

# Polyrey HPL Compact Laminate

## ENVIRONMENTAL PRODUCT DECLARATION

According to the standards EN 15804, NF EN 15804:2002+A1 and XP P01-064/CN:2014



### Version

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### Prepared by



 polyrey®

## READING GUIDE

Abreviations >	<b>LCA</b> > Life Cycle Assessment	<b>EPD</b> > Environmental Product Declaration
	<b>ADP</b> > Abiotic Depletion Potential	<b>PCR</b> > Product category rules
	<b>WEP</b> > Waste to Energy plant	<b>FU</b> > Fonctionnal Unit

## GENERAL INFORMATION

Manufacturer > POLYREY

Prepared by > Institut technologique FCBA - 10 rue Galilée - 77420 Champs-sur-Marne

PCR and standards > EN 15804:2012+A1:2014, XP P01-064/CN:2014 and EN 16485:2014 standards

Verification > **Independent verification of the declaration and data, according to EN ISO 14025:2010 :**

External verification according to the INIES program: Etienne Lees-Perasso, Bureau Veritas CODDE



Program > INIES Program

Issue Date > 01/06/2016

Valid to > 01/06/2021

Informations > Informations are available from Polyrey, 24 150 Baneuil.

Warning on > **Comparisons of EPDs are possible by ensuring that :**

comparability

- These EPDs are in conformity with the standards EN 15804:2012+A1:2014, and
- The same functional requirements as defined in the 2 EPDs are met, and
- The environmental performance and technical performance of any assembled systems, components, or products excluded are the same, and
- The amounts of any material excluded are the same, and
- Excluded processes or life cycle stages are the same, and
- The influence of the product systems on the operational aspects and impacts of the building are taken into account.

## PRODUCT DESCRIPTION

Identification > The Compact Laminate 8 mm is composed of layers of kraft paper impregnated with phenolic resin and decorative papers on both sides impregnated with melamine resin to obtain a self supporting panel.

Functional Unit > The functional unit is 1 m<sup>2</sup> of Polyrey compact laminate of 8 mm (self supporting panel).

Others characteristics > The compact laminate is certified PEFC™. Polyrey is certified ISO 14001 and follows the requirements according to environmental management standard.

Utilisation > Compact HPL laminate is a material that is both technical and decorative. Imprutrescible, it is resistant to moisture. It is also very resistant to impacts, scratches and stains and is easy to maintain. Hygienic, it has an antibacterial treatment Sanitized®. Self supporting, it is suitable for horizontal applications (counter, worktops) and vertical (wall, door, furniture, cubicles).

Aptitude for use > Compact Laminate complies with EN 438.

Visual representation >



- 1/ Protective overlay for printed decors.
- 2/ Decorative paper on both sides impregnated with melamine resin.
- 3/ Layers of kraft paper impregnated with phenolic resin.



Main components > The following table describes the main components of the installed product and the quantity per functional unit:

Component	Material	Weight (kg / FU)	% in weight paper and resin / FU
Kraft paper	Paper	7,6	64%
Decorative and protective papers	Paper	0,2	2%
Phenolic and melamine resin	Resin	4,1	35%
<b>TOTAL</b>		<b>11,9</b>	<b>-</b>

Installation and distribution > Packaging material are :

Packaging	Material	Weight (kg / FU)
Pallet	Wood	0,036
Covers	PE	0,0459
PE film	PE	0,0084
Cardboard	Cardboard	0,0147
<b>TOTAL</b>		<b>0,1</b>

The following wastage rate was considered during the installation in the building: 5%

Contents declaration > The product does not contain substances included in the candidate list of substances of very high concern for authorization by the European Chemicals Agency and regulation 1907/2006 (REACH). Biocides contained in the product are authorized by the Biocides Regulation No 528/2012 concerning the placing on the market of biocidal products.

