

# Achieve Waterborne Acrylic-Level Performance in Waterborne Alkyd Coatings

Utilizing Borchì® OXY-Coat 1101 High-Performance Catalyst

Excellent Performance in a More Sustainable Formulation



# Waterborne Alkyd Resins vs. Waterborne Acrylic Resins



Paints containing alkyd resins are used globally in trim and primer, wood, and industrial applications. Alkyd resin technology has been a staple in the coatings industry for more than 50 years, providing long-lasting finishes on a wide variety of surfaces.

Alkyd resins are made from 60-70% bio-renewable content, such as vegetable oil and soybean oil. While waterborne alkyds are more sustainable due to their lower Volatile Organic Compounds (VOCs) and higher degree of bio-renewable content, performance in these formulations is not always up to par when cured with traditional cobalt driers. These paints often show deficiencies in whiteness, dry times, cleanability, and weathering when compared to acrylic emulsions.

Conversely, **Borchi® OXY-Coat 1101 high-performance catalyst (HPC)**, allows waterborne alkyds to achieve their full potential and provide comparable or even better performance than industry-leading acrylics, enabling formulators to create more sustainable solutions without trading performance.

## Waterborne Alkyds

- ✓ 60-70% bio-renewable
- ✓ High gloss
- ✓ Excellent film formation
- ✓ Low or zero co-solvent requirements
- ✓ Hard durable films
- ✓ Good crosslink density

## Waterborne Acrylics

- ✗ Derived from petroleum
- ✗ Often require solvents/VOCs to form cohesive films
- ✗ Lower crosslink density

## Waterborne Alkyds



### Resin & Coating

Waterborne Alkyd Coatings are primarily biorenewable material and water.

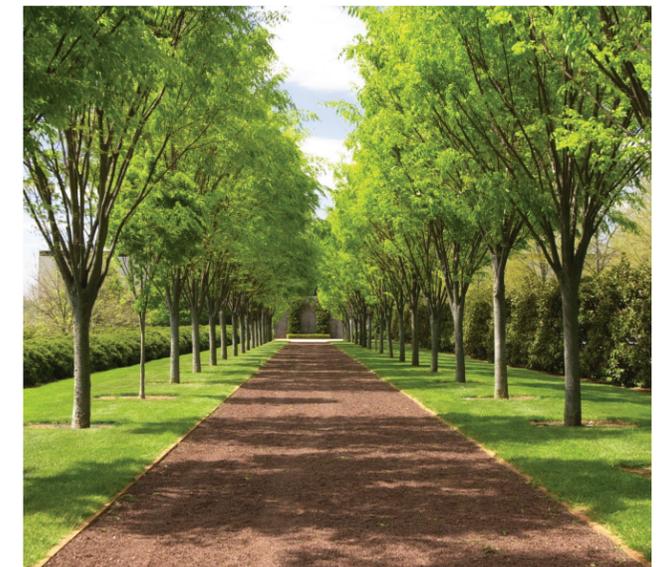
■ Renewable Material
 ■ Pigments and Fillers
 ■ Solvent

## Waterborne Resins Formulated with Borchi® OXY-Coat 1101 High-Performance Catalyst (HPC)

Polymer Type	Chemistry	Applications
Resin 1 - WB Alkyd Emulsion	Short Oil	High Gloss Trim Paints, Wall And Ceiling Paints, Light Industrial, Direct-to-Metal, Wood Stains
Resin 2 - WB Alkyd Emulsion	Medium Oil	Interior And Exterior Architectural Enamels, Decorative Finishes
Resin 3 - WB Alkyd Emulsion	Medium Oil	High Gloss Trim Paints, Wall And Ceiling Paints, Light Industrial, Direct-to-Metal, Wood Stains
Resin 4 - WB Alkyd Emulsion	Polyurethane Modified	High Gloss Trim Paints, Interior And Exterior Architectural Enamels
Formulation Control - WB Acrylic Resin	Styrene Acrylic	High Gloss Trim Paints, Wall And Ceiling Paints, Light Industrial, Direct-to-Metal, Wood Stains

