**TECHNICAL DATA SHEET**

# LACQUER UV SHIELD

**Professional water-based UV protective lacquer for CLT and architectural timber**

Natural White • Advanced UV Protection • Water-Repellent Technology

## PRODUCT DESCRIPTION

LACQUER UV SHIELD is a professional, next-generation, water-based acrylic protective lacquer specially developed for CLT (Cross-Laminated Timber), Glulam (glued laminated timber), solid timber structures and architectural timber elements where the aim is to preserve the wood’s natural light appearance for as long as possible.

The product combines a high-performance acrylic binder, a specialised UV stabilisation system and controlled micropigmentation based on Natural White Technology, providing comprehensive protection against the effects of light, moisture and contamination.

Unlike traditional clear lacquers, which provide only limited protection against the natural photochemical colour changes in wood, LACQUER UV SHIELD helps significantly slow the yellowing and darkening of the wood surface caused by ultraviolet and visible light.

A carefully balanced combination of UV absorbers, light stabilisers and mineral UV filters provides multi-stage protection for both the wood substrate and the polymer coating itself.

Natural White Technology creates a subtle optical effect resembling freshly prepared, uncoated wood, visually compensating for the wood’s natural yellowing and helping preserve the characteristic light appearance of spruce, pine and other softwoods for longer.

The coating remains semi-transparent, so the natural grain, growth rings, knots and characteristic structure of the wood remain clearly visible.

Once dry, the product forms a thin, matt, water-vapour-permeable protective coating with a natural appearance, good water-repellent properties and high resistance to surface soiling.

## KEY BENEFITS

- Advanced UV Protection - comprehensive protection against the effects of ultraviolet radiation.
- Significantly slows the natural yellowing and darkening of wood.
- Natural White Technology - helps preserve the light appearance of freshly prepared wood.
- Does not obscure the natural grain or structure of the wood.
- Creates a natural matt surface without a pronounced lacquer-film appearance.
- Specially developed for CLT and contemporary timber architecture.
- Suitable for large-format timber panels.
- Good water-repellent properties.
- Reduces water absorption at the wood surface.
- Reduces the penetration of household and construction-related contaminants into the wood structure.
- Makes treated surfaces easier to clean.
- Excellent adhesion to wood.
- Good coating flexibility.
- Excellent flow and levelling.
- Extended open time allows more time to work on large surfaces.
- Minimal raising of wood fibres.
- Fast drying.
- Low VOC content.
- Low odour.
- Water-based technology.
- Suitable for both manual and industrial application.

## RECOMMENDED APPLICATIONS

LACQUER UV SHIELD is recommended for protecting the following surfaces:

- CLT (Cross-Laminated Timber);
- Glulam (glued laminated timber);
- solid wood;
- timber walls and ceilings;
- architectural timber panels;
- timber wall and ceiling elements;
- timber beams and load-bearing structures;
- prefabricated timber elements;
- modular timber structures;
- interior timber panels;
- decorative solid wood elements;
- industrially manufactured timber elements.

The product is particularly recommended for contemporary timber architecture projects in which natural wood remains visible and forms an integral part of the interior design.

## NATURAL WHITE TECHNOLOGY

Wood is a natural material whose colour gradually changes when exposed to light.

Lignin and other wood components undergo photochemical changes, causing light-coloured wood species to develop a more pronounced yellow or darker tone over time.

A traditional clear lacquer can protect wood against water and contamination, but has only a limited ability to reduce the amount of light reaching the wood surface.

LACQUER UV SHIELD uses a comprehensive protection system:

**UV Absorber + HALS Light Stabiliser + Mineral UV Shield + Natural White Micropigmentation**

UV absorbers reduce the amount of the most harmful ultraviolet radiation reaching the wood surface.

HALS light stabilisers support the long-term stability of the polymer film and help reduce photochemical degradation of the coating.

Special mineral UV filters additionally scatter and reflect part of the incident radiation.

