

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

Windows – Front doors and Shutters – Garage doors

Coating system - HighRes®

1. ADLER HighRes®-Technology

- **Optimal UV protection with all colour shades**
- **Perfect all-round sealing using Aquawood Intermedio HighRes®**
- **Optimal adherence**
- **Water resistance, nevertheless good water-vapour permeability**
- **Insulation effect against mechanical damages**
- **High elasticity**
- **Uniform coloration even with wood of different absorption capacity**

As known, the durability of exterior coatings on wood is limited by the UV radiation of the sun inclusively the short wavelength of visible light in combination with exposure to water during rainfall. Transparent wood coatings are more concerned by these weathering parameters, because compared to the opaque coating systems the damaging UV light cannot be filtrated 100 %. The radiation ratio, which still passes the top coats and the intermediate layers, reach the upper layer of the wood cells and modifies there the lignin of the wood by an oxidation process, making it partially water-soluble. Washing-out, greying, combined with attack of fungi and losses of adherence are the long-term negative consequences. Furthermore the UV light damages generally the molecular structure of the organic binder, with a subsequent loss of elasticity in few years, especially of the top coats. Micro-fissures are emerging and reducing the protection against liquid water if no regular maintenance is done.

The ADLER HighRes®Technology is facing these natural influences and offers improvements in more than one aspect.

All Aquawood TIG HighRes®-impregnations for immersion application contain a special additive in their organic binders, which inhibits the described oxidation process of lignin (fig. 1).

In Aquawood DSL HighRes® an important amendment compared to the already very good standard quality has been realized. A new generation of organic UV absorbers, which offer a significant longer efficiency. Traditional UV absorbers convert UV radiation into harmless thermic radiation. But they are consumed during this procedure and become gradually effectless. The new generation of the expensive UV absorbers in Aquawood DSL HighRes have been proved to be considerably longer stable (fig. 3).

Finally ADLER uses in the HighRes® Intermedio (intermediate) types a new binder (fig. 2), which presents an optimal protective effect against liquid water, but at the same time a high water-vapour permeability or “breathing property is kept.

The coactions of all parameters enables ADLER to give a special guarantee for the HighRes® coating cycles.

A general description of the suited coating systems is given below. To these coating cycles written guarantees are assigned.

09-18 (supersedes 06-16)

ADLER-Werk Lackfabrik, A-6130 Schwaz Fon: 0043/5242/6922-190, Fax: 0043/5242/6922-309,
Mail: technical-support@adler-lacke.com

Our instructions for use are based on knowledge available currently and shall guide the buyer/user to the best of one's knowledge, but, however, must be clarified for the areas of application and processing conditions on a case-to-case basis. The buyer/user takes responsibility for the suitability and use of the delivered product. It is therefore recommended to produce a sample specimen for testing the suitability of the product. Our general terms and conditions of sale are otherwise applicable. All previous data sheets are rendered invalid with the issue of this one. Rights reserved for the modification of the container sizes, colour shades and degrees of gloss available.

A description of the coating cycles in dependence of the wood species can be found in chapter 4 of the present working guideline.

Usable colour shades in dependence of the wood species can be found in the “General part” of the “Working guideline for coating dimensionally stable and limited dimensionally stable construction elements”, chapter 2 – Suited wood species.