WB = Waterborne

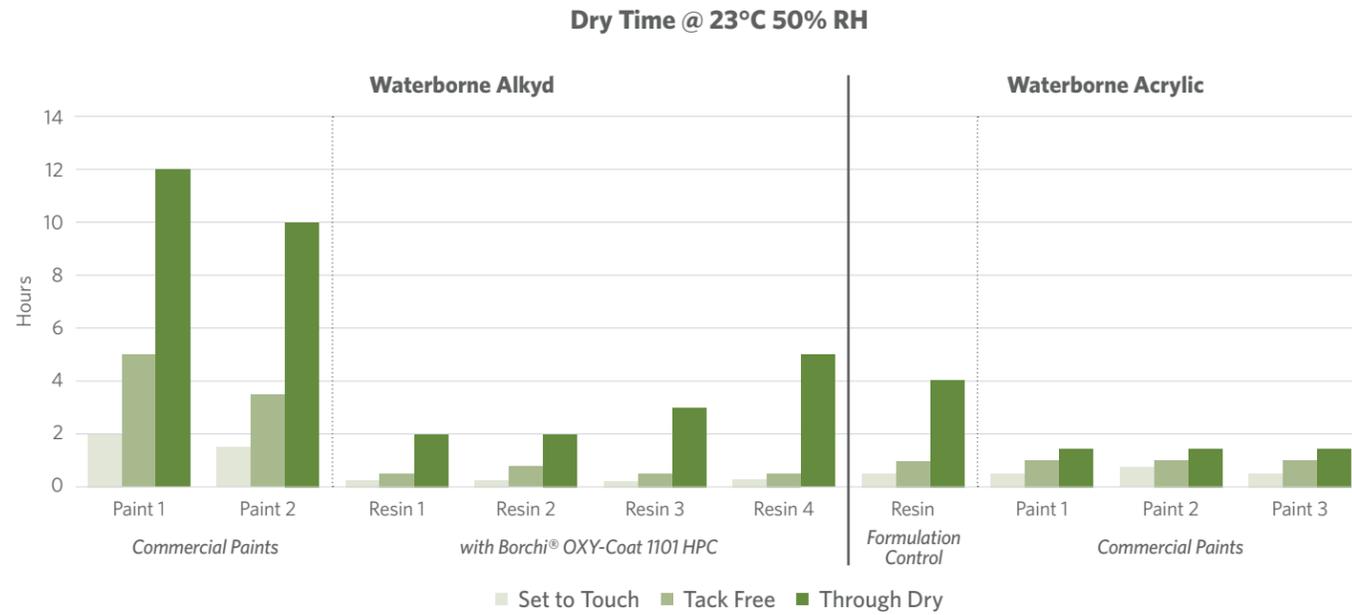
Material	Weight Percentage			
	Resin 1	Resin 2	Resin 3	Resin 4
<b>Grind</b>				
D.I. Water	12.35	12.16	12.35	11.65
Borchi® Gel 0434 rheology modifier	3.10	3.00	2.50	2.20
Borchi® Gel 0625 rheology modifier	1.55	0.50	0.70	0.50
Borchi® Gen 1252 dispersant	0.77	0.75	0.75	0.70
2-Amino-2methyl-1-propanol	0.03	0.03	0.03	0.03
Rutile TiO <sub>2</sub>	21.60	24.00	23.50	24.00
Nepheline Syenite	7.20	7.00	7.70	4.20
<b>Letdown</b>				
Resin	52.00	51.00	51.00	55.30
Borchi® OXY-Coat 1101 HPC	0.40	0.40	0.30	0.42
12% Zirconium Carboxylate	1.00	1.16	1.17	1.00
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>



## KEY APPLICATION PROPERTIES

### Significantly reduced waterborne alkyd dry times closer to acrylic performance

Alkyd paints traditionally dry much slower than acrylic paints. The use of Borchers® OXY-Coat 1101 high-performance catalyst provides dry time performance comparable to acrylics.



### Consistent, excellent blocking performance

Excellent blocking allows quick return to service when painting.

