

# CELOCOR® AF OPAQUE POLYMER

IMPROVE HIDING IN LOW ODOR FORMULATIONS WITH THIS AMMONIA-FREE OPAQUE POLYMER



## Product Description

CELOCOR® AF voided latex particles improve opacity and may partially replace TiO<sub>2</sub> in architectural paints. The ammonia-free feature makes CELOCOR® AF opaque polymer especially useful in low odor formulations.

## Polymer Design

Voided latex particle

## Performance Benefits

- No Ammonia – CELOCOR® AF opaque polymer is ammonia-free, making it a perfect choice for low odor interior or exterior coatings.
- Better Hiding – compared to our original CELOCOR® opaque polymer, this new product offers up to 11% better hiding with excellent tint strength properties.
- Excellent Efficiency
- Wide Formulating Latitude – useable across a broad PVC range.
- EnVia® Certified – new CELOCOR® AF opaque polymer meets Arkema’s internal standards for raw materials used in sustainable formulating.

## Typical Properties<sup>1</sup>

Solids, weight %	30
Solids, volume %	52
pH	8.0
Viscosity, cps	100
Density, lbs/gallon	8.6

<sup>1</sup> The data provided for these properties are typical values, intended only as guides, and should not be construed as sales specifications.

\* These products meet the standards of Arkema Coating Resin’s EnVia® program. These products are designed to assist formulators in meeting their sustainability and regulatory goals in their finished products.



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## Performance Evaluations

### Modifying paints with CELOCOR® AF delivers balanced properties

Performance Properties	Paint containing no opacifier	Paint containing CELOCOR AF	Paint containing Competitor A
Hiding/Tint Strength	+	++	++
Gloss Development	+	+	+
Burnish Resistance	+ +	+	+
Scrub Resistance	+	+	+
Washability	+	++	+

## Case Study #1

Interior Flat Contractor Paint Based on ENCOR® 282 (VAE)

### Interior flat contractor paint: Formulation adjustment

#### Control Paint Properties

PVC = 56.3%  
Volume Solids = 30.7%  
TiO<sub>2</sub> = 200 lbs (19.5% PVC)  
OMYACARB® 3 = 80 lbs

#### CELOCOR® AF-modified Paint Properties

PVC = 59.0%  
Volume Solids = 32.7%  
TiO<sub>2</sub> = 183 lbs (16.8% PVC)  
OMYACARB® 3 = 90 lbs  
CELOCOR® AF = 37.4 wet lbs (7% PVC)

#### Formulating Tip:

Reducing volume solids back to the original level of 30.7% allows for the formulation to be diluted by 6.5%, resulting in a reduction of TiO<sub>2</sub> to 183 lbs per 100 gallons and CELOCOR® AF to 37 wet lbs.

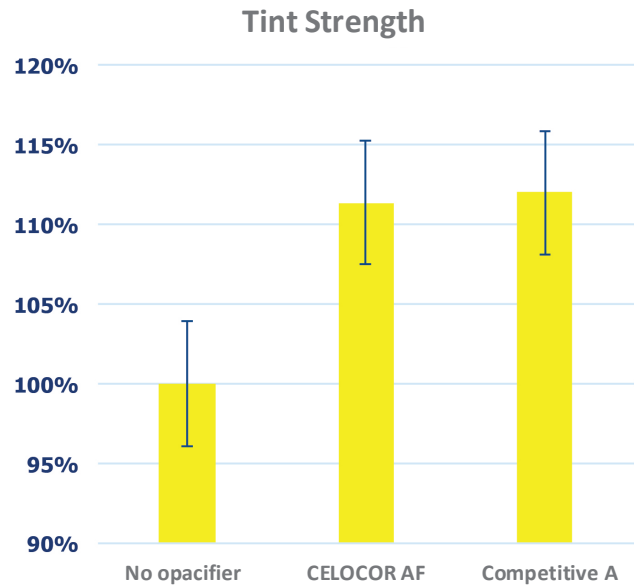
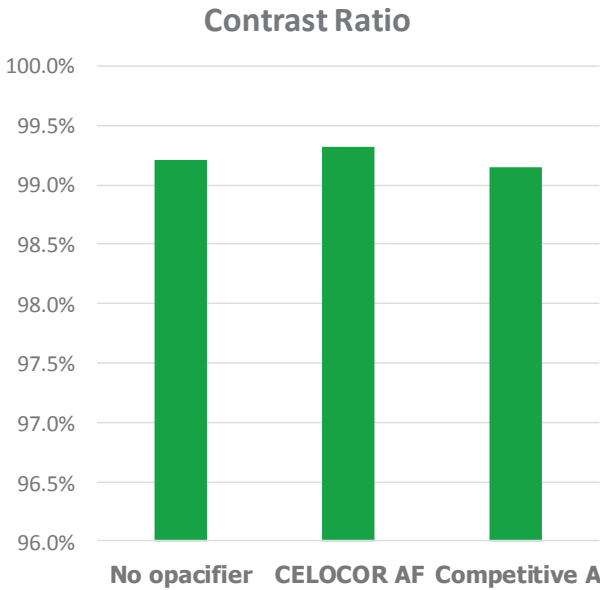
*Performance properties should be evaluated.*

