

## Working guideline for coating dimensionally stable and limited dimensionally stable construction elements

Windows – Front doors and Shutters – Garage doors

### Coating of front doors and garage doors with Aquawood Protor

The Aquawood Protor system has been developed for coating diverse substrates that front doors and garage doors are manufactured today. Doors and gates are more than just functional building components – they are the visiting card of every house and an important architectonic design element. Finally, building components need to be protected with the help of particularly resistant and scratch-resistant coating systems against stress caused by heat, cold, moisture and UV radiation. The Aquawood Protor system comprises the two-component water-thinnable primer coat **Aquawood Protor-Base D NG** or **L NG** (opaque or transparent) in combination with the two-component finishing coats **Aquawood Protor-Finish D NG** or **L NG** and for metallic finishes with **Aquawood Protor-Finish Pearl**. If finely textured surfaces and even greater resistance to scratches are required, it is sufficient to merely add the texture paste **Aquafix S**.

A description of the coating systems in dependence of the wood species can be found in chapter 2 of the present working guideline.

The colour shades that can be used depending on the types of wood are furnished in chapter 3 of these working guidelines.

The permissible types of wood are provided in the general section of the “ARL (Working guidelines) for coating dimensionally stable and limited dimensionally stable building components”, chapter 2.

In addition, attention is drawn to wood-based materials that have been cleared by the manufacturer for use indoors.

#### 1.) Weathering strength and constructional requirements

According to DIN (ÖNORM) EN 927-1, you differentiate between three groups of climatic stress for wooden components used outdoors:

**Moderate:** Usually on the north side of buildings (NW to NE)

**Harsh:** Usually on the east side of buildings (NE to SE)

**Extreme:** Usually on the southern and western sides of buildings (SE to NW)

**The Protor front door coating is suitable for all groups of climatic stress.**

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p.t.o.

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Similarly, you also have three classes according to EN 927-1 as far as the construction is concerned:

**a.) Protected condition of installation**

The front door is protected by adequate projection of the roof against rain, wind and direct exposition to sunlight. This is applicable to doors that are located below deep roof projection, are set behind deeply in the walls or are protected by balconies.

**b.) Partially protected condition of installation**

The climate acts on the front door, which is only partially protected against rain, wind and direct sunlight by small roof projections or installation depth.

**c.) Unprotected condition of installation**

Climate, in the form of rain, wind and direct sunlight, acts unhindered on the front door. This is particularly true for doors installed flush with the facade.



**The Protor front door coating is recommended for protected and partially protected constructions or conditions of installation.**

For **unprotected constructions** and installation conditions of front doors (rarely) that only solvent-based thin-film glazes can be recommended. For this purpose, refer to the tender text for front door coatings (brushing / wiping method), special application.

- All edges must be rounded with a radius of at least 2 mm
- Horizontal profile surfaces must have a tilt of at least 15°
- Add-on components such as frames or braces and laths must be coated on all sides prior to installation
- Milling in highly absorbent substrates, edges, flattening and mitre cuts must be protected against water penetration with an additional coat (e. g. ADLER 2K-Epoxi-Grund, see coating systems MDF or Hirnholzversiegelung).
- An installation depth of at least 10 cm in relation to the façade *must be maintained*.
- *The area near the floor (approx. 30 cm) of front doors, if necessary, must be protected against the impact of water spray (flashing)*
- The quality of the MDF must be approved by the manufacturer for outdoor use
- Sealants must be applied in accordance with the specifications of the manufacturer and must be released by ADLER with respect to compatibility (see ARL - Working guidelines for coating dimensionally stable and limited dimensionally stable construction elements - General part, chapter 9)
- Glues must be certified for the Watt 91 and creep tests and they must meet the stress category D3 or D4 in accordance with EN 204/205

Other instructions for constructional requirements are furnished in the General Part of the "Working guidelines for coating dimensionally stable and limited dimensionally stable construction elements" in section 3.4 – Constructional requirements and installation recommendations - front doors and garage doors.

