



# Greenlam HPL Technical Information

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## Maintenance

### 1. Maintenance & Cleaning

The daily maintenance of Greenlam laminates can be carried out easily using a soapy sponge or soft cloth. For more persistent marks and stubborn stains, use an appropriate non-scratch liquid or cream, or organic solvent (preferably white spirit or acetone), rinsing well with warm water and ensure all residue is wiped away with an all-purpose paper towel or lint-free cloth. Proprietary window cleaners are excellent for avoiding drying marks and can be used safely.

You should **never use abrasive products or cleaners** (including scouring pads and powders, steel wool, black soap) or bleaching agents, wax furniture polishes and cleaning products with strong acid or alkali bases.

Any spots of glue must be removed immediately. Neoprene or silicone joint spots must be removed with the appropriate solvent and vinyl glue with hot water. Residual flakes of glue may be removed with acetone.

#### 1.1 A note on textured finishes

By their nature, Greenlam textured finishes can be more difficult to clean than smooth surfaces. For stubborn marks in heavily textured Greenlam surfaces, a nylon bristle brush can be used in conjunction with any of the above cleaners to remove stains and stubborn marks.

#### 1.2 Resistance to stains

The non-porous nature of Greenlam laminates means they have excellent resistance to stains:

<b>No discolouration to the surface after 16 hours</b>	Coffee, tea, fizzy and cola drinks, wine vinegar, fruit and vegetables, alcoholic drinks, meats and poultry, animal fats and oils, mustard, water, salt solutions, detergents, toothpaste, hand cream, nail varnish and nail varnish remover, lipstick, watercolour paint, laundry marking ink, ballpoint ink, soapy solutions, commercial disinfectants, acetone-based scouring solutions and other organic solvents, 10% citric acid, basic stain removers diluted with water (<10%), oxygenated water, ammonia (concentrated at 10%)
<b>No discolouration to the surface if thoroughly cleaned within 10-15 minutes</b>	Formic acid (<10% hydrochloric acid, methylene blue (at 25%), caustic soda in water (30% acetic acid), sanitary whitening and cleaning agents based on hydrochloric acid (at 3%), bleach, acid cleaning agents for metals, Mercurochrome®, wax polish, colouring and colour lightening agents for hair, iodine dye, boric acid, varnish, lacquer and adhesives, hardening paint (except fast-drying products), limescale removers based on aminodosulfonic acids (<10%)

<p>Risk that the surface will deteriorate</p>	<p><b>Acids concentrated at more than 10%:</b>  Aminosulfonic acid, arsenic acid, hydrochloric acid, nitric acid, perchloric acid, phosphoric acid, sulphuric acid.  <b>Strong acids:</b>  Hydrobromic acid, chromic acid, hydrofluoric acid, sulfochromic acid, aqua regia.</p>
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## Storage & Handling

### 1. Handling

Care should be taken when handling Greenlam laminates to avoid accidental breakages and damage. When loading and unloading, sheets should be lifted and not slid. Care should be taken to avoid abrasion between decorative surfaces.

Individual sheets should be carried with the decorative face towards the body to reduce the risk of damage. Sheets become rigid and easier to handle if they are bowed along their length. Large sheets should always be handled by two people. If convenient, thin sheets of Greenlam laminates can be rolled, decorative face inwards into a diameter of no less than 600mm. Greenlam Metals should not be rolled or bent and must be stored flat.

When transporting stacks of sheets with mechanical handling vehicles, suitable sized pallets should be used.

If panels are covered in a protective film, this should be left on as long as possible after installation, but for no more than two months.

### 2. Storage

It is recommended to store Greenlam panels flat face-to-face in a temperature range between 10 and 30°C and in a humidity of between 40% and 60%. If possible, the use of a cover board over the top sheet to keep it flat is recommended.

If horizontal storage is not possible, or only where small stocks of Greenlam laminates are kept, these can be stacked on edge in slightly inclined (80° or thereabouts) vertical racks with support over the entire surface. A cover board should be used to prevent slipping.

Panels should be allowed to acclimatise and stabilise before fabrication for a minimum of three days.

