potential calculated with TRACI						

**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 CO <sub>2</sub> eq.	4,63E+01	3,20E-02	1,68E-01	1,17E+01	0,00E+00	-1,11E+01
ODP (ISO 21930)	kg CFC-11 eq.	1,18E-05	1,57E-09	4,08E-08	4,84E-08	0,00E+00	-1,71E-06
EP (ISO 21930)	kg N eq.	1,99E-01	5,22E-05	1,82E-04	7,48E-03	0,00E+00	-3,39E-03
AP (ISO 21930)	kg SO <sub>2</sub> eq.	1,57E-01	1,23E-04	7,70E-04	5,86E-03	0,00E+00	-1,16E-02
POCP (ISO 21930)	kg NMVOC eq.	2,19E+00	1,73E-03	1,85E-02	1,79E-01	0,00E+00	-1,90E-01

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

<sup>1</sup> 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. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.



## Use of resources

Results per functional or declared unit							
Indicator	Unit	Tot.A1-A3	C1	C2	C3	C4	D
PERE	MJ	4,47E+02	7,06E+00	2,91E-02	1,21E-01	0,00E+00	-7,79E+01
PERM	MJ	1,72E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	6,19E+02	7,06E+00	2,91E-02	1,21E-01	0,00E+00	-7,79E+01
PENRE	MJ	6,36E+02	2,49E-01	2,62E+00	4,87E+00	0,00E+00	-1,76E+02
PENRM	MJ	1,01E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	7,37E+02	2,49E-01	2,62E+00	4,87E+00	0,00E+00	-1,76E+02
SM	kg	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
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m <sup>3</sup>	6,97E-01	3,25E-02	3,29E-04	3,60E-03	0,00E+00	-3,58E-01
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 resources; 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-01	1,93E-04	2,01E-04	1,33E+00	0,00E+00	-5,62E-03
Non-hazardous waste disposed	kg	1,04E+01	1,75E-02	2,43E-01	6,51E-01	0,00E+00	-3,03E-01
Radioactive waste disposed	kg	1,96E-03	3,53E-06	1,74E-05	1,04E-05	0,00E+00	-6,64E-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	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	1,83E+01	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	6,89E+01	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	1,40E+02	0,00E+00	0,00E+00

### Information on biogenic carbon content

Results per functional or declared unit		
BIOGENIC CARBON CONTENT	Unit	QUANTITY
Biogenic carbon content in product	kg C	6,71E+00
Biogenic carbon content in packaging	kg C	5,06E-01

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO<sub>2</sub>.

## Additional information

Reducing the carbon footprint are key parts of 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.

## References

- General Programme Instructions of the International EPD® System. Version 3.01.
- PCR 2019:14. CONSTRUCTION PRODUCTS. VERSION 1.11
- EN 15804:2012+A2 Sustainability of construction works – Environmental product declarations - Core rules for the product category of construction products.
- ICDLI (2015). Technical characteristics and physical properties of HPL (Technical leaflet),
- ISO (2017): ISO 21930:2017, Sustainability in buildings and civil engineering works -- Core rules for environmental product declarations of construction products and services
- Hydro Quebec: Electricity Supply and Air Emissions (2020)
- ICDLI (2015). Technical characteristics and physical properties of HPL (Technical leaflet).

