



Dispersions for exterior coatings











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**ALBERDINGK BOLEY in a nutshell**

 <p>Leading international manufacturer of environmentally friendly water-based binders and oils with unique properties to refine, refurbish, bind and protect multiple types of substrates</p>	 <p>Medium sized, privately owned company</p> <p>&gt; a partner to our customers for more than 250 years</p>	 <p>&gt; 500 employees</p>
 <p>Dynamic, Innovative and flexible</p> <p>Pioneers in biobased polymer dispersions</p>	 <p>Dispersions: Acrylic, Vinyl acetate, Polyurethane and hybrid dispersions</p> <p>Oils: Linseed oil, Castor oil, Derivatives</p>	 <p>Locations:</p> <ul style="list-style-type: none"> <li>• Krefeld, Germany</li> <li>• Kerpen, Germany</li> <li>• Leuna, Germany</li> <li>• Treviso, Italy</li> <li>• Congleton, UK</li> <li>• Greensboro, USA</li> <li>• Shenzhen, China</li> <li>• Zhuhai, China</li> </ul>

For more information about ALBERDINGK BOLEY and our product offerings, visit [www.alberdingk-boley.de](http://www.alberdingk-boley.de).



## Introduction

Exterior coatings can be divided in different applications and/or different kinds of substrate.

## Exterior wood coatings

Exterior wood coatings shall protect the wood and keep its beauty over a long period of time.

## Joinery

ALBERDINGK has invented Lignocure-Technology to form a derivative of lignin and polymer which is more resistant to UV / water than "normal" wood. As it's polymeric, it won't wash off and works with all kind of wood.

## Impregnation / Lignin protection

Alberdingk®-product	Solids [%]	Viscosity [mPas]	pH-value	MFFT [°C]	Features
<b>Lignocure 2010</b>	32.0-34.0	10-200	7.0-9.0	0	Lignin protection by chemical reaction, excellent in flow coating application
<b>H 735</b>	34.0-36.0	20-200	7.0-9.0	0	Excellent wetting, high water resistance

## Hardwood deck coating / 2 years horizontal weathering in Krefeld (Germany)

Usual primer without **ALBERDINGK® Lignocure 2010**



Primer based on **ALBERDINGK® Lignocure 2010**

In this test series we used a two coat system based on a primer (**ALBERDINGK® Lignocure 2010** vs. commercial product) and a PUD / Acrylic topcoat (50:50 blend). The topcoat was chosen because it's highly water resistant, vapour permeable and extremely UV resistant. In order to avoid mechanical damages (e.g. hailstorm) that would result in a failure of the coating we adjusted the flexibility of the topcoat accordingly.

On the upper panel we can clearly see destruction of the lignin but without effect on the topcoat. In close investigation, one can see that the topcoat maintained its flexibility and integrity. A clear indication of a substrate failure that has led to intercoat adhesion failure.



## Wood stains for e.g. joinery

Optimized polymers which allow a uniform stain colour on different woods help to improve durability and productivity

Alberdingk®-product	Solids [%]	Viscosity [mPas]	pH-value	MFFT [°C]	Features
<b>Lignocure 2010</b>	32.0-34.0	10-200	7.0-9.0	0	Lignin protection by chemical reaction, excellent in flow coating application
<b>AC 5401</b>	48.0-50.0	20-1,500	8.0-9.0	5	AC/VeoVa, excellent weathering resistance, stain blocking
<b>H 735</b>	34.0-36.0	20-200	7.0-9.0	0	Pure acrylic hydrosol, in combination with AC 5401 for excellent pore wetting

## Intermediate coatings

**ALBERDINGK® AC 2403** forms a barrier against water which makes it possible to use harder, more hydrophilic resins as topcoat (hand fat resistance) or just increases the total durability of the finished wood.

Alberdingk®-product	Solids [%]	Viscosity [mPas]	pH-value	MFFT [°C]	Features
<b>AC 2403</b>	46.0-48.0	20-2,000	8.0-9.0	16	Water barrier, increases durability of the system, stain locking

## Topcoat

Our products for topcoats range from multiphase acrylic dispersions which can cover almost all kind of requirements. Using polyurethane dispersions or copolymers can boost durability thanks to their low Tg, high vapor transmission and non tacky (no dirt pickup) surfaces.

