

# ABET LAMINATI S.p.A.



## ENVIRONMENTAL PRODUCT DECLARATION

Product Name: **PRINT HPL (High Pressure Laminate) Compact**

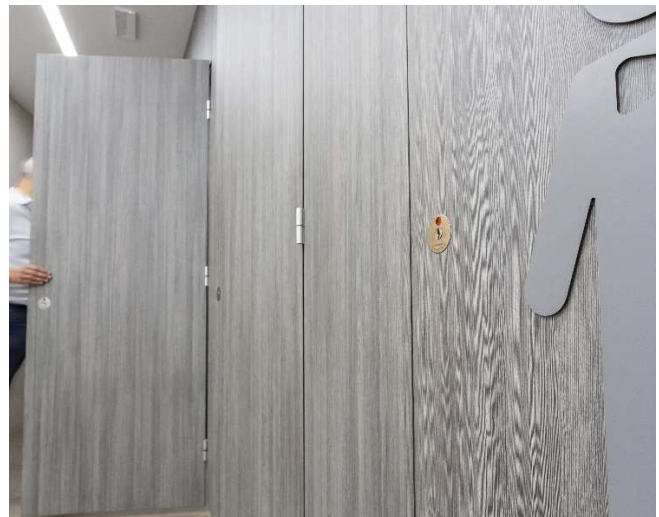
Site Plant: BRA, Viale Industria 21, 12042 (CN), Italia

in compliance with ISO 14025 and EN 15804


Program Operator:	EPDItaly
Publisher:	EPDItaly

Declaration Number:	HPL C_01.1
EPDItaly Registration Number:	EPDITALY0085
ECO EPD Registration Number	00001063

Issue Date:	8 November 2019
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Valid to:	8 November 2024



## 1. GENERAL INFORMATION

<b>EPD OWNER:</b>	Abet Laminati S.p.A. Viale Industria 21, 12042Bra (CN), Italia
<b>PLANTS INVOLVED IN THE EPD:</b>	Viale Industria 21, 12042 Bra (CN), Italia Strada Falchetto 30, 12042 Bra (CN), Italia
<b>FIELD OF APPLICATION:</b>	The applicability of this document is restricted to high pressure laminate with a thickness from 2 mm to 30 mm ("PRINT HPL Compact"), manufactured by Abet Laminati S.p.A., in its Bra (CN) plants.
<b>PROGRAM OPERATOR:</b>	EPDITALY, via Gaetano De Castillia 10, 20124 Milano, Italia.
<b>EXTERNAL AUDIT:</b>	<p>This declaration has been developed referring to EPDItaly, following the General Programme Instruction; further information and the document itself are available at: <a href="http://www.epditaly.it">www.epditaly.it</a>.</p> <p>CEN standard EN 15804 served as the core PCR (PCR ICMQ-001/15 rev 2.1). PCR review was conducted by Daniele Pace. Contact via <a href="mailto:info@epditaly.it">info@epditaly.it</a>.</p> <p>Independent verification of the declaration and data, according to EN ISO 14025:2010</p> <p><input type="checkbox"/> Internal    <input checked="" type="checkbox"/> External</p> <p>Third party verifier: ICMQ SpA, via De Castillia, 10 20124 Milano (<a href="http://www.icmq.it">www.icmq.it</a>)</p> <p>Accredited by: Accredia</p>
<b>CPC CODE:</b>	36390
<b>COMPANY CONTACT:</b>	Viale Industria 21, 12042 Bra (CN), Italia <a href="mailto:sga@abet-laminati.it">sga@abet-laminati.it</a>
<b>TECHNICAL SUPPORT:</b>	Sphera Solutions Italy, via Bovini 41, Ravenna (IT) <a href="http://www.sphera.com">www.sphera.com</a> 
<b>COMPARABILITY:</b>	Environmental statements published within the same product category but originating from different Program Operators and created with different PCR specifications may not be comparable. The comparison of the results of this EPD declaration with other studies and documents is only possible if all the data sets (database) to be compared have been created according to EN 15804.
<b>LIABILITY:</b>	Abet Laminati S.p.A. relieves EPDItaly from any failure to comply with the environmental legislation. The holder of the declaration will be responsible for the information and supporting evidence; EPDItaly disclaims any liability with regard to the manufacturer's information, data and life cycle assessment results.