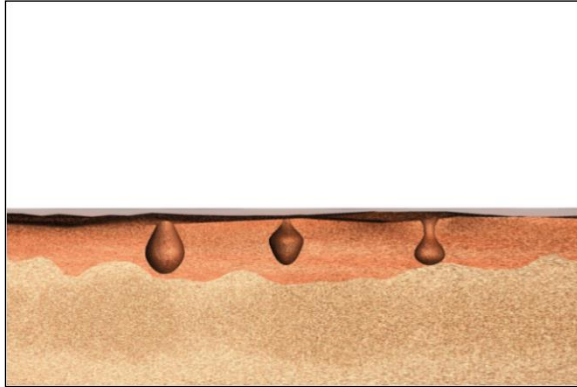


Fig. 1 – Functionality of the ADLER HighRes® immersion impregnations

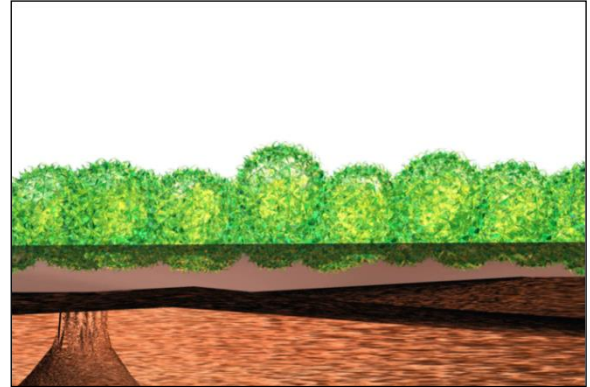


Fig. 2 – Functionality of the ADLER HighRes® Intermedio intermediate layers

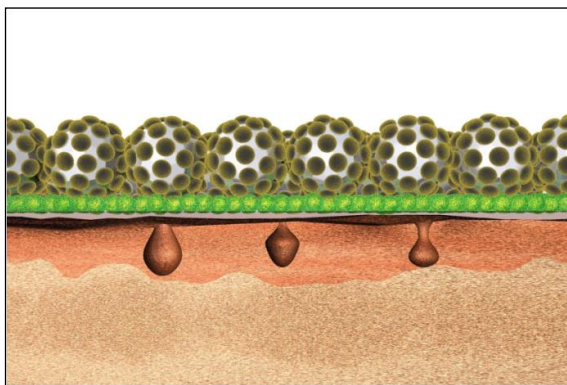


Fig. 2 – Functionality of the ADLER HighRes® thick-film glaze-finishes

2. ADLER HighRes® Products

- **Aquawood TIG HighRes 5432 ff**
- **Aquawood TIG HighRes Weiß 543700101**
- **Aquawood Intermedio HighRes (MF and HF) 59119, 59118 (immersion, flow-coating)**
- **Aquawood Intermedio HighRes ISO 59120 ff (spraying)**
- **ADLER Acryl-Spritzfüller HighRes Weiß 41028, RAL 6009, W30 Base**
- **ADLER 2K-Acryl- Fensterfüller HighRes Weiß 43712**
- **Aquawood DSL HighRes 59127 ff**

3 Brief description of the coating systems HighRes®

3.1. Transparent coating system for windows, shutters and doors

	Application method	Wet film thickness
<p>Coating system AHR: With all-round sealing</p> <p>1 x Aquawood TIG HighRes 5432 ff 1 x Aquawood Intermedio HighRes HF 59118 or – MF 59119 Slight smooth sanding 1 x Aquawood DSL HighRes 59127 ff</p>	<p>Immersion or Flow-coating Immersion or Flow-coating</p> <p>Spraying</p>	<p>250 – 275 µm</p>
<p>Coating system BHR: Full-bodied and good insulation effect</p> <p>1 x Aquawood TIG HighRes 5432 ff 1 x Aquawood Intermedio HighRes ISO 59120 ff Slight smooth sanding 1 x Aquawood DSL HighRes 59127 ff</p>	<p>Immersion or flow-coating Spraying</p> <p>Spraying</p>	<p>100 – 125 µm</p> <p>225 – 250 µm</p>
<p>Coating system CHR: All-round sealing, full-bodied and good insulation effect</p> <p>1 x Aquawood TIG HighRes 5432 ff 1 x Aquawood Intermedio HighRes HF 59118 or – MF 59119 1 x Aquawood Intermedio HighRes ISO 59120 ff Slight smooth sanding 1 x Aquawood DSL HighRes 59127 ff</p>	<p>Immersion or flow-coating Immersion or flow-coating</p> <p>Spraying</p> <p>Spraying</p>	<p>100 – 125 µm</p> <p>225 – 250 µm</p>
<p>Coating system DHR: All-round sealing and full-bodied for multilayer boards in Okoume</p> <p>1 x Aquawood TIG HighRes 5432 ff 1 x Aquawood Intermedio HighRes HF 59118 or – MF 59119 1 x Aquawood Intermedio HighRes ISO 59120 ff Slight smooth sanding 1 x Aquawood DSL HighRes 59127 ff</p>	<p>Immersion or flow-coating Immersion or flow-coating</p> <p>Spraying</p> <p>Spraying</p>	<p>100 – 125 µm</p> <p>225 – 250 µm</p>

Please observe the relative technical data sheets of the products.