## SYSTEM BOUDARIES

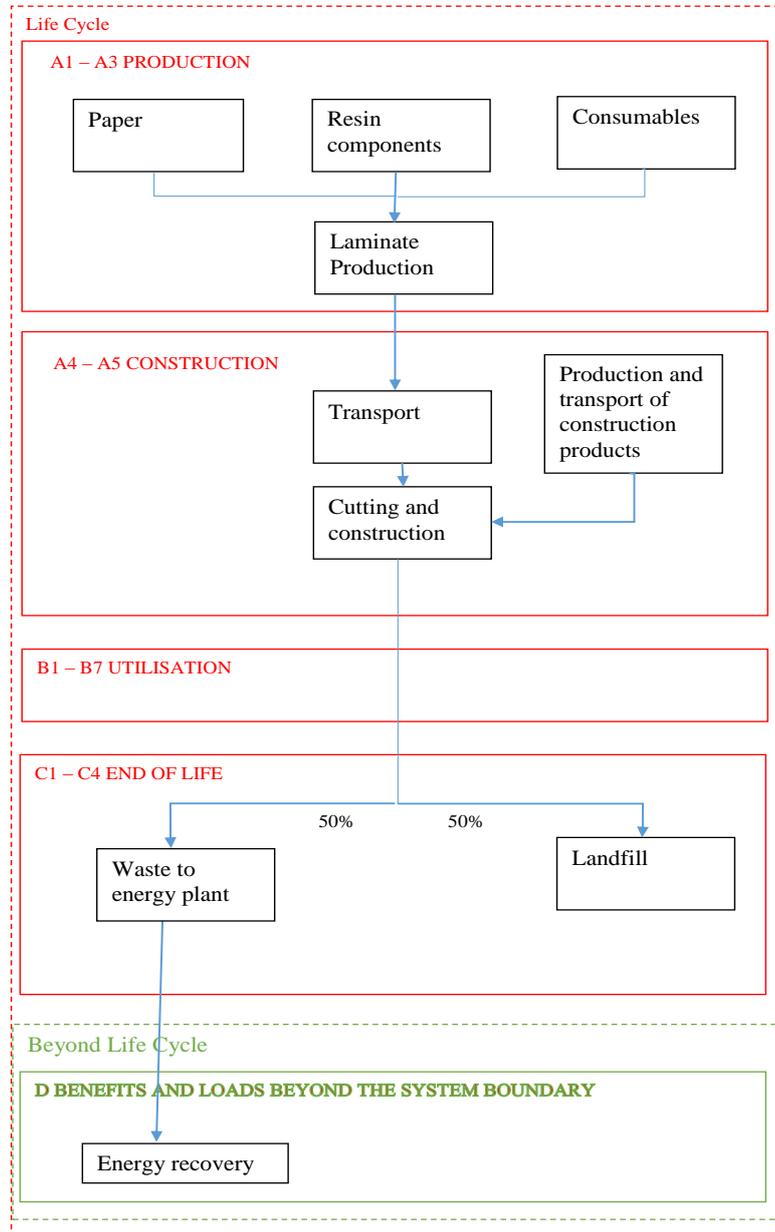
EPD type > "Cradle to Grave"

Excluded steps > Due to lack of data, the deconstruction was not modeled (step C1).

Representativity > This EPD is representative of Polyrey Compact laminates in accordance with :  
- the description done in this EPD,  
- the Technical Standard EN 438.