**REFERENCE DOCUMENT:**

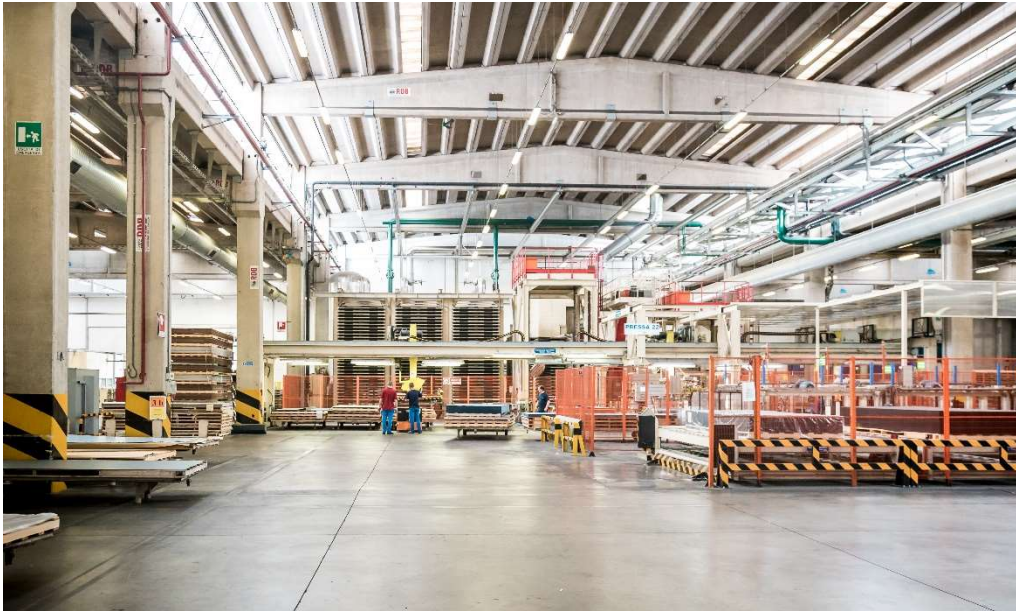
This declaration is based on the EPDItaly regulation, available on the website [www.epditaly.com](http://www.epditaly.com)

**PRODUCT CATEGORY RULES (PCR):**

PCR ICMQ-001/15 rev 2.1 Prodotti da costruzione e servizi per costruzioni, EPD Italy. Issue Date: 03/06/2019

The EN 15804 standard constitutes the framework reference for the PCR

## 2. THE COMPANY



Abet Laminati was founded in Bra and is one of the world's leading manufacturers of high pressure decorative laminate HPL, with a sales network which is widespread in Italy and abroad.

Its over sixty years of history reveals a continued commitment to the research and development of products which satisfy the market demand, operating in full respect of the environment.

The Company has constantly invested its own resources to be able to propose also customised decorative laminates thanks to digital print system.

Furthermore, collaborations with renowned international architects and designers complete a whole range of proposals, which continues to interest and satisfy the customers.

**PRINT HPL Compact** by Abet Laminati are Compact laminate panels intended for interior and exterior applications. Panels for **interior use** have an extensive aesthetic potential for building change rooms, shower and toilet cubicles, lockers, cabinets, benches, partition walls and doors in various public environments such as health spas, gyms, resorts, swimming pools, hotels, sports centres, schools and kindergartens, factories, hospitals and laboratories. It is also particularly suitable for office and kitchen furniture. Panels for **exterior use** are also characterized by high resistance to outdoor weathering conditions, such as direct sunlight, rain and frost. It is suitable for façade cladding, parapets and balustrades, and signage, and it is particularly suited for building ventilated façades.

The panels are available in various sizes, thus optimising them with minimal off-cuts, reducing wastage and costs. They are furthermore available in a wide range of colours and designs, production grades and surface finishes with high and versatile performance across many applications: unlimited creative solutions for designers and architects.