3.2. Opaque coating systems for windows, shutters and doors– Dark colour shades

	Application method	Wet film thickness
<p>Coating system EHR: All-round sealing</p> <p>1 x Aquawood TIG HighRes 5432 ff 1 x Aquawood Intermedio HighRes HF 59118 or – MF 59119 Slight smooth sanding 1 x ADLER Acryl-Spritzlack Q10 M 4320 ff or 1 x ADLER Acryl-Spritzlack Q10 G 4325 ff</p>	<p>Immersion or flow-coating Immersion or flow-coating</p> <p>Spraying</p>	<p>250 - 300 µm</p>
<p>Coating system FHR: Full-bodied and insulation effect</p> <p>1 x Aquawood TIG HighRes 5432 ff 1 x ADLER Acryl-Spritzfüller HighRes 41028 ff Slight smooth sanding 1 x ADLER Acryl-Spritzlack Q10 M 4320 ff or 1 x ADLER Acryl-Spritzlack Q10 G 4325 ff</p>	<p>Immersion or flow-coating Spraying</p> <p>Spraying</p>	<p>150 – 200 µm</p> <p>150 – 200 µm</p>
<p>Coating system GHR: Full-bodied and insulation effect, all-round sealing for difficult wood species</p> <p>1 x Aquawood TIG HighRes 5432 ff 1 x Aquawood Intermedio HighRes HF 59118 or – MF 59119 1 x ADLER Acryl-Spritzfüller HighRes 41028 ff or in alternative 1 x ADLER 2K-Fensterfüller HighRes 43712 Slight smooth sanding 1 x ADLER Acryl-Spritzlack Q10 M 4320 ff or 1 x ADLER Acryl-Spritzlack Q10 G 4325 ff</p>	<p>Immersion or flow-coating Immersion or flow-coating</p> <p>Spraying</p> <p>Spraying</p>	<p>150 – 200 µm</p> <p>150 – 200 µm</p>
<p>Coating system HHR: Okoume multilayer boards</p> <p>1 x Aquawood TIG HighRes 5432 ff Slight smooth sanding 1 x ADLER 2K-Fensterfüller HighRes 43712 1 x ADLER 2K-Fensterfüller HighRes 43712 If necessary, smooth intermediate sanding 1 x ADLER Acryl-Spritzlack Q10 M 4320 ff or 1 x ADLER Acryl-Spritzlack Q10 G 4325 ff</p>	<p>Immersion or flow-coating</p> <p>Spraying Spraying</p> <p>Spraying</p>	<p>150 – 200 µm</p> <p>150 – 200 µm</p> <p>150 – 200 µm</p>

Please observe the relative technical data sheets of the products.

3.3. Opaque coating systems for windows, shutters and doors– Bright colour shades

	Application method	Wet film thickness
<p>Coating system IHR: All-round sealing</p> <p>1 x Aquawood TIG HighRes Weiß 543700101 1 x Aquawood Intermedio HighRes HF 59118 or – MF 59119 Slight smooth sanding 1 x ADLER Acryl-Spritzlack Q10 M 4320 ff or 1 x ADLER Acryl-Spritzlack Q10 G 4325 ff</p>	<p>Immersion or flow-coating Immersion or flow-coating</p> <p>Spraying</p>	<p>250 - 300 µm</p>
<p>Coating system JHR: Full-bodied and insulation effect</p> <p>1 x Aquawood TIG HighRes Weiß 543700101 1 x ADLER Acryl-Spritzfüller HighRes 41028 ff Slight smooth sanding 1 x ADLER Acryl-Spritzlack Q10 M 4320 ff or 1 x ADLER Acryl-Spritzlack Q10 G 4325 ff</p>	<p>Immersion or flow-coating Spraying</p> <p>Spraying</p>	<p>150 – 200 µm</p> <p>150 – 200 µm</p>
<p>Coating system KHR: Full-bodied and insulation effect, all-round sealing for difficult wood species</p> <p>1 x Aquawood TIG HighRes Weiß 543700101 1 x Aquawood Intermedio HighRes HF 59118 or – MF 59119 1 x ADLER Acryl-Spritzfüller HighRes 41028 ff or 1 x ADLER 2K-Fensterfüller HighRes 43712 Slight smooth sanding 1 x ADLER Acryl-Spritzlack Q10 M 4320 ff or 1 x ADLER Acryl-Spritzlack Q10 G 4325 ff</p>	<p>Immersion or flow-coating Immersion or flow-coating</p> <p>Spraying</p> <p>Spraying</p>	<p>150 – 200 µm</p> <p>150 – 200 µm</p>
<p>Coating system LHR: Okoume multilayer boards</p> <p>1 x Aquawood TIG HighRes Weiß 543700101 Slight smooth sanding 1 x ADLER 2K-Fensterfüller HighRes 43712 1 x ADLER 2K-Fensterfüller HighRes 43712 If necessary, smooth intermediate sanding 1 x ADLER Acryl-Spritzlack Q10 M 4320 ff or 1 x ADLER Acryl-Spritzlack Q10 G 4325 ff</p>	<p>Immersion or flow-coating</p> <p>Spraying</p> <p>Spraying</p>	<p>150 - 200 µm 150 - 200 µm</p> <p>150 - 200 µm</p>

Please observe the relative technical data sheets of the products.

