

PRODUCT DATA SHEET PRINT HPL

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PRINT HPL are not classified as hazardous substances. Since they do not contain any dangerous substances in a concentration higher than 0,1% p/p they do not need the emission of any Safety Data Sheet (art.31 of REACH¹). This information sheet describes the composition of PRINT HPL and gives advice for their safe handling, processing, use and disposal.

0. Manufacturer

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Basically more than 60 % of PRINT HPL consist of paper and the remaining 30 to 40 % consist of cured phenol-formaldehyde resin for the core layers and melamine-formaldehyde resin for the surface layer. Some typologies of product can also be composed of surface or internal metal layers, i.e. aluminium or iron, and also of surface veneer layers.

1. Product

This product data sheet applies to the whole ABET LAMINATI range of PRINT[®] HPL and PRINT[®] laminate in its various grades (hereinafter referred to as Print HPL).

Both resins belonging to the group of thermosetting resins are irreversibly interreacted through cross linked chemical bonds formed during the curing process producing a non-reactive, stable material with characteristics which are totally different from those of its component parts.

2. Description / Composition

The materials referred to are high pressure decorative laminates (HPL) according to the European norm EN 438 and to ISO 4586.

PRINT HPL are sheets consisting of layers of cellulose fibrous material (normally paper) impregnated with thermosetting resins and bonded together by the high pressure process. The process, defined as the simultaneous application of heat ($\geq 120^{\circ}$ C) and high specific pressure (≥ 5 MPa) provides flowing and subsequent curing of the thermosetting resins to obtain a homogenous non-porous material ($\geq 1,35$ g/cm³) with the required surface finish.

PRINT HPL are supplied in sheet form in a variety of sizes and surface finishes. Thickness varies from 0,6 to 30 mm.

Where improved fire retardance is required, the laminate core may be treated with an additive which does not contain halogens.

3. Storage and Transportation

Storage and transportation should be carried out in accordance with the General Processing Recommendations for PRINT HPL; no special precautions need to be taken.

For transportation, PRINT HPL are classified as a non hazardous product; no labelling is required.

¹ REACH is the European Union Regulation on chemicals and their safe use. It deals with the **Registration, Evaluation, Authorisation and restriction of Chemical substances**. It entered into force on 1 June 2007 to improve the protection of human health and the environment through the better and earlier identification of the properties of chemical substances.
For further information read http://ec.europa.eu/environment/chemicals/reach/reach_intro.htm.

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4. Handling and machining of PRINT HPL

The usual safety requirements of fabrication and machining should be observed with regard to dust extraction, dust collection, fire and explosions precautions.

For the typologies of product containing metal layers, avoid a build up of dust. In case of machining developing dust, avoid sparks and sources of ignition in all electrical equipment, including dust extraction equipment.

Because of the possibility of sharp edges protective gloves should always be worn when handling laminates. The contact with dust from PRINT HPL do not present any special problems, however a small percentage of personnel may be sensitive or even allergic to machining dust in general.

5. Environmental and health aspects in use

Decorative laminates are cured and therefore chemically inert. Gas release from surfaces and edges are insignificant.

Due to their very low permeability PRINT HPL bonded to wood based substrates act as a barrier against possible formaldehyde emissions coming from the substrates. PRINT HPL formaldehyde emission level is far below the limit for wood based materials.

There is no migration affecting foodstuffs and, consequently, PRINT HPL are approved for contact with foodstuffs.

The decorative surfaces are resistant to all common household solvents and chemicals and have therefore been used for many years in applications where cleanliness and hygiene are important.

The non porous PRINT HPL-surface and edges are easy to disinfect with hot water, steam and all types of disinfectants used in hospitals and other commercial applications.

6. Maintenance

As PRINT HPL do not suffer from corrosion and oxidation, they do not need any further surface protection (like lacquers or paints).

7. PRINT HPL in fire situations

Laminates are difficult to ignite and have properties that retard "spread of flame", thus prolonging evacuating time.

Due to incomplete burning, as with any organic material, hazardous substances are to be found in the smoke. However, PRINT HPL are capable of meeting the best performance for organic surfacing materials specified in the French standard NFF 16101 (= at least class F2 for smoke density and toxicity).

In dealing with fires in which laminates are involved the same fire fighting techniques should be employed as with other wood based building materials.

8. Energy recovery

On account of their high calorific value (18 - 20 MJ/kg)* PRINT HPL are ideal for thermal recycling. When burned completely at 850 °C, PRINT HPL produce water, carbon dioxide and oxides of nitrogen. Therefore PRINT HPL comply e.g. with the Kreislaufwirtschaftsgesetz (para. 6).

Well controlled burning processes are achieved in modern, officially approved industrial incinerators. Ashes of this process can be brought to controlled waste disposal sites.