### Management systems and environmental certifications

To be in line with European and international requirements and with expectations of market, the Company is committed to maintaining the following certifications:

- Chains of Custody FSC® (FSC- C119591) and PEFC;
- Certification *Indoor Advantage™ Gold, M1 Classification*, attestations *A+*, *LEED v4* (VOC emissions specifications in LEED EQ credit “Low-emitting products”), as evidence of low indoor emissions.
- Quality and Environment management System certified according to the standards UNI EN ISO 9001:2015 and UNI EN ISO 14001:2015.

## 3. EPD SCOPE AND TYPE

The life cycle of the product considered is from raw materials supply to transport to the site (Type of EPD: cradle to gate with option) and the modules described below are declared in this EPD.

Modules **A1-A3** include those processes that provide energy and material input for the system (A1), transport up to the factory gate of the plant (A2), manufacturing processes as well as waste processing (A3).

Module **A4** includes the transport from the production site to the customer or to the point of installation of the products.

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction 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
X	X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

MND: MODULE NOT DECLARED

### EPD TYPE

Declaration related with average laminate HPL Compact produced by the plant of Abet Laminati located in Bra (CN).

### GEOGRAPHICAL VALIDITY

Plant performances and production technologies are referred to the Bra (CN) factory. Reference market is global.

### DATABASE

GaBi 2019, SP37

### SOFTWARE

EPD process creator, implemented with the LCA software GaBi Professional 9.0 and GaBi Envision 4.0. The identification code of the tool is: **Abet Laminati LCA tool creator v1 (SP37)**.

### EPD DONE WITH VALIDATED CALCULATION ALGORITHM

During year 2018/2019 Abet Laminati implemented and certified a process for generating EPD using a validate and certified calculation algorithm by ICMQ S.p.A, according with EPDIItaly requirement. Process is based on data collection from the factory, information are then integrated, verified and validated according with all the internal procedures developed ad hoc. The algorithm allows automatic LCA results generation for laminates products that are used to generate EPD document.

### EPD UPDATED

During the 2020 annual surveillance Abet Laminati found differences between values of 2019 environmental impact and the ones published in the EPD version *HPL C\_01*.

These differences are linked to misprints of distribution parameters which lead to wrong values of impacts related to phase A4 of LCA study.

Moreover, the calculation related to filming phase (see “inspection and forwarding” phase at pag. 8) has been perfected.

Therefore, it was considered appropriate to proceed with the updating of the EPD document *HPL C\_01*, revised to the present version *HPL C\_01.1*.

Please, note that both distribution and filming calculations are external to the tool, which has not undergone any modification and remains in the above-mentioned version (Abet Laminati LCA tool creator v1 (SP37)).

## 4. DETAILED PRODUCT DESCRIPTION

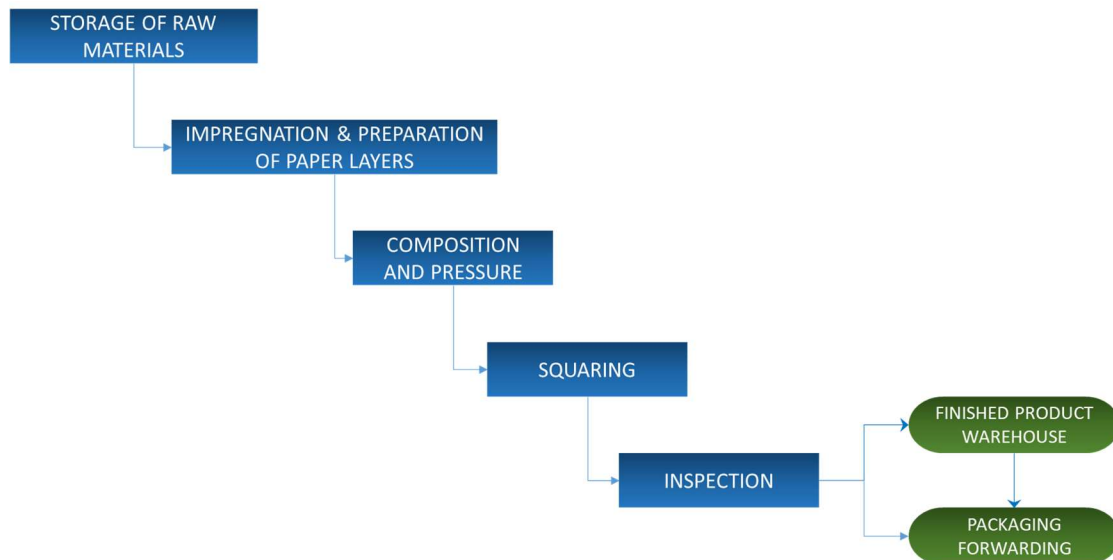
The decorative laminates PRINT HPL Compact are sheets consisting of layers of cellulose fibrous material (saturating kraft paper) and one or more surface decorative layers both impregnated with thermosetting resins and bonded together by the high pressure process. Some typologies of product for interior grades can consist of surface or internal metal layers, i.e. aluminium or iron, and also of surface veneer layers.