Controlled white micropigmentation reduces the photochemical effect of light on lignin while visually compensating for the wood’s natural yellowing.

As a result, the treated surface retains the light appearance characteristic of freshly prepared wood for considerably longer.

## COATING APPEARANCE

Once dry, LACQUER UV SHIELD Natural White forms a semi-transparent matt coating.

The product is not intended to create an opaque white paint layer.

After application, the following natural wood features remain clearly visible:

- natural wood grain;
- growth rings;
- knots;
- natural colour variations;
- characteristic wood texture.

The coating visually lightens the wood, creating a contemporary Scandinavian-style natural wood appearance.

## TECHNICAL PARAMETERS

| Parameter | Value |
|---|---|
| Product type | Water-based UV protective lacquer for wood |
| Binder type | High-quality acrylic dispersion |
| Product appearance | Milky-white liquid |
| Appearance when dry | Semi-transparent matt coating |
| Colour | Natural White |
| Transparency | Semi-transparent |
| Gloss (60°) | Approximately 5-12 GU |
| Density | Approximately 1.05-1.10 kg/l |
| Solids content | Approximately 30-35% |
| pH | 8.0-8.5 |
| VOC | < 50 g/l* |
| Thinner | Water |
| Odour | Low |
| Tool cleaning | Water |

* The exact VOC value will be determined after the final industrial formulation has been approved.

## APPLICATION METHODS

The product can be applied using:

- a brush;
- a roller;
- airless spray equipment;
- Airmix spray equipment;
- conventional air spraying;
- automatic coating equipment;
- industrial coating lines.

For industrial production, the application viscosity can be adjusted to suit the customer’s specific coating equipment and process parameters.

## RECOMMENDED APPLICATION PARAMETERS

| Parameter | Recommended value |
|---|---|
| Application rate | 100-140 ml/m² per coat |
| Number of coats | 1-2 |
| Thinning | Ready to use; add up to 5% water if required |
| Product temperature | +15 to +25 °C |
| Substrate temperature | +10 to +30 °C |
| Relative humidity | < 80% |
| Optimum relative humidity | 40-70% |

Do not apply to frozen, damp or overheated wood.

For individual coat application rates, see Recommended Coating System on page 6.

## DRYING TIMES

At +20 °C and 50-60% relative humidity:

| Parameter | Approximate time |
|---|---|
| Dust-dry | 30-60 minutes |
| Touch-dry | Approximately 1 hour |
| Recoatable | 3-4 hours |
| Ready for careful handling | Approximately 4 hours |
| Full coating performance | 5-7 days |

Low temperatures, high relative humidity, insufficient ventilation and excessive coating thickness will extend drying times.

## SCOPE OF USE

For interior use and sheltered timber structures.

For professional and industrial use.

## SURFACE PREPARATION

The wood must be dry, stable and free from:

• dust;
• wood particles and shavings;
• oils;
• grease;
• waxes;
• silicones;
• resin;
• other contaminants that could adversely affect coating adhesion.

Recommended wood moisture content:

**8-15%.**

The surface must be evenly sanded.

Recommended final sanding:

**P120-P180**

After sanding, thoroughly remove all sanding dust.

To achieve the most uniform Natural White effect possible, a trial application on wood from the same production batch is recommended before full-scale application.

## RECOMMENDED COATING SYSTEM

For CLT and architectural timber

| Coat | Product and application rate |
|---|---|
| First coat | LACQUER UV SHIELD · 100-140 ml/m² |
| Second coat | LACQUER UV SHIELD · 80-120 ml/m² |

After drying, lightly sand between coats if required: **P240-P320**. Thoroughly remove sanding dust.

A one- or two-coat system may be used, depending on the desired decorative effect and service conditions.

## PROTECTION DURING TRANSPORT AND INSTALLATION

The treated surface has reduced water absorption and is less susceptible to contaminants penetrating the wood structure.