4. Application on different wood species

4.1. The recommended HighRes® coating systems for coniferous wood:

Softwood:	Transparent coating systems			Opaque coating systems DARK colour shades			Opaque coating systems BRIGHT colour shades		
	Windows	Shutters	Doors	Windows	Shutters	Doors	Windows	Shutters	Doors
Fir tree	AHR	AHR	BHR	FHR	EHR	FHR	JHR	IHR	JHR
Spruce	AHR	AHR	BHR	FHR	EHR	FHR	JHR	IHR	JHR
Yellow Pine	AHR	AHR	BHR	FHR	EHR	FHR	JHR	IHR	JHR
Red Cedar	AHR	AHR	BHR	FHR	EHR	FHR	JHR	KHR	JHR
Hemlock	AHR	AHR	BHR	FHR	EHR	FHR	JHR	KHR	JHR
Pine	AHR	AHR	BHR	FHR	EHR	FHR	JHR	KHR	JHR
Douglas	AHR	AHR	BHR	FHR	EHR	FHR	JHR	KHR	JRH
Larch	AHR	AHR	BHR	FHR	EHR	FHR	No recommendation	No recommendation	No recommendation
Russian Larch	BHR	CHR	BHR	FHR	GHR	FHR	No recommendation	No recommendation	No recommendation

Important advice: For front doors we recommend to apply as a final coat Aquawood Protect 53215 in a two component version (better mechanical / chemical resistance).

ATTENTION: For **opaque coating systems** Aquawood Protect must be used **exclusively in combination with Aquawood TIG HighRes Weiß !**

4.2. The recommended HighRes coating system for deciduous wood:

		Transparent coating systems			Opaque coating systems DARK colour shades			Opaque coating systems BRIGHT colour shades		
		Windows	Shutters	Doors	Windows	Shutters	Doors	Windows	Shutters	Doors
Chestnut		CHR	CHR	CHR	GHR	GHR	GHR	KHR	No recommendation	KHR
Oak		CHR	CHR	CHR	GHR	GHR	GHR	KHR	No recommendation	KHR
Ash		CHR	No recommendation	CHR	GHR	No recommendation	GHR	KHR	No recommendation	KHR
Framiré		BHR	CHR	BHR	FHR	GHR	FHR	KHR	No recommendation	KHR
Meranti/ Eucalyptus		BHR	CHR	BHR	FHR	FHR	FHR	JHR	KHR	JHR
Mahogany		BHR	CHR	BHR	FHR	GHR	FHR	JHR	No recommendation	JHR
Niangon		BHR	CHR	BHR	FHR	GHR	FHR	JHR	No recommendation	JHR
Acajú		BHR	CHR	BHR	FHR	GHR	FHR	No recommendation	No recommendation	No recommendation
Teak		BHR	CHR	BHR	FHR	GHR	FHR	No recommendation	No recommendation	No recommendation
Okoumé solid		BHR	CHR	BHR	FHR	GHR	FHR	JHR	KHR	JHR
Okoumé multilayer		No recommendation	DHR	DHR	No recommendation	HRH	HRH	No recommendation	LHR	LHR
Iroko		No recommendation	No recommendation	No recommendation	No recommendation	No recommendation	No recommendation	No recommendation	No recommendation	No recommendation
MDF		No recommendation	No recommendation	No recommendation	No recommendation	No recommendation	No recommendation	No recommendation	No recommendation	No recommendation

Important advice: For front doors we recommend to apply as a final coat Aquawood Protect 53215 in a two component version (better mechanical / chemical resistance).

ATTENTION: For **opaque coating systems** Aquawood Protect must be used **exclusively in combination with Aquawood TIG HighRes Weiß!**

5. Exceptions, not covered by the HighRes®-Guarantee

In some extreme cases, the stress is so strong that it is not possible to give a guarantee of durability.

Elements, continuously and extremely exposed to water

These cases happen rarely, but an eye must be kept generally on it. If the coated wooden elements are located next to an irrigation system, the surface rest in contact with water for a long time. During the phase of drying water evaporates, leaving a trace of chalk on the surface. These spots can only be removed by abrasive cleansing products. If such cleansing products are often used, the surfaces may be damaged highly.

Elements, installed in indoor swimming pools

The perennial and high stress during a maximum concentration of air humidity and the subsequent formation of condense water can be so extreme that a premature damage is caused on the elements. On demand we can recommend special coating cycles.

Elements next to the beach, in a distance smaller than 50 m

In a distance of less than 50 m from the beach elements can be exposed to extreme stress, caused by the sand carried on by the wind. Sand is a great abrasive strain on the surface, and a reduction of the coating film can follow-up. In this case the coating film cannot sufficiently protect the wood. Compared to sand the damage caused by salt are very restricted.

Elements, installed in an altitude of more than 1600 m /over the sea

It is known that weathering conditions in alpine zones, especially because of the high intensity of UV radiation, are extremely challenging. Furthermore, due to the occurrence of very large temperature differences, both the wood substrate and the coating film are exposed to increased stress.