The process, defined as the simultaneous application of heat ( $\geq 120^{\circ}\text{C}$ ) and high specific pressure ( $\geq 5\text{ MPa}$ ) provides flowing and subsequent curing of the thermosetting resins to obtain a homogenous non-porous material ( $\geq 1350\text{ kg/m}^3$ ) with characteristics which are totally different from those of its component parts. The final product is a stable, resistant and long-lasting material, easy to handle and machine. PRINT HPL Compact ensures mechanical, physical and chemical properties: impact resistant, scratch and wear resistant, light fastness resistant, heat resistant and it possesses good hygienic and anti-static properties, being easy to clean and maintain. Panels for exterior use are also characterized by thermal shock resistance and weathering and corrosion resistance.

PRINT HPL Compact panels, with a thickness from 2 mm to 30 mm, are supplied in sheet form in a variety of sizes, colours and surface finishes. For an improved fire behaviour, fire retardant panels are available both for indoor and outdoor applications. In this case, the laminate core may contain halogen-free additives.

## DESCRIPTION OF THE PRODUCTION PROCESS

The production process of the PRINT HPL Compact is divided into five activities that are carried out consecutively: storage of raw materials (paper, resins and chemical additives); impregnation of papers (kraft and decorative papers) with specific thermosetting resins; pressing of stacked-up layers of kraft, decor (and optionally overlay sheets); squaring (trimming and optionally chamfering); final inspection and shipment.



### Raw material storage and placing on the production

All the raw materials are purchased from external suppliers. Before the storage papers, resins and chemical additives shall be subject to laboratory acceptance controls. The approved materials are stored in warehouses, the resins are stored in tanks.

### Impregnation and preparation of paper layers

The impregnation process is performed continuously in impregnation treaters that are provided with unwinder systems, immersion bath, squeeze rollers, drying ovens and cutter.

Paper is stretched on unwinder system, passes through immersion bath in which it is saturated with phenolic/melamine resins before squeeze rollers remove excess resin. At this stage, paper travels quickly through the drying oven under controlled temperature (100°C – 180 °C) in order to dry the resin but to avoid too much curing. In the downstream end of the process impregnated paper is cut into sheets and stacked in pallets.

The sheets of kraft paper impregnated with phenolic resin are stacked up in packs. The number of kraft sheets determines the thickness of the final panel since, the core consists of decorative laminate.

The sheets of decor paper impregnated with melamine resins are stored in appropriated and controlled warehouse.

During the pressing phase other ancillary papers/foils are used. Those papers are purchased from external suppliers and they are cut to size in specific lines.

### Composition, pressure and squaring

The different impregnated paper and ancillary paper sheets are overlapped, creating what will be the PRINT HPL Compact. The assembled panels are carried in a multi-daylight press, where they are pressed simultaneously at  $\geq 5$  MPa and at a temperature higher than 120°C and subsequently cooled down.