Alberdingk®-product	Solids [%]	Viscosity [mPas]	pH-value	MFFT [°C]	Features
<b>AC 2739</b>	44.0-46.0	100-1,000	7.5-9.0	0	Multiphase, self-x-linking, high blocking resistance
<b>AC 3600</b>	40.0-42.0	20-200	7.5-8.5	0	Multiphase, self-x-linking, high blocking resistance, in can clarity
<b>UC 84</b>	34.0-36.0	20-2,000	7.5-8.5	42	Hard urethane acrylate copolymer for high end topcoats
<b>U 8002</b>	38.0-40.0	20-250	7.0-8.5	6	Medium hard urethane for superior durability





## Full system build-up, transparent on oak

- 1) Impregnation based on **ALBERDINGK® Lignocure 2010**
- 2) Intermediate based on **ALBERDINGK® AC 2403**
- 3) Topcoat based on **ALBERDINGK® AC 2739**

### Features:

- Excellent early water resistance
- Excellent blocking resistance
- Excellent weathering resistance
- Allround solution



Results on oak according to EN 927

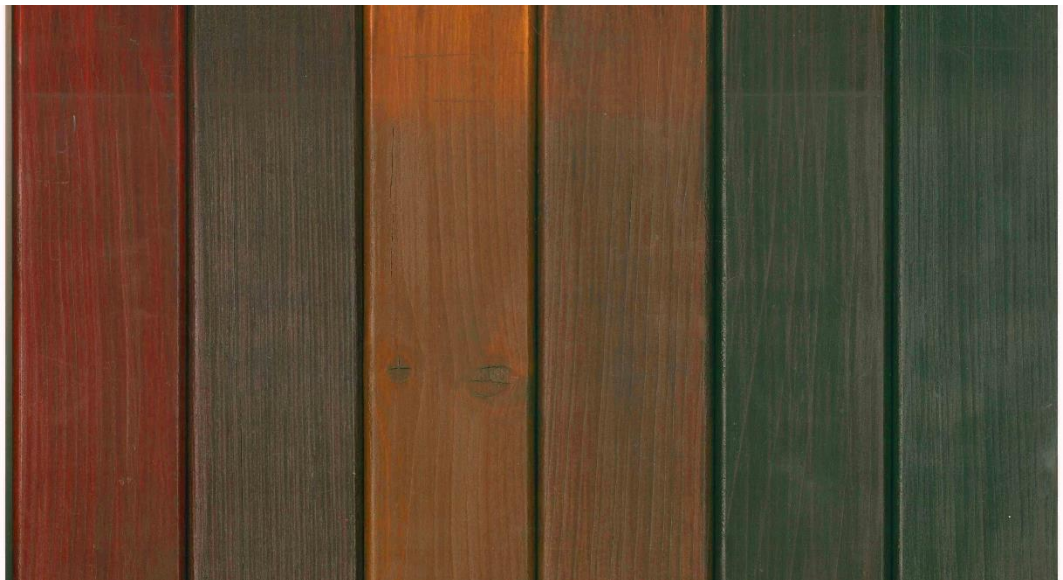
## Contractor / DIY

### Wood stains

Acrylics for wood stains should work extremely well in low film build coatings / low solids formulations. **ALBERDINGK® AC 2736** is particularly designed for low VOC combined with very high water vapor permeability. High permeability allows the wood to breath and to prevent damages from liquid water to the lignin.

Alberdingk®- product	Solids [%]	Viscosity [mPas]	pH-value	MFFT [°C]	Features
<b>AC 2736</b>	39.0-41.0	50-2,000	8.0-9.0	0	Multiphase, self-x-linking, very high water vapour permeability, lignin protection
<b>AC 5401</b>	48.0-50.0	20-1,500	8.0-9.0	5	AC/VeoVa with excellent durability, economic
<b>AC 3600</b>	40.0-42.0	20-200	7.5-8.5	0	Multiphase, self-x-linking, in can clarity, very long open time
<b>LUR 3</b>	34.0-36.0	20-400	7.5-8.5	0	Based on 55% renewable resource (on solids)

