Teknos Technical Library

Application Guide

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Supporting documents

Drying parameters

OAK TRANSLUCENT SYSTEM: WATER BASED

FACTORY METHOD STATEMENT

The following information provides an overview of the application of factory applied translucent finishes to oak joinery items such as windows, doors and conservatories.

It has been designed to help manufacturers adopt good working practices in their manufacturing and coating process, ensuring service life is maximised. This information must be used in conjunction with the relevant coating specification and product technical data sheets. Additional, more detailed information sheets are also available.

BASIC CONSIDERATIONS

Design

- Cills and non vertical surfaces must give efficient water shedding, with a slope angle of not less than 9°
- Surface tension causes wet paint to flow away from sharp edges leaving them relatively unprotected. A minimum external radius no less than 3mm is required to avoid thinning of the coating system in accordance with British Standard 644
- Interior edges should be rounded to at least 1.5mm radius
- The design must preclude obvious water traps. Any gaps or recesses in the joinery should be sufficiently wide to prevent capillary draw of water into holding areas, we typically recommend a 3mm gap
- Fixing pins, particularly on horizontal glazing beads, must not allow the ingress of water. If pins are punched below the surface, filling must be carried out to ensure that a water collecting hollow is not produced. Secondary filling may be necessary to account for shrinkage
- Stainless steel fixings must be used
- As a minimum, the construction guidelines set out in BS 644 should be followed at all times

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Sanding

- Sanding is commonly used for small scale, purpose made, joinery. Finishing results can be greatly improved by minimising sanding and denibbing and selecting the appropriate grade of abrasive paper.

- This is very important if automatic drum sanders are used. The grit of the belt on the first drum should be as fine as possible to prevent the substrate being ripped open, ideally 120, with subsequent belt grades coordinated to close the surface e.g. 150, and the finishing belt 180 grit.

Fillers

- The filling of defects can be difficult when using translucent finishes. It is important to ensure that the colour of any filler used should be as close as possible to the colour of the base coated timber and not the original timber colour.

- Some hard wax fillers are suitable for use with Teknos products although we do not recommend the use of soft wax fillers on external joinery due to the extremes of temperature that can occur.

Degreasing

All surfaces should be clean, dry, and free of dust, grease, and other contaminants. See ISO 12944, part 4. Oak contains natural oils and waxes and must be thoroughly degreased with strong cellulose thinner to remove all surface contamination immediately prior to coating. Failure to degrease will impede drying and reduce coating adhesion. Always use the correct solvent to degrease - never use a white spirit mix.

Safety

Degreasing should always be carried out in a well-ventilated area.

- When working with solvents use barrier creams or gloves to avoid skin contact and after use follow the manufacturer's recommended hygiene good practice detailed in the product MSDS.
- Ensure all waste materials are disposed of correctly. Solvent rags must be separated from other waste and stored in a closed metal container. Waste solvent should be stored in a suitable sealed metal container prior to appropriate disposal.

Degreasing guidelines are shown below:

- Fill two litres of fresh solvent into a clean metal container. Two litres of fresh solvent will normally be sufficient to degrease timber equivalent to 10 windows or five doors.
- Soak a clean cotton wipe in the solvent and wring out. Always use lint free cotton wipes (available from most hardware outlets) - synthetic wipes will not absorb the oils and will tend to spread contaminants across the surface.
- Thoroughly wipe each surface to be degreased, rinsing and wringing out the cloth regularly in solvent and frequently turning it over and refolding it to present a clean surface. Use a clean wipe when required.
- After degreasing, allow 30 minutes for the residual solvent to flash off before applying the base stain. Always apply base stain within four hours of degreasing the joinery item.
- **Never use solvent in an enclosed space.**

Moisture content

Moisture content of the timber at the time of coating should be in the range of 12-16%.

Environmental and storage conditions

All coating products must be kept away from frost, cold draughts, and ideally be stored at a constant temperature above 10°C. Containers should never be stored on the workshop floor, which can become very cold in winter, instead they should be stored on pallets.

Coatings may be applied to surfaces between 15°C and 30°C and at humidity levels below 80%, but it is desirable to avoid the extremes.