During the process, the thermosetting resins flow throughout the paper fibres and subsequently are irreversibly interacted through cross-linked chemical bonds, formed during the curing process, converting



the paper sheets into a single rigid laminate panel.

After the pressing, the edges of the panel are refined. In addition, for specific product collections, the panel can be cut to measure.

### Inspection and forwarding

The finished panels are sent to final inspection for both aesthetic and dimensional characteristic control and consequently, the classification into classes.

As a last step, the final products are packed, identified and sent to their destination. The packaging is composed of cardboard boxes, polyethylene film, strapping and wood pallets, on which panels are stacked. Packaging may be changed to take account of different distribution ways. If required, the single panel can be covered by a removable protective film.

Pallet ready for dispatch are stored in finished product warehouse, waiting for forwarding.

### ENVIRONMENTAL PROTECTION

Abet Laminati S.p.A. has adopted and certified its environmental management system according to UNI EN ISO 14001:2015, as evidence of its great commitment towards all aspects of environmental issues. Internal practices are implemented in order to continuously improve the environmental performances (reduction in consumption of primary resources and less pollution).

**Raw materials** – Since January 2014 Abet Laminati has obtained both the voluntary “Chain of Custody” certifications FSC® (FSC - C119591) and PEFC, that guarantees that the final product has been manufactured using exclusively materials coming from forests responsibly/sustainably managed and/or from other controlled sources.

Abet Laminati chose to make the transition from alcohol-based phenolic resins to waterborne PF resins many years ago, with a significant reduction of VOC emissions during the process. This is considered fundamental to improving environmental conditions, both inside production facilities as well as for external emissions.

**Waste** – On average, 80% of the waste generated by the Abet Laminati activities is recovered. Part of recovery, about 45%, is used for energy recovery through its own coincineration system installed at the site of Strada Falchetto 30. The coincineration plant treats waste resulting from manufacturing process of company itself and associated and subcontractor companies (impregnated papers and not, cardboard cores, filter cakes, pieces of laminate, wood packaging).

**Energy** – From 1997 Abet Laminati S.p.A. owns a coincineration plant. This solution allows energy recovery through waste burning. The generated heat is intended to produce vapour, used within the processes of the company itself. Waste to energy process makes possible an evident reduction in non-renewable energy consumption. During this process thermal energy is produced, saving 0,09 Sm<sup>3</sup> for every square meter; considering the whole production of Abet Laminati, on yearly basis, the amount saved is around 1.330.816,92 Sm<sup>3</sup>.

**Emissions** – The adopted technologies to reduce emissions of pollutants resulting from the thermal treatment of waste are SNCR (selective non-catalytic reduction) to reduce nitrogen oxide emissions, and cyclone separators and filters to remove particulates and dust from air. Dust from finishing operations is treated by using cyclone separators and filters. The COV emissions from impregnation processes are treated with a thermal regenerative oxidiser in Strada Falchetto plant and with a catalytic burner in Viale Industria plant. All the external emissions are rigorously monitored by regular self-inspections. CO<sub>2</sub> emissions are monitored according to the European Union Emissions Trading Scheme (Directive 2003/87/CE).

**Water** – The plant has been equipped with closed cycle cooling towers that allow for a reduction in consumption estimated at around 90%. The process waters are completely reused in the production cycle.

Since waste water from manufacturing process does not contain pollutant, no water treatment is required.

**Noise** – The company takes appropriate action in order to mitigate noise pollution caused by the manufacturing process, inside and outside the facilities. Monitoring system periodically controls the noise, according to Italian legislation.



### Technical properties

The decorative laminate PRINT HPL Compact is produced according to standards EN 438 and ISO 4586.

Technical properties of the product are tested according to EN 438-2:2016+A1:2018 and evaluated according to the requirements of standard EN 438-4\*, EN 438-8, EN 438-9\* for interior use (depending on product collections) and EN 438-6 for exterior use.

For more details on general and quality properties see specific informative technical sheets available on the website [www.abetlaminati.com](http://www.abetlaminati.com), section "Documents".

Examples of the main technical features of PRINT HPL Compact are shown in the tables below.