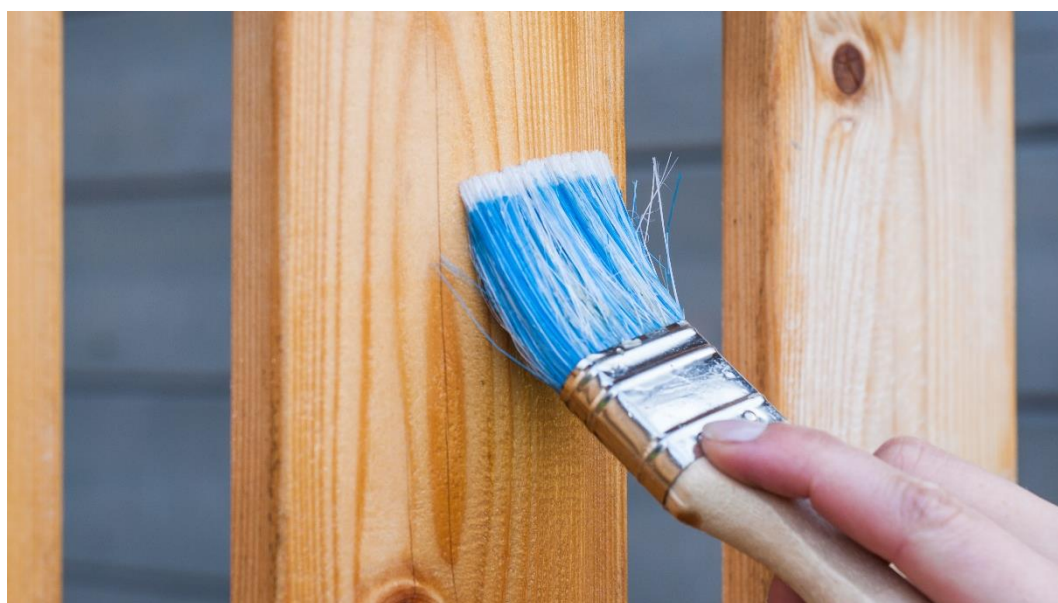
### ALBERDINGK® AC 2736, wood stains in different colour shades after 5 years outdoor exposure:



### Paints for wood

Our Polymers for solid colour coatings vary from economic, single phase acrylics to self-x-linking multiphase products. All optimised for pigment wetting and durability.

Alberdingk®-product	Solids [%]	Viscosity [mPas]	pH-value	MFFT [°C]	Features
<b>AC 25381</b>	47.0-49.0	2,000-8,000	7.5-8.5	9	Multiphase, self-x-linking, workhorse polymer
<b>AC 5401</b>	48.0-50.0	20-1,500	8.0-9.0	5	AC/VeoVa with excellent durability, economic, stain blocking
<b>AC 2025</b>	47.0-49.0	500-4,000	7.5-8.5	0	Multiphase, self-x-linking, workhorse polymer, for very low VOC applications
<b>AC 2019</b>	45.0-47.0	500-1,500	8.0-9.0	17	Single phase AC for economic house paints
<b>AC 2007</b>	46.0-48.0	500-2,000	7.5-8.5	0	Single phase AC for economic house paints, wet adhesion promoted





## Decking

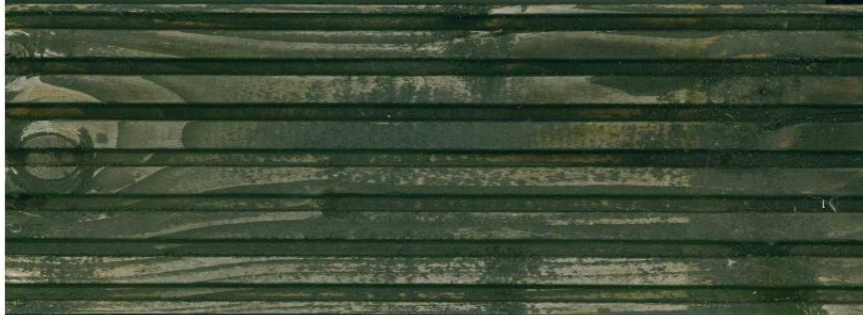
ALBERDINGK polymer dispersions for decking combine excellent weathering resistance in low film build coatings with good mechanical resistance.

**ALBERDINGK® LUR 3** offers excellent durability with easy renovation – without the need of siccatives. **ALBERDINGK® U 400 N** can be used (e.g. in combination with **ALBERDINGK® AC 2019**) for highly breathable coatings as it has the highest water vapor permeability combined with low water absorption.