Process flow diagram >

### Boundaries of the EPD "Polyrey HPL® Compact laminate"



ENVIRONMENTAL PARAMETERS

		Product Stage	Construction Process Stage			End Of Life				Life Cycle	Benefits and loads beyond the system boundary
		Raw material supply, transport and manufacturing	Transport	Construction Installation Process	Total A4-A5	Transport	Waste processing	Disposal	Total C1-C4	Total A-C	Reuse, recovery, recycling potential
		A1-A3	A4	A5	A4-A5	C2	C3	C4	C1-C4	A-C	D
<b>Parameters describing environmental impacts</b>											
Global warming potential	kg CO <sub>2</sub> eq. / FU	25,3	2,31	0,894	3,204	0,0995	0,00113	16,5	16,60	45,10	-1,07
Depletion potential of the stratospheric ozone layer	kg CFC-11 eq. / UF	3,04 E-06	2,27 E-07	5,75 E-08	2,85 E-07	1,61 E-08	1,38 E-12	3,89 E-08	5,50 E-08	3,38 E-06	-1,19 E-07
Acidification potential of soil and water	kg SO <sub>2</sub> eq. / FU	0,106	0,00987	0,00337	0,01324	0,000541	8,21 E-08	0,00302	0,0036	0,1228	-0,0035
Eutrophication potential	kg PO <sub>4</sub> <sup>3-</sup> eq. / FU	0,0212	0,0021	0,000674	0,002774	0,000118	1,73 E-08	0,00435	0,0045	0,0284	-0,000293
Formation potential of tropospheric ozone	kg ethene eq. / FU	0,0125	0,000819	0,000294	0,001113	1,62 E-05	2,30 E-09	0,00114	0,0012	0,0148	-0,000174
Abiotic depletion potential (ADP-elements) for non fossil resources	kg Sb eq. / FU	4,59 E-05	2,49 E-07	1,17 E-06	1,42 E-06	2,91 E-07	1,31 E-11	4,91 E-07	7,82 E-07	4,81 E-05	-3,29 E-07
Abiotic depletion potential (ADP-elements) for fossil resources	MJ / FU	673	50,3	10,2	60,5	1,58	0,000168	4,28	5,86	739,36	-17,2
Air pollution	m <sup>3</sup> / FU	1 830	130	169	299	8,46	0,00137	80,6	89,06	2 218	-53,9
Water pollution	m <sup>3</sup> / FU	17,3	1,09	1,79	2,88	0,0333	5,11 E-06	0,777	0,810	20,99	-0,174
<b>Parameters describing resource use</b>											
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ / FU	240	14,4	1,44	15,84	0,0209	71,1	0,214	71,33	327,17	-0,948
Use of renewable primary energy resources used as raw materials	MJ / FU	122		8,47	8,47		-71,2		-71,2	59,27	
Total use of renewable primary energy resources	MJ / FU	362	14,4	9,91	24,31	0,0209	-0,0113	0,214	0,224	386,534	-0,948
Use of non renewable primary energy excluding non renewable primary energy resources used as raw materials	MJ / FU	723	60,7	10,1	70,8	1,67	66,7	5,37	73,74	867,54	-36,5
Use of non renewable primary energy resources used as raw materials	MJ / FU	120		3,49	3,49		-66,7		-66,7	56,79	
Total use of non renewable primary energy resources	MJ / FU	842	60,7	13,6	74,3	1,67	0,000173	5,37	7,04	923,34	-36,5
Use of secondary material	kg / FU			0,000477	0,000477					0,000477	
Use of renewable secondary fuels	MJ / FU										
Use of non renewable secondary fuels	MJ / FU										
Net use of fresh water	m <sup>3</sup> / FU	0,53	0,0285	0,00452	0,03302	0,0004	2,16 E-08	0,0104	0,010800022	0,573820022	-0,0108
<b>Parameters describing waste categories</b>											
Hazardous waste disposed	kg / FU	0,688	0,0246	0,168	0,1926	0,00122	2,09 E-07	0,778	0,779	1,660	-0,00912
Non hazardous waste disposed	kg / FU	3,02	0,0899	0,562	0,6519	0,0143	5,30 E-07	6,81	6,82	10,50	-0,182
Radioactive waste disposed	kg / FU	0,00227	0,00014	4,58 E-05	0,0001858	1,25 E-06	6,87 E-11	1,48 E-05	1,61 E-05	0,00247185	-0,000281
<b>Parameters describing output flows</b>											
Components for re-use	kg / FU										
Materials for recycling	kg / FU	1,90 E-05	1,00 E-06	0,000766	0,000767		0,00074	6,62 E-06	0,00075	0,00153	1,92 E-05
Materials for energy recovery	kg / FU										
Materials for energy recovery (heat)	MJ / FU							0,535	0,535	0,535	
Materials for energy recovery (electricity)	kWh / FU							0,0773	0,0773	0,0773	