9. Waste disposal

PRINT HPL can be brought to controlled waste disposal sites according to current national and/or regional regulations. The CER code for the disposal of the laminate and the dust of laminate is 030105.

* For comparison: Calorific value of oil = 37 - 41 MJ/kg, or of hard coal = 28 - 31 MJ/kg.

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| 10. | Technical data | |
| 10.1 | Physical-chemical characteristics | |
| 10.1.1 | Physical state | Solid sheet |
| 10.1.2 | Density | $\geq 1,35 \text{ g/cm}^3$ |
| 10.1.3 | Solubility | Insoluble in water, oil, methanol, diethyl ether, n-octanol, acetone |
| 10.1.4 | Boiling point | None |
| 10.1.5 | Evaporation rate | None |
| 10.1.6 | Melting point | Do not melt |
| 10.1.7 | Calorific value | 18 - 20 MJ/kg |
| 10.1.8 | Dangerous substances | PRINT HPL do not contain toxic compounds of pentachlorophenol, asbestos, halogen or heavy metals (Antimony, Barium, Cadmium, Chromium ^{VI} , Lead, Mercury, Selenium). However, traces of these substances, due to natural impurities, may be present in its components or in the raw materials employed in the production process of the laminate. Furthermore, they do not contain SVHC substances (Substances of very high concern) included in the "candidate list", that it the list of substances candidate to be authorized (annex XIV of REACH). |
| 10.2 | Stability and reactivity data | |
| 10.2.1 | Stability | PRINT HPL are stable; they are not considered to be reactive nor corrosive |
| 10.2.2 | Hazardous reactions | None |
| 10.2.3 | Material incompatibility | Strong acids or alkaline solutions will stain the surface |
| 10.3 | Fire and explosion data | |
| 10.3.1 | Ignition temperature | Approx. 400 °C |
| 10.3.2 | Flash point | None |
| 10.3.3 | Thermal decomposition | Possible above 250 °C. Depending upon the burning conditions (temperature, amount of oxygen etc.) toxic gases may be emitted, e.g. carbon monoxide, carbon dioxide, ammonia. PRINT HPL are safe when tested according to NF F 16 101. |
| 10.3.4 | Flammability | PRINT HPL are not considered to be flammable. They will burn only in a fire situation, in presence of open flames. |
| 10.3.5 | Extinguishing media | PRINT HPL are considered as class A material. Carbon dioxide, water spray, dry chemical foam can be used to extinguish flames. Water dampens and prevents rekindling. Wear self breathing apparatus and fire protective clothing. For products containing metal layers, dry powder can be used. <u>Do not use water, carbon dioxide nor foam.</u> |
| 10.3.6 | Explosion hazard | PRINT HPL machining, sawing, sanding routing produces class ST-1 dust. Safety precautions and adequate ventilation shall be observed to avoid airborne dust concentration. For products containing metal, see chapter 4 of this document. |
| 10.3.7 | Explosion limits | Dust below 60 mg/m ³ |
| 10.3.8 | Protection against fire and explosion | None required as for wood-based building materials. |
| 10.4 | Electrostatic behaviour | Print HPL minimize the generation of charge by contact-separation or rubbing with another material. They do not need to be earthed. Surface resistivity is between 10 ⁹ -10 ¹² ohms and a chargeability of $V \leq 2 \text{ kV}$ according to CEI IEC 61340-4-1, so that Print HPL is antistatic material. |
| 10.4 | Storage and Transport | PRINT HPL are classified as non-hazardous for transportation purposes and there are no specific requirements. |
| 10.5 | Machining | Use gloves to protect from sharp edges and safety-glasses to prevent eye injury. No special working equipment is necessary, except protections to minimize dust formation and exposure in case of sheet machining. |
| 10.6 | Disposal considerations | Waste material shall be handled according to local regulations. Burning is permitted in approved industrial incinerators. |
| 10.7 | Health information | PRINT HPL are not considered to be dangerous for humans and animals. There is no evidence of PRINT HPL toxicological effects and eco-toxicity. PRINT HPL surfaces are physiologically safe and are approved for use in contact with foodstuffs according to EN1186, EN 13130, CEN/TS 14234. |
| 10.7.1 | Working areas | General dust regulation to apply. |
| 10.7.2 | Formaldehyde emission | Typical value for a unbonded 0,9 mm PRINT HPL: $< 0,2 \text{ mg/h m}^2$ when tested according to EN 717-2* $< 0,05 \text{ ppm}$ when tested according to the WKI chamber method |
| 10.8 | Additional remarks | PRINT HPL as received are solid sheets and there would not be any health hazards associated with them. |

All the above information is based on the current state of technical knowledge, but does not constitute any form of guarantee. It is the personal responsibility of users of the products, described in this information leaflet, to comply with the appropriate laws and regulations.