\*Please note that the product line Polaris is characterised by a surface layer impregnated with acrylic based resins, which is not addressed in standard EN 438. However, technical requirements are evaluated according to EN 438-4 and EN 438-9 depending on typologies.

PRINT HPL Compact				
Standard	Property	Test Method (EN 438-2)	Values	Unit
EN 438-4 /CGS-CGF EN 438-6/EDS-EDF	Dimensional deviation – thickness (t)	EN 438-2.5	2,0 ≤ t < 3,0 ± 0,20 3,0 ≤ t < 5,0 ± 0,30 5,0 ≤ t < 8,0 ± 0,40 8,0 ≤ t < 12,0 ± 0,50 12,0 ≤ t < 16,0 ± 0,60 16,0 ≤ t < 20,0 ± 0,70 20,0 ≤ t < 25,0 ± 0,80 25,0 ≤ t to be agreed	mm
	Dimensional deviation - Length and width	EN 438-2.6	+10 / 0	mm
	Density	ISO 1183	≥1,35	g/cm <sup>3</sup>
	Resistance to crazing (thick laminates)	EN 438-2.24	≥4	rating
	Flexural modulus (E)	EN ISO 178	≥10.000	MPa
	Lightfastness	EN 438-2.27	≥4	grey scale rating (min)
	Resistance to artificial weathering (including light fastness) (for EDS-EDF)	EN 438-2.29	≥3 ≥4	grey scale rating (min) rating (min)

### BASE MATERIALS/ANCILLARY MATERIALS

#### Main raw materials

- Phenolic resin: 0,9% - 2,8%
- Melamine resin: 27% - 27,5%
- Paper: 70% - 71,6%
- Chemical additives: max 0,03%

#### Main chemical additives

- Hardener
- Wetting agent
- Release agent

## PRODUCT PROCESSING/INSTALLATION

PRINT HPL Compact decorative laminates for interior and exterior applications can be glued, riveted or screwed on wooden or metallic substructures or anchored in mechanical fastening brackets to be used in invisible mounting systems. It depends on application and support.

Special working equipment is not required, except protections to minimize dust formation and exposure in case of sheet machining.

For information see the relevant Brochure, Technical Manual and Informative Technical Sheets on the website [www.abetlaminati.com](http://www.abetlaminati.com), or contact the Information Service of Abet Laminati.

## DECLARED UNIT

The declared unit is 1 m<sup>2</sup> of PRINT HPL Compact, with a density about 1466 kg/m<sup>3</sup>. Average mass per unit area, considering an average thickness of 6,56 mm, is 9,63 kg/m<sup>2</sup>. All collected data involved in the LCA study is representative for the production process of the year 2019.

## REFERENCE SERVICE LIFE (RSL)

The period of use was not taken into account in the model.

Due to the wide range of applications of the decorative laminate, it was not possible to establish a single reference service lifetime.

However, PRINT Compact is considered a strong and durable material. Durability plays an important role in the sustainability: it means the consumption of less resources and the production of less waste.

## EXTRAORDINARY EFFECTS

**Fire:** Abet Laminati HPL Compact laminates have inherently low flammability characteristics. They are produced both in the standard and flame retardant versions. In case of fire, they have low emission of fumes, do not soften, drip, explode nor create splinters when subject to the action of water in case of fire extinction. In Europe, laminate panels intended for construction and building applications are tested in accordance with EN 13823 (SBI test) and ISO 11925-2 (small flame test) and the resulting reaction to fire performance is in accordance with standard EN 13501 -1. For applications other than in the building sector, test methods and specifications may vary from country to country.

For further details on test reports and certifications achieved as well as for information on methods and test specifications for reaction to fire please contact your local ABET LAMINATI representative.

**Water:** PRINT HPL Compact is insoluble in water with excellent resistance to water and steam. Note panels are not resistant against continuous and prolonged exposure to water.

## RE-USE PHASE

Reuse of decorative laminates is not possible as a rule. However, on account of their high calorific value (18 - 20 MJ/kg) they are ideal for energy recovery in officially approved industrial incinerators.