**SCENARIOS AND ADDITIONNAL TECHNICAL INFORMATION**

Stage	Parameter	Unit	Value
A4 Transport to the building site	Vehicle and fuel type	l / km	Long distance truck with fuel consumption : - full : 0,43 l / km, - empty : 0,26 l / km.
	Distance	km	719
	Capacity utilisation (including empty returns)	%	Loading ratio : 71% of weight Empty return ratio : 16,1%
	Volume of transported products	m <sup>3</sup>	12
	Weight of transported products	t	17
	Volume capacity utilisation factor	-	41%
Construction Process Stage	Ancillary materials	kg / UF	Glue PU : 0,03 kg / UF Steel : 1,08 kg / UF Aluminium : 0,0176 kg / UF Wood : 0,59 kg / UF
	Water use	m <sup>3</sup> / UF	Neither
	Other resource use	kg / UF	Neither
	Energy consumption	MJ / UF	Neither
	Waste materials before waste processing	kg / UF	Laminate Compact : 0,366 kg / UF
	Ouput materials as result of waste processing at the building site	kg / UF	- 0,183 kg / FU in WEP, - 0,183 kg / UF stored in landfill.
	Direct emissions to ambient air, soil and water	-	Chemically inert : no emission in soil and water
Use Stage information modules related to the building fabric	B2 Maintenance	Maintenance process	Compact Polyrey laminates is resistant to corrosion and oxidation. It requires no additional surface protection (eg. lacquer or paint) or specific maintenance during its life stage. Non-porous surfaces of laminate Polyrey Compact are easy to clean with hot water and steam and with all types of conventional cleaners.
		Maintenance cycle	Compact Polyrey laminates have an antibacterial treatment based on silver ion to ensure a healthy product during a long period.
		Ancillary materials	Neither
		Waste material	Neither
		Net fresh water consumption	Neither
		Energy input	Neither
	B3 Repair	Repair process	Neither
		Inspection process	Neither
		Repair cycle	Neither
		Ancillary materials	Neither
		Waste material	Neither
	B4 Replacement	Net fresh water consumption	Neither
		Energy input	Neither
		Replacement cycle	Neither
	B5 Refurbishment	Energy input	Neither
		Material input	Neither
		Waste material	Neither
		Exchange of worn parts	Neither
	Further assumptions for scenario development	-	Not applicable
	Reference service life	Years	50
Reference service life	Declared product properties at the gate and properties	-	Laminate compacts comply with EN 438 standard.
	Design application parameters	-	-
	An assumed quality of work when installed in accordance with the manufacturer's instructions	-	Not applicable
	Outdoor environment	-	Not applicable
	Indoor environment	-	-
	Usage conditions	-	Suitable for horizontal applications (tables, counter) and vertical (wall, door, furniture, cubicles) even under conditions of intensive or sensitive use (moisture, impact, surface resistance). Use in new or renovated building in occupied environments
	Maintenance	-	During the reference service life, no maintenance is required.

Stage	Parameter	Unit	Value		
Use Stage information modules related to the building fabric	Biogenic carbon content	kg CO <sub>2</sub> eq. / FU	14,3		
	Carbon storage during use stage	Storage life	years 50		
	Effect of timing of GHG emissions due to biogenic carbon storage according to PAS 2050:2011	kg CO <sub>2</sub> eq. / FU	-7,2		
Use stage information modules related to the operation of the building	Bio-based content	Amount of bio-based matter	kg / FU 7,8		
	B6 - B7	Ancillary materials	-	Neither	
		Net fresh water consumption	-	Neither	
		Type of energy carrier	-	Neither	
	Use of energy and use of water	Power output of equipment	-	Not applicable	
		Utilisation d'eau	Characteristic performance	-	Not applicable
		Further assumptions for scenario development	-	Not applicable	
End of life	C1 to C4	Collected separately	kg / FU 0		
		Collection process	Collected with mixed construction waste	kg / FU 11,92	
		Recovery system	Reuse	kg / FU	Neither
			Recycling	kg / FU	Neither
			Energy recovery	kg / FU	Neither
		Disposal	Incineration in WEP	kg / FU	6,0
			Storage in landfill	kg / FU	6,0
			Assumptions for scenario development	-	-