## **2.) Brief Description of Coatings**

### **2.1. Transparent front door coating for hardwoods**

Wood sanding grit size 150

- Spray once with ADLER Protor-Primo (solvent-based) in the desired colour shade, and then level it  
Alternatively, spray a thin coat once with Aquawood TIG HighRes in the desired colour shade
- Slight smooth sanding, if necessary
- Treat joints and cross-grained wood sections with ADLER V-Fugensiegel (joint sealer)
- Spray 2 times with Aquawood Protor-Base L NG, wet film thickness, 125 – 150 µm
- Intermediate sanding grit size 220 – 240
- Spray once with Aquawood Protor-Finish L NG, wet film thickness approx. 250 µm

### **2.2. Transparent front door coating for softwoods**

Wood sanding grit size 120

- spray once with Aquawood TIM (colourless), intermediate sanding grit size 220 – 240
- spray once with ADLER Protor-Primo (solvent-based) in the desired colour shade, and then level it  
Alternatively, instead of Aquawood TIM /Protor-Primo: Spray a thin coat once with Aquawood TIG HighRes in the desired colour shade (withour prior application of Aquawood TIM)
- slight smooth sanding, if necessary
- treat joints and cross-grained wood sections with ADLER V-Fugensiegel (joint sealer)
- spray once with Aquawood Protor-Base L NG, wet film thickness, 125 – 150 µm
- intermediate sanding grit size 220 – 240
- spray once with Aquawood Protor-Finish L NG, wet film thickness approx. 250 µm

Note: for larch wood with a high content of water-soluble wood constituents (e. g. Siberian larch) the 2 times application of Aquawood Protor-Base L NG improves the surface quality as with hardwood.

### **2.3. Opaque front door coating for hardwood and softwood**

Sand hardwood with grit size 150 and use grit size 120 for softwood

- spray one with Aquawood TIG HighRes Weiß
- spray once with Aquawood Protor-Base D NG wet-film thickness 150 - 200 µm
- intermediate sanding grit size 220 – 240
- spray once with Aquawood Protor-Finish D NG Wet film thickness approx. 250 µm

## **2.4. Opaque front door coating for MDF - even in combination with different types of wood**

Please use only moisture-resistant MDF panels of type V100 with pre-insulation or recommended qualities of wooden parts for outdoor use.

Sand hardwood and MDF with grit size 150, and use grit size 120 for softwood

### **Pre-treatment only for softwood:**

Apply Pullex Aqua-Imprägnierung or Aquawood TIG HighRes Weiß using a brush  
Smooth sanding grit size 280

### **Pre-treatment for MDF:**

Apply a preliminary coat on milled surfaces and edges with the solvent-based ADLER 2K-Epoxi-Grund Weiß (white) without thinning, after approx. 4 hours spray over the entire surface thoroughly. Dilution with approx. 25 – 30% of ADLER Epoxi-Spritzverdünnung.

Overnight drying. Smooth sanding with grit size 240.

Alternatively, you may use ADLER PUR-Isofill for pre-treatment of MDF.

- spray once with Aquawood Protor-Base D NG  
wet-film thickness 150 - 200 µm
- smooth sanding with grit size 240
- spray once with Aquawood Protor-Finish D NG  
wet film thickness approx. 250 µm

## **2.5. Opaque front door coating for phenol resin-based work-pieces**

Wood sanding with grit size 150

- spray once with Aquawood Protor-Base D NG, wet film thickness, 150 – 200 µm
- smooth sanding with grit size 240
- spray once with Aquawood Protor-Finish D NG, diluted with approx. 5% water  
wet-film thickness 150 - 200 µm

For work-pieces made of plastic, however, you first need to check the coating and get prior consent from ADLER.