## DISPOSAL

PRINT HPL is not classified as hazardous waste and can be brought to controlled waste disposal sites according to current national and/or regional regulations. The WEC code for the disposal of the laminate and the dust of laminate is 03 01 05.

## 5. LCA RESULTS

The tables below show the results of the LCA (Life Cycle Assessment). Basic information on all declared modules can be found in chapter 3.

You can convert the results per kg using the following conversion factor: 0,1

LCA RESULTS - Environmental Impact: 1 m <sup>2</sup> of average PRINT HPL Compact			
Parameter	Unit	A1-A3	A4
GWP	[kg CO <sub>2</sub> -eq.]	12,4	0,967
ODP	[kg CFC <sub>11</sub> -eq.]	9,32E-11	1,25E-16
AP	[kg SO <sub>2</sub> -eq.]	5,49E-02	1,37E-02
EP	[kg (PO <sub>4</sub> ) <sup>3-</sup> -eq.]	9,73E-03	1,7E-03
POCP	[kg etilene-eq.]	7,64E-03	2,55E-04
ADPE	[kg Sb-eq.]	9,80E-06	1,44E-07
ADPF	[MJ]	527	12,9
Caption	GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources		

LCA RESULTS - Resource use: 1 m <sup>2</sup> of average PRINT HPL Compact			
Parameter	Unit	A1-A3	A4
PERE	[MJ]	182	0
PERM	[MJ]	101	0
PERT	[MJ]	283	0,37
PENRE	[MJ]	476	0
PENRM	[MJ]	71,3	0
PENRT	[MJ]	547	13
SM	[kg]	0	0
RSF	[MJ]	0	0
NRSF	[MJ]	0,719	0
FW	[m <sup>3</sup> ]	0,16	9,14E-04
Caption	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		

LCA RESULTS – Output flows and waste categories: 1 m <sup>2</sup> of average PRINT HPL Compact			
Parameter	Unit	A1-A3	A4
HWD	[kg]	3,27E-06	2,48E-07
NHWD	[kg]	4,9E-01	5,44E-04
RWD	[kg]	6,9E-03	2,69E-05
CRU	[kg]	0	0
MFR	[kg]	0	0
MER	[kg]	0	0
EEE	[MJ]	0	0
EET	[MJ]	0	0
Caption	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy		

## 6. CALCULATION RULES

### REFERENCE FLOW

Name	Value	Unit
Declared Unit	1	m <sup>2</sup>
Grammage	9,63	kg/m <sup>2</sup>
Conversion factor to 1 kg	0,10	-

### ASSUMPTIONS

Module A4 is based and assumed on weighted average distances.

### CUT-OFF CRITERIA

Cut-off rules applied for data and information not available are compliant with the reference standards (EN15804). Mass flows not considered can influence final results for a percentage lower than 1%. These materials are listed in the table below.

Data omitted	Reasons
Optical brightener	No dataset or proxy available
WEC "17xxxx family"	Such wastes refer to construction material due to extraordinary maintenance activities.

### DATA QUALITY

The reference year of the secondary/background data from thinkstep database is between 2016 and 2018. Most of the primary data connected with raw materials and energy consumption are measured and or calculated directly at the factory level. Information regarding emission to air and wastes production are from official document required by the European laws like for the IPPC document (called AIA, i.e. Integrated Pollution Prevention and Control), MUD (for wastes management), ETS (Emission Trading System). Detailed data are also used for defining chemical composition of all materials consumed.

Overall data quality is considered more than satisfactory.

## PERIOD UNDER REVIEW

Primary data collected production volume are referred to year 2019.

## ALLOCATION

Allocation rules adopted for the LCA model are compliance with the reference standard (EN15804, ISO 14044) and they are mainly based on mass produced. This mass is calculated considering the density (kg/m<sup>3</sup>) and the square meters of the several product categories manufactured in the company. Only where the surface produced has an impact for energy or material consumption (e.g. for the pressing phase or auxiliaries) square meters are used for allocation factor calculation.

## 7. SCENARIOS

All the necessary processes described in chapter 4 have been incorporated into modules A1-A3.