## RELEASE OF DANGEROUS SUBSTANCES TO INDOOR AIR, SOIL, AND WATER DURING THE USE STAGE

Stage	Parameter	Unit	Value	
Use Stage information modules related to the building fabric	B1 Use of the installed product in terms of emissions in the environment	Regulatory emissions of volatile compounds to indoor air according the French decree of the 19th april 2011	-	Tests were carried out according to regulations. The VOC emission rate is low (A). Formaldehyde rate is below the E1 limit: the lowest level of the recognized standard related to wood based materials. All panels are below the E 0.5 threshold, (level not recognised) or less than 1.75 mg / m <sup>3</sup> · h, according to EN 717.2 standard.
		Emissions to indoor air	-	Other emissions of volatile compounds to indoor air Not applicable. Greenguard certified by UL Environment.
		Natural radioactive emissions	-	No test has been performed.
		Other informations on the sanitary risks inside the building	-	Polyrey Compact laminates are physiologically safe. The migration rates of the components are well below the thresholds tolerated and are approved for food contact according to EN1186. Polyrey laminates provide decorative and healthy solutions due to a silver ion based, antibacterial "Sanitized" treatment integrated in the material.
		Emissions to water	-	Water for human consumption Not applicable because the product is not in contact with water for human consumption.
			-	Runoff water, seepage water, surface waters or groundwater Not applicable because the product is not in contact with runoff water, seepage water, surface waters or groundwater.
		Emissions to soil	-	No test has been performed.

## CONTRIBUTION OF THE PRODUCT TO THE QUALITY OF LIFE

Stage	Parameter	Unit	Value		
Use Stage information modules related to the building fabric	B1 Use of the installed product in terms of emissions in the environment	Quality of life	Hygrothermal comfort	-	The water vapour diffusion resistance factor of Polyrey Compact is 250 μ under dry cup and 110 μ under wet cup according to ISO 12572.
			Acoustic comfort	-	Not applicable
			Visual comfort	-	The Polyrey laminates contribute to the harmony and atmosphere of the building. For this, a wide choice of designs is possible (color, pattern and texture).
			Olfactory comfort	-	No test has been performed.
			Other informations on comfort	-	Not applicable

## INTERPRETATION

Compact HPL contain mainly paper made from renewable resources. The use of renewable resources reduces the impact on abiotic resource depletion. Also, the paper waste from the production process is recovered for energy (15 MJ/ kg).

The use of paper as a material contributes to climate change mitigation by storing CO<sub>2</sub>; 14.3 kg CO<sub>2</sub> equivalent per functional unit over the life cycle. And also it avoids the use of fossil resources.

The impact on climate change of Compact Polyrey laminate for the production phase is 25.3 kg eq. CO<sub>2</sub> and 46.1 kg eq. CO<sub>2</sub> over the life cycle which is equivalent to a car journey of about 108 km and 197 km respectively.

## REFERENCES

EN 438-1:2016	High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 1: Introduction and general Information
EN 438-2:2016	High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties
EN 438-4:2016	High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 4: Classification and specifications for compact laminates of thickness 2 mm and greater
EN ISO 717-2:2013	Acoustics - Rating of sound insulation in buildings and of building elements -- Part 2: Impact sound insulation
EN ISO 16 000-9:2006	Indoor air - Part 9: Determination of the emission of volatile organic compounds from building products and furnishing -- Emission test chamber method
EN 1186:2003	Migration Testing for Food Contact Materials
Greenguard	<a href="http://greenguard.org/en/CertificationPrograms/CertificationPrograms_indoorAirQuality.aspx">http://greenguard.org/en/CertificationPrograms/CertificationPrograms_indoorAirQuality.aspx</a>
EN ISO 14025:2010	Environmental labels and declarations — Type III environmental declarations — Principles and procedures
EN 15804:2014	Sustainability of construction works — Environmental product declarations — Core rules for the product category of construction products

## FOR MORE INFORMATION

**Web site** [www.polyrey.com/polygreen](http://www.polyrey.com/polygreen)

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