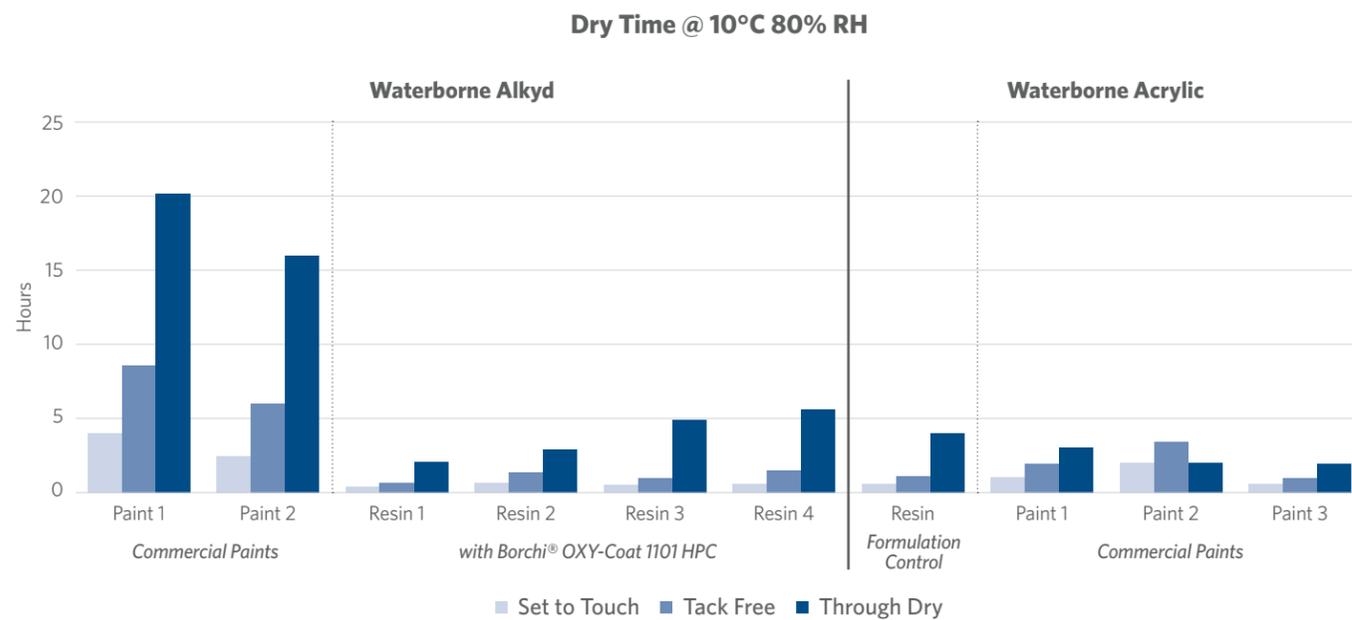


### Blocking Tests - ASTM D4946

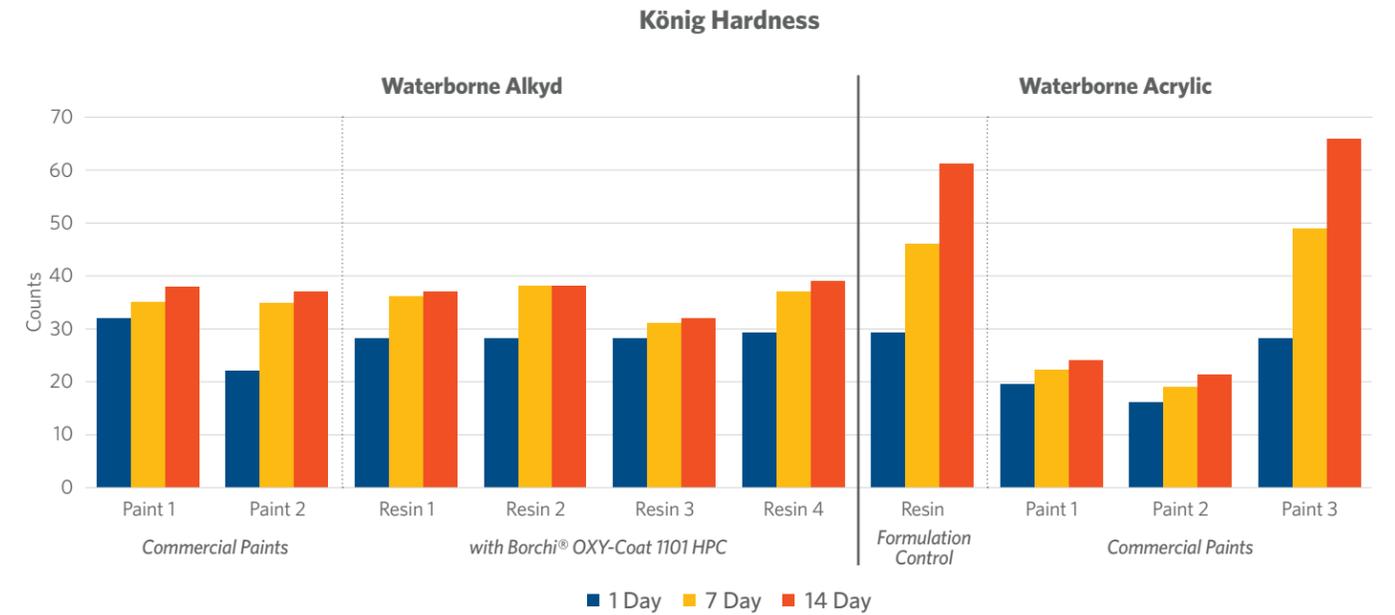
Sample	Numerical Rating	Performance
WB Alkyd Resin 1 with HPC	9	Excellent
WB Alkyd Resin 2 with HPC	9	Excellent
WB Alkyd Resin 3 with HPC	9	Excellent
WB Alkyd Resin 4 with HPC	9	Excellent
Alkyd Paint - Commercial Brand 1	9	Excellent
Alkyd Paint - Commercial Brand 2	8	Excellent
WB Acrylic Paint - Commercial Brand 1	10	Excellent
WB Acrylic Paint - Commercial Brand 2	9	Excellent
WB Acrylic Paint - Commercial Brand 3	7	Good