Alberdingk®-product	Solids [%]	Viscosity [mPas]	pH-value	MFFT [°C]	Features
<b>AC 2019</b>	45.0-47.0	500-1,500	8.0-9.0	17	Single phase AC, in combination with U 400N for highly durable stains
<b>AC 2736</b>	39.0-41.0	50-2,000	8.0-9.0	0	Multiphase, self-x-linking, very high water vapour permeability, Lignocure-technology
<b>Lignocure 2010</b>	32.0-34.0	10-200	7.0-9.0	0	Lignin protecting hydrosol, can also be used as additive
<b>LUR 3</b>	34.0-36.0	20-400	7.5-8.5	0	Linseed oil PUD, superior weathering resistance, easy to renovate
<b>OP 100</b>	100	500-1,500	n.a.	n.a.	Urethane modified oil-polymer based on linseed oil
<b>U 400 N</b>	39.0-41.0	20-200	7.0-8.0	0	Aliphatic PUD with very high water vapour permeability and low water absorption



**Comparison of polymer technologies for decking, after 5 years outdoor exposure:**



Market standard decking stain



Decking stain based on **ALBERDINGK® LUR 3** and **ALBERDINGK® OP 100**



Decking stain based on **ALBERDINGK® AC 2736**



Decking stain based on **ALBERDINGK® U 400 N**



## Transparent wood protection

Transparent wood coatings are a complicated subject.

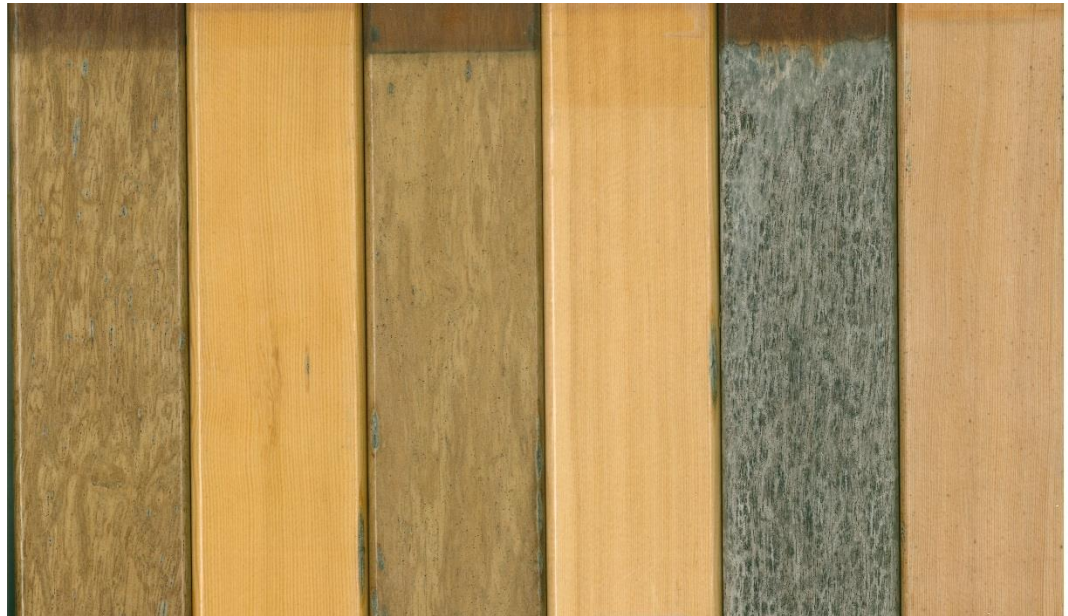
When using multilayer systems, ALBERDINGK polymers can help to on one hand as primers and intermediate layers to protect the lignin and stop water from getting into the wood.

On the other hand they can be used as a top layers which resist to mechanical stress, have a very high gloss retention and almost no dirt pickup.

Alberdingk®-product	Solids [%]	Viscosity [mPas]	pH-value	MFFT [°C]	Features
<b>AC 2403</b>	46.0-48.0	20-2,000	8.0-9.0	16	Hydrophobic multiphase acrylic for water barrier
<b>Lignocure 2010</b>	32.0-34.0	10-200	7.0-9.0	0	Lignin protecting hydrosol, as impregnation for transparent systems
<b>LUR 3</b>	34.0-36.0	20-400	7.5-8.5	0	Based on 55% renewable resource (on solids)
<b>UC 84</b>	34.0-36.0	20-2,000	7.5-8.5	42	Hard PC-PUD acrylic copolymer for high end coatings
<b>U 6150</b>	37.0-39.0	50-500	7.5-9.0	0	Medium hard PC-PUD, superior weathering resistance
<b>U 8002</b>	38.0-40.0	20-250	7.0-8.5	6	Medium hard PES-PUD for improved weathering resistance

