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Technical Information for Toplux & Starlux

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PRODUCT DESCRIPTION	3
DIMENSIONS AND QUALITY.....	3
PROTECTIVE POLYESTER FILM.....	4
FIRE RATING	4
APPLICATIONS	4
LIGHTING.....	5
CUTTING.....	5
ADHESIVES	5
CLEANING AND MAINTENANCE	6
STORAGE.....	6
WASTE DISPOSAL	6
MATERIAL SAFETY DATA SHEET	7
WARRANTY.....	12
CONTACT US	13

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Product Description

Starlux and Toplux sheets are decorative high-pressure laminates with a translucent core that is made from an unfilled transparent paper (overlay), impregnated with a melamine resin.

Starlux has a surface layer that is an overlay sheet of metal foil with holes that offers a nearly perfect solution of light-architecture for use in interior spaces. Due to the translucent properties of this decorative high-pressure laminate, in combination with the cool elegance of the real-metal surface, rooms radiate an absolutely extraordinary atmosphere.

The ingenious contrast of materials used for the *Starlux* collection emphasizes unusual light-effects: reflecting metal-surfaces and translucent-appearing colours resulting in a highly aesthetic union.

With *Toplux*, non-woven materials with an open structure can be added as a surface.

Starlux and Toplux is used in practice without a substrate and therefore a backing sheet is not required.

Sheets are produced in standard quality only (They are not postformable).

These sheets are intended for use in vertical surfaces in interior applications.

Dimensions and Quality

All *Starlux* and *Toplux* sheets are available in dimensions of 1220 x 2440 mm (48 x 96 inches).

The dimensional tolerance for both the width and length of a sheet as required by EN 438 is - 0 mm to + 10 mm.

The standard thickness is 1.5 mm giving a density of 2.5 kg/m².

Thicker sheets are available; please contact *Octopus* for more information.

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Protective Polyester Film

All *Starlux* and *Toplux* sheets are supplied with a protective polyester film coat that is meant to protect the sheets from scratching during transport and storage. It is recommended that the film be removed within 6 months of production otherwise the aluminium surface could possibly be damaged.

Fire Rating

Starlux sheets are classified as being somewhere between B1 & B2 when tested according to DIN 4102.

Toplux sheets are classified as B2 when tested according to DIN 4102.

Applications

Starlux and *Toplux* laminates are intended for use in applications where the material can be illuminated from behind. The translucent effect together with the colour tones can be a real eye catcher.

Smaller pieces are best secured in a metal framework or grooved together.

For use in larger surfaces it is recommended that *the sheets*, especially *Starlux*, should be mounted with a slightly convex structure.

The maximum height of crowning, when using sheets with a thickness of 1.5 mm, should be approximately 1/3 the width of the sheet. For a width less than 600 mm the maximum height of crowning must be reduced. In this way any slight shrinkage in the sheet can be absorbed. With this curvature over the complete width, together with indirect illumination, the effect of the pattern is greatly enhanced.

Smaller pieces should be gently strained into a frame or affixed into a groove. The measurements of the cuts need to be 1-2 mm smaller than the measurement from groove-base to groove-base.

A typical application is indirectly illuminated wall cladding. Also, ceiling elements illuminated from behind are ideal applications. The normal maximum size of a ceiling tile is 60 x 60 cm.

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Lighting

Cool lighting should be used. This means that the light should not process a temperature over 50 ° Celsius. Also it is very important to allow circulation and ventilation between the lighting and sheets.

It is recommended that lighting should be at least 15 cm away from the HPL.

The light permeability of the *Toplux* laminates is dependent on the colour.

- *Starlux*: < 10%
- *Toplux*: 20 – 40%

Cutting

Starlux and *Toplux* laminates can be sawed, routed, and drilled using standard carbide tipped tools.

Adhesives

In principle the manufacturer does not recommend any specific adhesives. It is suggested that users contact their local adhesive supplier for advice and to conduct their own tests.

The use of clear acrylic glue on the metal face of *Starlux* is not recommended as the material expands and contracts which may cause the acrylic glue to break.

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Cleaning and Maintenance

Cleaning of the surface is best carried out using a clean cloth or a soft sponge, using soap and plenty of water or a glass cleaner.

Abrasive cleaners, acids, or alkaline should never be used.

Storage

Sheets should be stored in a closed room with a temperature of 18-25°C and 50-60% relative humidity. Furthermore, they have to be stored horizontally with a minimum distance of 200 mm from the ground.

The sheets

- are to be protected from moisture
- should not be exposed to direct sunlight
- should not be stored in a warm-air-stream

Should horizontal storage not be possible a skew of 80°, with the surface being entirely supported by a fully covering back-support, is recommended.

Waste Disposal

Waste can be burnt in officially accepted incinerators.

Waste can also be disposed of in landfills in accordance with the local regulations.

Most authorities classify high-pressure laminate waste as “other hardened synthetic material waste” that is similar to household waste.