WB = Waterborne

### Borchers® OXY-Coat 1101 HPC provides faster, more consistent dry times in waterborne alkyd paints



### Good pendulum hardness



## SCRUB & CLEANABILITY

### Superior Scrub Performance

Borchi® OXY-Coat 1101 HPC enables the coating to better withstand being cleaned than commercial alkyd paints.

#### Scrub Testing - ASTM D2486

Sample	Numerical Rating
WB Alkyd Resin 1 with HPC	650
WB Alkyd Resin 2 with HPC	600
WB Alkyd Resin 3 with HPC	585
WB Alkyd Resin 4 with HPC	575
Formulation Control - WB Acrylic Resin	580
Alkyd Paint - Commercial Brand 1	180
Alkyd Paint - Commercial Brand 2	335
WB Acrylic Paint - Commercial Brand 1	590
WB Acrylic Paint - Commercial Brand 2	180
WB Acrylic Paint - Commercial Brand 3	350

WB = Waterborne

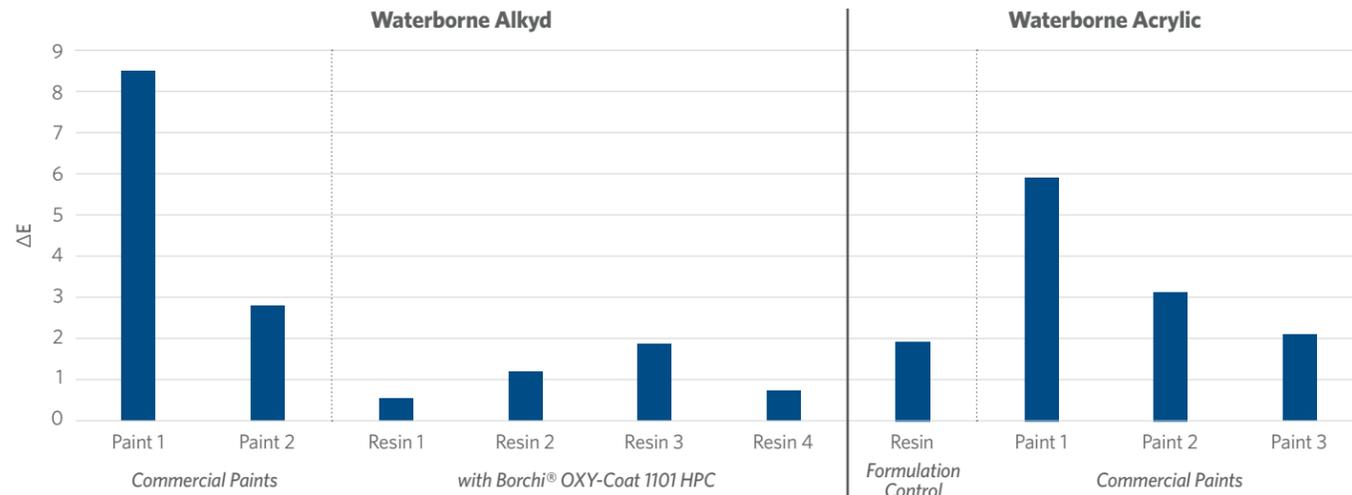
Conducted at 4 mils wet film thickness