Factory conditions in the spray area should ideally be between 15°C - 22°C with humidity levels between 45% - 70%. Temperatures and humidity levels outside these parameters will impact on the coatings ability to dry and cure and may detract from the appearance and long term performance.

Drying areas must be kept dust free, and kept at a steady temperature of 15°C - 22°C. Avoid switching off heating overnight, particularly in winter. With waterborne coatings drying is greatly improved if a steady air flow (1-1.5m³/ min) is maintained over the face of the coated joinery. This can be achieved with overhead rotary fans. It is also important to replace the damp air with fresh dry air - we recommend one to two air changes per hour.

When painting, surface temperatures must be at least 3°C above the dew point to prevent moisture condensation during the drying process.

Pre painting treatment

After applying the primer, any exposed end grain on the bare timber components must be sealed using TEKNOSEAL 4000

TEKNOSEAL 4000 is supplied ready to use and should not be thinned. Re-seal containers after use to prevent evaporation and skinning.

TEKNOSEAL 4000

Teknoseal 4000 applied by brush to exposed end grain as part of the finishing process

Application:

For optimum performance two generous brush coats must be applied to all areas of exposed end grain. Vulnerable areas, such as door stiles, projecting cills and cut glazing beads require special attention.
For areas of severe exposure (e.g. coastal locations) application of an additional coat is recommended.

Drying time at 23°C / 50% RH:

Touch dry after 30 minutes.
Recoatable after one to two hours.

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Paint products

This section gives a general description of a typical Teknos translucent coating system. It should be read together with the detailed specification and technical data sheets for your particular application.

PRESERVATIVES*	
TEKNOL AQUA 1410	Preservative for dip and flow coat application
AQUA PRIMER 2907	Combined primer/ preservative for dip and flow coat application

*Typically, Oak does not require a preservative. If the natural durability does not meet the class requirement as determined by BS EN 335-2, it must be treated with a preservative in conformance with BS EN 599-1.

Important safety note: Teknos strongly recommend NOT to atomise spray TEKNOS AQUA 1410 or AQUAPRIMER 2907 preservatives in an open manufacturing environment.

BASE COATS	
AQUA PRIMER 2900	General purpose spray, dip and flow coat base stains for a variety of substrates

TOP COATS	
AQUATOP 2600	Microporous topcoat

ANCILLARY PRODUCTS	
TEKNOS V JOINT SEALER	V joint sealer adhesive/ sealant
TEKNOSEAL 4000	End grain sealer
TEKNOFILL 5001	Fine surface filler

Application set up

In UK joinery shops, top coat is most commonly applied by air assisted airless spray and base stains by dip, spray or flow coater. Typical set up parameters are shown opposite.

Air assisted airless spray

- Tip size: 11 or 13 thou
- Spray fan angle: 20° or 40° dependant on item coated
- Application pressure: 1500 psi
- Control air pressure: 25 - 30 psi
- Typical wet film thickness: 150 - 175µ

Dip or flow coat

- The hanging angle should be more than 20° to ensure clean run off of the product. Monitor the run off to ensure any product traps are removed.
- Keep the product away from direct air movement for 15 minutes to allow for flow out and an even film build to be achieved

Applying AQUAPRIMER 2900 base stain by spray

If the base stain is spray applied, it is important to thoroughly stir the product, apply an even coat, then brush the joinery down to remove any excess material to help prevent build up and runs which will leave dark lines on the joinery item.

- Hang the item to be coated at an angle to assist run off.
- Saturate spray the joinery to ensure the surface is fully wetted, especially open grained areas.
- After five minutes remove any runs and excess material on edges with a brush.
- Allow to dry for a minimum of 2-3 hours and ensure all surfaces are fully dry before further coating application. Using a 9 or 11 thou tip, dropping the application pressure to 1000 psi, and increasing the control air pressure to 35-40 psi will help to 'soften' the spray fan and improve finish uniformity.

Equipment cleaning

Application equipment can normally be cleaned using cold water. Under certain circumstances, it may be advantageous to use warm soapy water. Please refer to our 'Spray equipment cleaning and maintenance' sheet.