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Material Safety Data Sheet

PLEASE NOTE THAT NOT ALL INFORMATION IN THIS SECTION IS APPLICABLE TO TOPLUX AND STARLUX, HOWEVER BEING AN HPL, THIS IS THE CLOSEST APPLICABLE MSDS AVAILABLE TO US AT THIS TIME.

I C D L I

INTERNATIONAL COMMITTEE OF DECORATIVE LAMINATES INDUSTRY

Product Data Sheet
for
HPL Elements

-November 2000-

This product data sheet describes the composition of HPL laminated elements and gives advice for their correct handling, processing, use and disposal. Such elements are used as kitchen worktops, kitchen door fronts, office desktops, restaurant tables, wall panels and windowsills.

HPL elements are not classified as hazardous substances according to the national regulations and therefore do not require special labelling nor the drawing up of a safety data sheet.

1. Description and composition

For the purposes of this product data sheet, HPL laminated elements are defined as composite boards consisting of E1 quality wood based substrates (chipboards, plywood, fibreboards and MDF) faced on one or both sides with HPL bonded normally with PVAc or amino resin adhesives.

The components must comply with the following standards:

High pressure laminates (HPL): EN438

Wood based substrates:

Chipboard	EN 312, parts 1-7
Plywood	EN 636, parts 1-3
Fibreboard	EN 622, part 1
MDF	EN 622-5
Adhesives:	EN 204

1.1 The decorative surfacing material

The laminates referred to are melamine surfaced high pressure decorative laminates (HPL), supplied in sheet form in a variety of sizes, thickness and surface finishes. Laminates basically consist of paper and thermosetting synthetic resin; paper comprising more than more than 60% of the product.

For further information see the corresponding HPL technical data sheet.

1.2 The Substrate

Wood based substrates are produced by pressing wood in various forms (fibres, chips or veneers) with thermosetting bonding agents. They comprise a quality with a minimum formaldehyde emission potential (measured according to EN 120), meeting the requirements of national regulations and are therefore officially accepted for indoor use.

1.3 The adhesive

Normally the HPL is bonded to the substrate using water based PVAc or amino resin adhesives. Other types of glues may also be used. In such cases please consult the instructions given by the adhesive supplier. During the bonding process these adhesives form an inert glue line.

2. Storage and Transportation

Storage and transportation should be carried out in accordance with the manufacturer's recommendations; no special precautions need to be taken. For transportation, HPL elements are classified as a non-hazardous product; no labelling is required.

3. Handling and machining of HPL

Because of the possibility of sharp edges protective gloves should always be worn when handling HPL elements. The usual safety requirements of fabrication and machining should be observed when handling HPL elements, including the correct choice of tools.

Machining of HPL elements produces wood dust (mainly softwood dust), which together with associated organic compounds, can act as skin and respiratory irritants. No harmful long-term effects have been proved as attributable to working in an environment where airborne wood dust is kept within the official specified maximum exposure limits.

Exposure to inhalation of wood dust must be controlled in accordance with limits specified in the national regulations. Work areas should be well ventilated. Any loose dust should be removed regularly using a vacuum cleaner or by careful brushing. Compressed air should not be used to disperse dust. In dusty areas suitable disposable masks should be worn to minimize dust inhalation.

4. Environmental and health aspects in use

The decorative surfaces of HPL laminated elements are cured and are therefore chemically inert, insoluble and do not melt.

Due to their very low permeability, HPL surfaces act as a barrier against possible formaldehyde emissions coming from wood based substrates. HPL formaldehyde emission level is far below the limit for wood based materials. There is no migration affecting foodstuffs and, consequently, the HPL surface is 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 HPL surface is easy to disinfect with hot water, steam and all types of disinfectants used in hospitals and other commercial applications.

5. Maintenance

With the exception of metal-faced HPL, surfaces do not suffer from corrosion and oxidation; they do not need any further surface protection (like lacquers or paints). Lacquers will however under some circumstances protect from HPL surfaces from being scratched.

6. HPL elements in fire situations

As wooden materials are used as substrates HPL laminated elements have fire characteristics similar to other wood based products. For their use as building material, they must be classified according to national fire performance regulations.

Due to incomplete burning, as with any organic material, hazardous substances can be found in the smoke. In dealing with fires in which HPL elements are involved, the same fire fighting techniques should be employed as with other based building materials.

7. Energy recovery

On account of their high calorific value (18-20 MJ/kg), HPL elements are ideal for thermal recycling. When burned completely, they produce water, carbon dioxide and oxides of nitrogen, similar to the burning process of any other organic wood based material.

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

The necessary requirements for complete combustion are:

- Sufficiently high burning temperature (>750 C)
- No forming of soot
- Sufficiently long residence time of the decomposition gases in the flame (>2 seconds)
- Optimal and sufficient air supply
- Controlled supply or well prepared combustible mixture

8. Waste disposal

HPL elements can be brought to control waste disposal sites according to current national and/or regional regulations.