## **2.6. Opaque front door coating for aluminium**

Wood sanding with grit size 150, degrease with ADLER Entfetter

- spray once with ADLER 2 K-Epoxi-Grund Weiß Dilution with approx. 25 – 30% of ADLER Epoxi-Spritzverdünnung, wet film thickness 100 – 150 µm
- smooth sanding with grit size 220 - 240
- spray once with Aquawood Protor-Finish D NG, diluted with approx. 5% water  
wet film thickness 150 – 200 µm

Please observe the relative technical data sheets of the products.

Attention: When processing products containing active substances, it is essential to use protective masks with activated carbon filter (A2P3) in the spraying process!

### 3.) Types of wood and the brightest permissible colour combination for transparent coating systems

For wooden entrance doors, veneered wood or solid wood is used, often also in mixed construction. The influence and the available amount of natural, often coloured wood constituents (such as tannins in oak) is lower for veneered wood than for solid wood. This is why their influence on the coating systems is also different, as far as changes in the colour shade in case of weathering of transparent coatings and the risk of annoying erosion is concerned (the latter is possible practically only with solid wood). In principle, changes in the colour shade of transparent coatings on wood in case of weathering cannot be prevented, but they should also not assume any disturbing proportion.

This is why we differentiate between the brightest transparent colour shades approved by us for particularly important types of wood such as Oakwood for front doors depending on whether veneered wood or solid wood is used. In case of mixed constructions, you need to orient yourself to the more difficult substrate consisting of solid wood!

For softwoods, ash and the red-tinged types of hardwood (Meranti, Mahogany etc.) there are no separate recommendations for the brightest colour shade of transparent coatings for solid wood or veneer.

For the inner sides of front doors (separate internal and external coating) there are no restrictions regarding the colour shades for transparent coatings. This is where colourless coatings or those with a finish such as whitewashed oak can be implemented.

Table of the brightest colour shade combinations transparent coating systems of Aquawood Protor that have been approved depending on types of wood used frequently:

#### Partially protected condition of installation

|   | <b>Brightest colour shade of Protor-Primo / Aquawood TIG HighRes</b>   | <b>Brightest colour shade of Aquawood Protor-Finish L NG</b> |
|---|--|--|
| <b>Softwood and ash, solid and veneered</b>                         | Light brown, pine, white<br>(Aquawood TIG HighRes Weiß possible only for Spruce; otherwise only Protor-Primo Weiß) | F 015, natural bright  |
| <b>Solid Oakwood</b>  | Walnut, cognac   | F 015, natural bright  |
| <b>Veneered Oakwood</b>   | Light brown, pine, white (only with Protor-Primo Weiß)   | F 015, natural bright  |
| <b>Red types of wood (Meranti, Mahogany etc.) solid or veneered</b> | Walnut, Chestnut   | F 015, natural bright  |
| <b>Exotic types of wood sensitive to light</b>                      | Dark brown   | Dark natural   |

**Protected condition of installation**

|   | <b>Brightest colour shade of Protor-Primo / Aquawood TIG HighRes</b>   | <b>Brightest colour shade of Aquawood Protor-Finish L NG</b> |
|---|--|--|
| <b>Softwood and ash, solid and veneered</b>                         | Light brown, pine, white<br>(Aquawood TIG HighRes Weiß possible only for Spruce; otherwise only Protor-Primo Weiß) | F 015, natural bright  |
| <b>Solid Oakwood</b>  | Light brown, pine, white (only with Protor-Primo Weiß)   | F 015, natural bright  |
| <b>Veneered Oakwood</b>   | Light brown, pine, white (only with Protor-Primo Weiß)   | F 015, natural bright  |
| <b>Red types of wood (Meranti, Mahogany etc.) solid or veneered</b> | Light brown, pine, white (only with Protor-Primo Weiß)   | F 015, natural bright  |
| <b>Exotic types of wood sensitive to light</b>                      | Dark brown   | Dark natural   |

**Note:** For the opaque colour shades with Aquawood Protor-Finish D NG, there are no limitations for the RAL and NCS colour shades.