### Transport (A4):

For transport specific distances for print HPL Compact are collected and aggregated with average. Print HPL Compact are commercialized nationally, in Europe and the rest of the world.

Name	Value	Unit
National destination: Truck	422	km
European destination: Truck	1226	km
International (outside-Europe) destination: Truck	1100	km
International (outside-Europe) destination: Transoceanic freight ship	9376	km

## 8. ENVIRONMENT AND HEALTH DURING USE

Indoor air quality plays a significant role for human health, since daily time is spent, on average, 90% in closed environments with a high concentration of pollutants. Among the pollutants there are volatile organic compounds (VOC) and formaldehyde. Abet Laminati S.p.A. has always paid great attention to indoor quality and it is constantly committed to contribute to the healthiness of living spaces with its products.

PRINT HPL Compact emissions are very low, as attested by indoor air quality certification Indoor Advantage™ Gold. The classification depends on legislation of the country in which the material is to be used and the test method required. Overall, PRINT HPL Compact is classified as A+ according to French Regulation, M1 according to Finnish Regulation and it can contribute to EQ credit of LEED v4 (see pag. 5 “Management systems and environmental certifications”). The mentioned certifications also attest low formaldehyde emissions, below admitted thresholds.

If used under the expected service conditions, PRINT HPL Compact does not pose any risk to the environment.

## 9. ADDITIONAL ENVIRONMENTAL INFORMATION

PRINT HPL Compact does not contain SVHC substances (substances of very high concern) that are included in the “candidate list”, that is the list of substances candidated to be introduced in the list of “substances to be authorized” (annex XIV of REACH). Abet Laminati S.p.A. established an internal periodic system of control, linked to the updating of the above-mentioned list (SVHC), taking care of reviewing its own REACH declaration in case of change to what reported.

With reference to formaldehyde emission, HPL Compact laminate panels comply with Class E1 requirements without the need for testing (EN 438-7:2005)

The typical value for PRINT HPL sheets is reported in the table here below:

Standard	HPL Typical value	E1 Requirements
EN 717-1	0,05 ppm	≤ 0,1 ppm (≤ 0,124 mg/m <sup>3</sup> air)
EN ISO 12460-3*	0,2 mg/m <sup>2</sup> h	≤ 3,5 mg/m <sup>2</sup> h

\*Standard EN 717-2:1996 has been superseded by EN ISO 12460-3: 2015 but test method and limits have not changed.

## REFERENCE

ISO 14040:2006 Environmental management - Life cycle assessment - Principles and framework

ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines

ISO 14020:2000 Environmental labels and declarations - General principles

ISO 14025:2007 Environmental labels and declarations – Type III environmental declarations – Principles and procedures

ISO 14001:2015 Environmental management systems - Requirements with guidance for use

ISO 12460:2007 Wood-based panels -- Determination of formaldehyde release

ISO 9239-1:2010 Reaction to fire tests for floorings - Part 1: Determination of the burning behaviour using a radiant heat source

ISO 11925:2010 Reaction to fire tests -- Ignitability of products subjected to direct impingement of flame

ISO 1183-1:2004 Plastics - Methods for determining the density of non-cellular plastics -- Part 1: Immersion method, liquid pycnometer method and titration method

ISO 4586-1:2018 High-pressure decorative laminates (HPL, HPDL) -- Sheets based on thermosetting resins (usually called laminates) -- Part 1: Introduction and general information

ISO 9001:2015 Quality management systems -- Requirements

EN 13501:2007 Fire classification of construction products and building elements

EN 15804:2013+A1:2014 Sustainability of construction works – Environmental product declarations Core rules for the product category of construction works

EN 717-1:2004 Wood-based panels - Determination of formaldehyde release

EN 438-2:2016+A1:2018 High-pressure decorative laminates (HPL). Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties.

EN 438-4 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

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EN 438-7 High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (Usually called Laminates) - Part 7: Compact laminate and HPL composite panels for internal and external wall and ceiling finishes

EN 438-8 High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 8: Classification and specifications for design laminates

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