This is particularly important for large-format CLT elements, which pass through several process stages before a building is completed:

**production → storage → transport → installation → construction → final finishing.**

The protective coating makes construction dust and accidental surface contamination easier to remove and reduces the risk of stubborn stains forming.

However, the product must not be regarded as a substitute for appropriate protection of timber structures against prolonged exposure to rain or other adverse weather conditions.

## UV PROTECTION AND NATURAL WOOD AGEING

LACQUER UV SHIELD significantly reduces the rate of light-induced colour changes in wood; however, the natural ageing processes of wood cannot be stopped completely.

The extent and rate of colour change depend on:

- wood species;
- the amount of product applied;
- sunlight intensity;
- surface orientation;
- the building’s glazed area;
- glazing type;
- temperature;
- duration of exposure and time in service.

The best possible retention of the original light wood tone can be achieved by applying the recommended amount of product evenly over the entire surface.

## PERFORMANCE PROPERTIES

After complete drying and curing, the coating provides:

- high lightfastness;
- increased resistance to UV radiation;
- good adhesion to wood;
- good coating flexibility;
- water-repellent properties;
- reduced water absorption;
- resistance to short-term moisture exposure;
- reduced susceptibility to surface soiling;
- easy cleaning;
- a natural matt appearance;
- high colour stability of the coating;
- good resistance to coated surfaces sticking together (blocking).

## BENEFITS FOR CLT MANUFACTURERS

- Suitable for industrial application at the factory.
- Suitable for large-format timber panels.
- High productivity in industrial coating processes.
- Fast drying.
- Suitable for spray application.
- Low odour.
- Application equipment can be cleaned easily with water.
- Minimal alteration of the wood’s natural structure.
- Improves the visual and commercial quality of CLT panels.
- Helps preserve the light appearance of wood during storage, transport and service.
- Reduces the risk of construction-related contaminants penetrating deep into the wood.
- Enables timber surfaces to receive their decorative finish at the factory.

## RECOMMENDED TESTING

To verify the performance properties of the finished coating system, testing may be carried out in accordance with the following standards:

- EN 927 - Paints and varnishes. Coating materials and coating systems for exterior wood;
- ISO 2813 - Determination of gloss value;
- ISO 2409 - Assessment of adhesion using the cross-cut method;
- ISO 16474 - Methods of exposure to laboratory light sources;
- EN ISO 7783 - Determination of water-vapour transmission properties;
- EN 12720 - Assessment of surface resistance to cold liquids;
- EN 71-3 - Migration of certain elements, where applicable to the intended use.

Compliance with a specific standard may only be declared after the relevant tests have been successfully completed.

## CLEANING AND MAINTENANCE

Remove fresh dirt with a soft, damp cloth.

Do not use abrasive cleaners, metal scouring pads or aggressive solvents.

Before using any cleaning product, test it on an inconspicuous area of the coated surface.

## CLEANING TOOLS AND EQUIPMENT

Immediately after use, thoroughly rinse coating equipment, spray systems and tools with clean water.

Remove dried material mechanically or with suitable cleaning products intended for water-based coatings.

## STORAGE CONDITIONS

Store in tightly closed original packaging at **+5 °C to +30 °C**. Protect from freezing, direct sunlight and heat sources.

Once the packaging has been opened, it is recommended to use the product as soon as possible.

**Expected shelf life: 24 months from the date of manufacture.**

## SAFETY PRECAUTIONS

Use appropriate personal protective equipment when applying the product by industrial spraying.

It is recommended to:

- wear protective gloves;
- use suitable eye protection;
- use suitable respiratory protection during spraying;
- ensure adequate ventilation in the work area;
- avoid contact with skin and eyes;
- keep out of reach of children.

Refer to the current product Safety Data Sheet (SDS) for information on safe handling, exposure controls and disposal.

## ENVIRONMENTAL PROTECTION

Prevent the product from entering drains, surface water or groundwater. Do not discharge product residues directly into the environment. Dispose of product residues and contaminated packaging in accordance with applicable local waste-management requirements.

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