Paint application

This section describes a typical coating sequence and should be read in conjunction with your coating application specification which is tailored to your own application conditions. Additional information sheets are available covering issues such as drying parameters, treatment of knots and end grain, moisture content and machining tolerances, winter painting, site care and storage, dip and flow coat management, pH adjusting, surface preparation, and design and installation. These can all be found on the Teknos website in the 'Technical library'.

Step 1: Base stain (preservation*)

PRODUCTS	AQUAPRIMER 2900
PRODUCT PREPARATION	All products are supplied ready for use; stir thoroughly before application. For flow coater and dip application, the viscosity of the product should be adjusted and maintained in line with individual product technical data sheets and the 'pH adjusting - dip and flow coaters' guidelines
APPLICATION	Using air assisted airless spray equipment apply an even coat of primer in the correct colour shade to all surfaces, or dip/flow coat in line with Teknos data sheet guidelines.
DRYING TIME AT 23°C AND 50% RH	Touch dry after 1-2 hours. Recoatable after 2-3 hours
	Apply TEKNOSEAL 4000 to exposed end grain. **NB: Apply TEKNOSEAL 4000 & V-JOINT SEALER after step 2 mid coat. If production processes incorporate application by flow coating.**
SURFACE CHECK	Check all surfaces for any defects and action as required. Ensure all residual dust is removed from the surface of the joinery items.
SEAL CONSTRUCTION JOINTS	Apply a continuous bead of Teknos V JOINT SEALER at the width of the joint and smooth with a damp sponge, cloth or squeegee, to ensure good penetration and levelling in the joint. Alternatively, apply a suitable adhesive sealant generously to all surfaces to be bonded, using light pressure to form the joints and excess adhesive to seal any exposed end grain and construction joint. This can also be used to cap all lower internal joints in mid and bottom rail rebates. Both products can be top coated after 1-2 hours with an AQUATOP 2600 finish

Step 2: Mid coat

PRODUCTS	AQUATOP 2600 topcoat or a mid coat such as AQUAFILLER 6500**
PRODUCT PREPARATION	All spray products are supplied ready for use; stir thoroughly before application.
APPLICATION	Using air assisted airless spray equipment apply an even coat of mid coat or top coat in the correct colour shade to all surfaces. The wet film thickness should be between 150 and 175µm with no over coating on corners or joints with adjacent components.
DRYING TIME AT 23°C AND 50% RH	Touch dry after 2-3 hours. Recoatable after 3-4 hours
DENIBBING	Denib all surfaces to remove any raised fibres using a fine grade abrasive between 180 and 220 grit. Nylon and foam filled denibbing pads are very useful for denibbing, particularly on mouldings, and profiled sections. The fine grit efficiently removes protruding fibres while discouraging over sanding and the removal of coating from edges
SURFACE CHECK	Check all surfaces for any defects and action as required. Ensure all residual dust is removed from the surface of the joinery items.
	If applying by flow coat, apply TEKNOSEAL 4000 and V JOINT SEALER to exposed end grain here.
SEAL CONSTRUCTION JOINTS	Apply a continuous bead of Teknos V JOINT SEALER at the width of the joint and smooth with a damp sponge, cloth or squeegee, to ensure good penetration and levelling in the joint. Alternatively, apply a suitable adhesive sealant generously to all surfaces to be bonded, using light pressure to form the joints and excess adhesive to seal any exposed end grain and construction joint. This can also be used to cap all lower internal joints in mid and bottom rail rebates. Both products can be top coated after 1-2 hours with an AQUATOP 2600 finish

Step 3: Top coat

PRODUCTS	AQUATOP 2600 topcoat
PRODUCT PREPARATION	All spray products are supplied ready for use; stir thoroughly before application.
APPLICATION	Using air assisted airless spray equipment to apply an even coat of topcoat in the correct colour shade to all surfaces. The wet film thickness should be between 150 and 175µm with no over coating on corners or joints with adjacent components.
DRYING TIME AT 23°C AND 50% RH	Touch dry after 2-3 hours. Dry after 3-4 hours

****Always refer to the Technical Datasheet for full instructions on how to use Teknos products.**

For further support, contact your local Teknos coating expert or visit **teknos.com**

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