9. Technical Data

9.1 Physical-chemical characteristics

- 9.1.1 Physical state Solid sheet
9.1.1 Density Approx. 0.62-0.68 g /cm³
9.1.2 Solubility Insoluble in water, oil, methanol, diethyl ether, n-octanol, acetone
9.1.3 Melting Point It does not melt
9.1.4 Calorific value 18-20 MJ/kg
9.1.5 Heavy metals HPL elements not contain toxic compound of antimony, barium, cadmium, chromium (m), chromium (vi), lead, mercury, and selenium

9.2 Stability and reactivity data

- 9.2.1 Stability HPL elements are stable: they are not considered to be reactive nor corrosive.
9.2.2 Hazardous reactions None
9.2.3 Material incompatibility Strong acids or alkaline solutions will damage the surface

9.3 Fire and explosion data

- 9.3.1 Ignition temperature Approx. 330C
9.3.2 Flash point None
9.3.3 Auto-ignition temp. None
9.3.4 Thermal decomposition by-products Possible above 160C like wood, toxic gases may be emitted, e.g. carbon monoxide, carbon dioxide, ammonia, depending upon the burning conditions (temperature, amount of oxygen etc.
9.3.5 Flammability HPL elements are not considered to be flammable. They will burn only in a fire situation, in presence of open flames
9.3.6 Extinguishing media HPL elements are considered Class A combustible materials. 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

9.4 Machining	
9.4.1 Explosion hazard	HPL elements machining, sawing, sanding, routing produces dust. Safety precautions and adequate ventilation shall be observed to avoid Airborne dust concentration
9.4.2 Explosion limits	Dust below 60 mg/m ³
9.4.3 Protection against fire and explosions	None required as for other wood based building materials
9.4.4	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 exposure in case of sheet machining
9.5 Storage, handling and transport	
HPL elements are classified as non-hazardous for transportation purposes and there are no specific requirements	
9.6 Disposal considerations	
9.6.1	Waste material shall be handled according to local regulations
9.6.2	Burning is permitted in approved incinerators
9.7 Health Information	
9.7.1	HPL elements are not considered to be dangerous for humans and animals. They have no evidence of toxicological effects and eco toxicity
9.7.2	HPL surfaces are physiologically safe and are approved for use in contact with foodstuffs according to pr-EN 1186
9.7.3 Working areas	General dust regulations to apply
9.7.4 Formaldehyde emission	<3.5 mg/hm ² according to EN 717-2 <0.1 ppm according to EN 717-1 (WKI Chamber Method)
9.7.5 Additional remarks	HPL elements 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 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.

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Warranty

LIMITATION OF WARRANTY AND LIABILITY

Limited Warranty: The Seller warrants the product sold hereunder shall conform in all material respects to the Seller's standard specifications shown on the Specification Sheets, which are available to the Buyer upon request. The Buyer assumes all risk as to the results of the use of the products purchased, whether used singly or in combination with other materials or in any process.

Limitation of Claims: At the Seller's option, replacement material without any additional cost to the Buyer, or purchase price refund will apply only in cases where manufacturer defect has been proven.

SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, BASED ON ANY COURSE OF DEALING OR USAGE OF TRADE OR OF FITNESS FOR PARTICULAR USE OR OTHERWISE, OTHER THAN STATED HEREIN OR REQUIRED BY APPLICABLE LAW, SELLER'S LIABILITY FOR ANY LOSS OR CLAIM WHATSOEVER, INCLUDING A CLAIM FOR BREACH OF THE WARRANTY OF MERCHANTABILITY, SHALL BE LIMITED SOLELY AND EXCLUSIVELY TO REPLACEMENT OF DEFECTIVE OR NON-CONFORMING PRODUCTS AND REPAYMENT OF THE PURCHASE PRICE. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY OTHER ACTUAL DAMAGES OR ANY SPECIAL INCIDENTAL, CONSEQUENTIAL OR EXEMPLARY DAMAGE.

Any course of dealings between the parties to the contrary notwithstanding, the Buyer is responsible for inspection of the product upon receipt and prior to any cutting or fabrication. Any claim by the Buyer for breach of warranty shall be deemed waived to the extent it could have been determined by such inspection, unless presented in writing ten (10) days from the date of receipt of the products to which such claims relate. In all events, claims not made within two months after receipt are deemed waived.

The seller shall have no liability for defects or other failures caused by failure to fabricate, install, use or maintain the products in accordance with Octopus' instructions.

The buyer assumes all risks and liability for loss, damage, or injury to person or property of the Buyer or others arising out of the use of possession of any products sold hereunder. Any question concerning this warranty should be mailed to:

Octopus Products Limited
Claims Department
23 Gurney Crescent
Toronto, ON
CANADA M6B 1S9

This warranty gives you specific legal rights. Consumers for personal or household use may also have other rights, which will vary from province to province, or in the USA, from state to state. Federal law does not permit the disclaimer or modification of implied warranties for consumers, but does permit the limitation of the duration of the implied warranties. Some provinces and states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

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