### Easier to Clean

Utilizing Borchi® OXY-Coat 1101 high-performance catalyst with waterborne alkyds enables easier cleaning of typical household stains compared to commercial alkyd and acrylic paints.

#### Cleanability ASTM D3450 - Composite Score\*

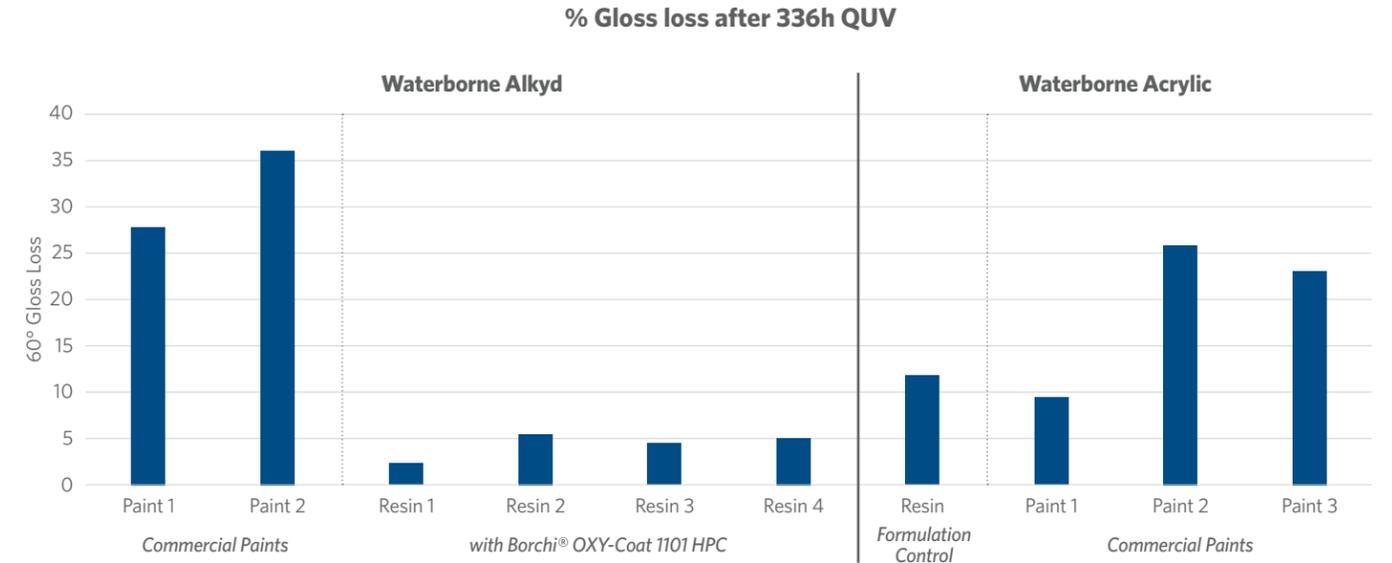


\*Includes Black dye, Mustard, Lipstick and Crayon

## WEATHERABILITY & DURABILITY

### Preserve Gloss and Reduce Yellowing

Formulations with Borchi® OXY-Coat 1101 high-performance catalyst preserve gloss and reduce yellowing better than commercial alkyd and acrylic paints



## SUMMARY

Borchi® OXY-Coat 1101 high-performance catalyst enables formulators to achieve comparable performance to waterborne acrylics in a more sustainable waterborne alkyd formulation.

- Easier cleanability
- Faster dry times
- Less yellowing and better gloss retention
- Excellent blocking



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