### 3. Machining & Cutting

Standard wood cutting, drilling and finishing machines can be used with Greenlam laminates, though preliminary tests should be carried out to determine the characteristics of the tools and the cutting speeds required in order to avoid overheating or a defective finish. To obtain a good quality cutting finish the following is recommended:

- Tungsten carbide or diamond cutting tools
- A rigid sacrificial panel to prevent flaking when leaving the cutting tool

The thicker nature of Greenlam Unicore panels require the use of very sharp or diamond-tipped tools and will require finishing after cutting. The cutting speed should be reduced and the use of a sacrificial panel is essential.

#### 3.1 Results with cutting tools

*Industrial Circular Saw:* Use a large diameter blade (e.g. 240mm) with at least 80 teeth and at a rotation speed of between 6,000 and 9,000 rpm. For compact panels use blades with flat trapezoidal or alternating bevelled teeth for the best result.

*Wall or Beam Saws:* The most convenient method of cutting large sheets to smaller sizes.

*Band Saws:* Band saws are ideal for rough cutting work and manganese steel blades having hacksaw shaped teeth are recommended.

*Jigsaws:* The upwards movement of jigsaw blades can cause chipping on the cutting edge. Cuts should be made with a fine-toothed blade and with the decorative side facing downwards.

*Spindle Moulders:* Tips must be tungsten carbide and high speeds in order of 5000-8000rpm will give the best result. Milling heads and cutter blocks with disposable TCT or PCD cutters (both straight and profiled) provide a convenient method of machining edges, keeping down time for sharpening to a minimum. Solid tipped cutter blocks with 4-10 blades will pay for themselves in operations such as edge shooting, profiling and edge rebating.

*High Speed Fixed Head Routers:* Can be used for a variety of operations such as profiling, edge trimming and grooving. It is not usually necessary to use speeds in excess of 18,000rpm. For curved work it is advisable to rough cut the shape first on a band saw leaving 5mm all-round for subsequent trimming on the router.

*Portable Hand Routers:* Invaluable for clean hole cutting, edge finishing and trimming on-site. These routers can be fitted with small saws for on-site edge grooving of all panels.

*Portable Hand Trimmers:* Compact hand electric trimmers with speeds of 18,000 – 20,000rpm are primarily designed for use with decorative laminates.

*Portable Circular Saw:* Can be used for on-site cutting, the direction of rotation requires the sheets to be cut face down to avoid chipping. A fine-toothed saw blade is essential to reduce subsequent finishing.

#### **4. Pre-conditioning**

The most important factor in achieving stability in bonded panels is to ensure correct pre-conditioning. Carrying out the right pre-conditioning of core materials, surfacing and backing laminates ensures the effects of differential movement caused by climatic and humidity changes are minimised.

Decorative laminates and core materials should be acclimatised to avoid them being either too dry or too damp. Optimal conditions are a temperature range between 10 and 20°C and in a humidity of between 40% and 60%.

Sheets that will form the opposite faces of the same composite board should be conditioned as a pair, with sanded backs together. Sheets paired in this manner should be stacked, covered and left for a minimum of three days in order to reach equilibrium and to ensure the strongest bond.

Wood-based core materials should have moisture content of approximately 9%. It is essential that the laminate has the same moisture content, though moisture meters for wood can not be used for measuring the moisture content of the laminate.

If composite boards are to be used in close proximity to constant low relative humidity, such as with radiator casings, laminates and core materials should be conditioned in similar conditions for a suitable period in order to pre-shrink the materials and to avoid any subsequent stresses on the bond due to shrinkage.

Panels and boards faced with decorative laminate will nearly always require the reverse faced with a similar material to counter-balance the effects of dimensional changes.

## **Composition**

Greenlam high pressure decorative laminates are man-made veneers of high density, consisting of layers of specially selected paper impregnated with thermoset synthetic resins fused together under extreme pressure and heat. The surface layers, which incorporate solid colours, patterns or natural decors, use melamine-based resins to provide high-resistance to wear, impact, heat and staining. The core layers use phenolic-based resins for strength and flexibility.