

**PRODUCT NAME : ABET ENGRAVING LAMINATE (HPL)**

**DESCRIPTION/COMPOSITION :** The materials referred to are melamine surfaced high pressure laminates (hpl) according to the European norm EN 438 and to ISO 4586. They are supplied in sheet form in a variety of sizes and thicknesses and surface finishes. Laminates basically consist of paper and thermosetting synthetic resins, paper comprising more than 60% of the product. The remaining 30 – 40% consists of cured phenol-formaldehyde resin for the core layers and melamine-formaldehyde resin for the surface layers. Both resins belong to the group of thermosetting resins. They are irreversibly interacted to produce a finished product with a high molecular weight.

Cross linked chemical bonds are formed during the curing process under conditions of high pressure and temperature resulting in a non-reactive stable material with characteristics which are totally different from those of its component parts. Where fire retardance is required, the laminate core is treated with an additive which does not contain halogens.

**STORAGE AND TRANSPORTATION:** Storage and transportation should be carried out in accordance with the General Processing Recommendations for HPL; no special precautions need to be taken. For transportation, HPL is classified as a non hazardous product; no labelling is required.

**HANDLING AND MACHINING OF HPL:** The usual safety requirements of fabrication and machining should be observed with regard to

- Dust Extraction
- Dust Collection
- Fire Precautions etc.

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

**ENVIRONMENTAL AND HEALTH ASPECTS IN USE:** Laminates are cured and therefore chemically inert. There is no migration affecting foodstuffs and release of gases. HPL are approved for contact with foodstuffs. Due to their low permeability HPL act as a barrier against possible formaldehyde emissions coming from the wood based substrates. Its own formaldehyde emission level is far below the limit for wood based materials. The 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 HPL surface is easy to disinfect with hot water, steam and all types of disinfectants used in hospitals other commercial applications.

**MAINTENANCE :** As HPL do not suffer from corrosion and oxidation, they do not need any further surface protection (like laquers or paints).

**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, laminates are capable of meeting the best performances for organic surfacing materials specified in the French standard NFF 16 101 (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.

**ENERGY RECOVERY:** On account of their high calorific value (18-20 MJ/kg)\*, laminates are ideal for thermal recycling. When burned completely at 700° C, laminates produce water, carbon dioxide and oxides of nitrogen. Therefore HPL comply e.g. with the Kreislaufwirtschaftsgesetz (§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.

**WASTE DISPOSAL:** HPL can be brought to controlled waste disposal sites according to current national and/or regional regulations.

*\*for comparison: Calorific value of oil = 37.41 MJ/kg, or hard coal = 28.31 MJ/kg*