**Comparison of polyurethane-, acrylic- and hybrid-systems for transparent wood protection, after 5 years outdoor exposure on different kinds of wood:**

Iroko Kambala    Hemlock    Iroko Kambala    Hemlock    Iroko Kambala    Hemlock



UC-technology

PUD-technology

market standard acrylic

**Exterior plastic coatings**

**WPC coating**

Coatings for polyolefine based wood plastic composite can be made using **ALBERDINGK® AC 2403** which offers excellent water resistance and high adhesion to unpolar surfaces. Ideal is a combination of **ALBERDINGK® AC 2403** with an adhesion promoter.

Alberdingk®-product	Solids [%]	Viscosity [mPas]	pH-value	MFFT [°C]	Features
<b>AC 2403</b>	46.0-48.0	20-2,000	8.0-9.0	16	Hydrophobic multiphase AC with very good adhesion to WPC



## PVC coatings

Rigid PVC can be coated with polyurethane dispersions which offer superior weathering and high chemical resistance.

Alberdingk®-product	Solids [%]	Viscosity [mPas]	pH-value	MFFT [°C]	Features
<b>U 9000</b>	28.0-30.0	50-1,000	7.0-8.5	0	Highest hardness and chemical resistance
<b>U 9900</b>	39.0-41.0	20-200	7.5-9.0	50	Very hard, self-x-linking, high chemical resistance

## Fibre board coatings

### Primer

Primers for fibre board are designed to work on alkaline substrates.

**ALBERDINGK® AC 2403** can form a layer with superior water resistance and excellent intercoat adhesion.

Alberdingk®-product	Solids [%]	Viscosity [mPas]	pH-value	MFFT [°C]	Features
<b>AC 2403</b>	46.0-48.0	20-2,000	8.0-9.0	16	Hydrophobic multiphase AC for water barrier / primer
<b>H 595</b>	29.0-31.0	20-35	7.5-9.0		Economic hydrosol for primers on alkaline substrates





## Topcoats

Topcoats can be formulated at different quality levels. Highest demands are fulfilled when using polyurethanes or copolymers which offer long gloss retention and no dirt pickup. **ALBERDINGK® PUR-MATT 910** offers inherent matt finishes which do not increase in gloss over time. **ALBERDINGK® LUX 484** completes the offering for high productivity coatings.

Alberdingk®-product	Solids [%]	Viscosity [mPas]	pH-value	MFFT [°C]	Features
<b>AC 2739</b>	44.0-46.0	100-1,000	7.5-9.0	0	Multiphase, self-x-linking, very blocking resistant
<b>UC 84</b>	34.0-36.0	20-2,000	7.5-8.5	42	Hard PC-PUD Copolymer for chemical resistant and durable coatings
<b>LUX 484</b>	36.0-38.0	20-200	7.0-8.5	0	UV curing PC-PUD for highly weather resistant coatings
<b>PUR-MATT 910</b>	34.0-36.0	20-2,000	7.0-9.0	15	Hard, inherent matt PUD with excellent weathering resistance and low gloss over time



### Weathering Resistance\*

**ALBERDINGK® PUR-MATT 910** (Formulation FP 910-02) used as topcoat on Multi Colour Paint based on **ALBERDINGK® AC 2019** (left) and **ALBERDINGK® AC 2523** (right)

Before weathering:



After 3 years outdoor weathering (no gloss-increase or change of protection):





## Multicolour paints (MCP)

ALBERDINGK products for multicolour paints react very well with OPTIGEL thickeners from BYK for MCP.

Alberdingk®-product	Solids [%]	Viscosity [mPas]	pH-value	MFFT [°C]	Features
<b>AC 2523</b>	47.0-49.0	500-4,000	7.5-8.5	0	Multiphase, self-x-linking, for low VOC coatings
<b>AC 2714</b>	43.0-45.0	30-300	8.0-9.0	50	Multiphase, self-x-linking, for garage floors etc.
<b>AC 2019</b>	45.0-47.0	500-1,500	8.0-9.0	17	Medium hard single phase AC for facade coatings













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