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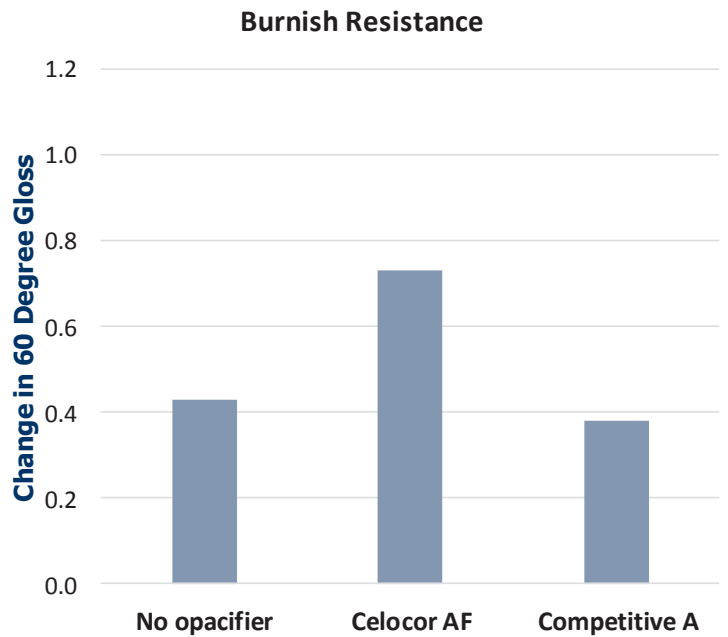
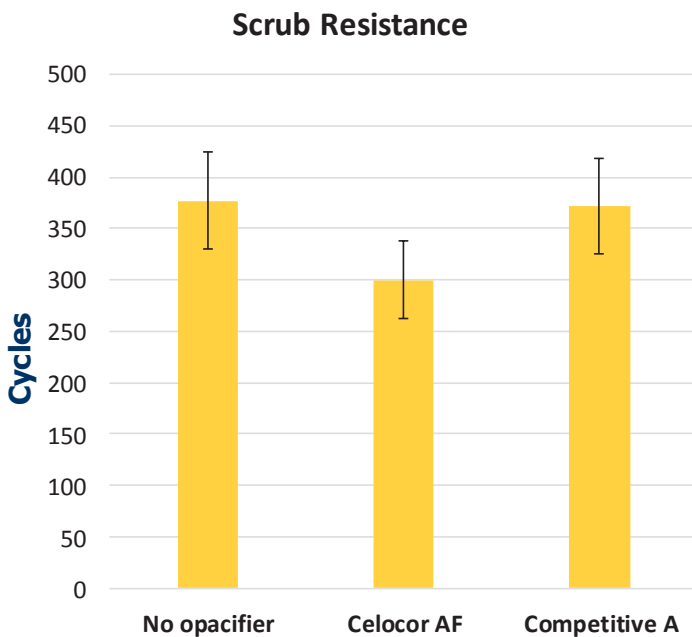
## Case Study #1 (continued)

### CELOCOR® AF displays excellent hiding in VAE-based interior flat paints



- Results indicate the TiO<sub>2</sub> level could be reduced by an additional 10-12%, while still maintaining equivalent Tint Strength as the control
- Contrast ratio is maintained with addition of CELOCOR® AF

### Equivalent scrub and burnish resistance in CELOCOR® AF-modified interior flat paints



- Scrub resistance is within the normal variation for ENCOR® 282 VAE-based flat paint

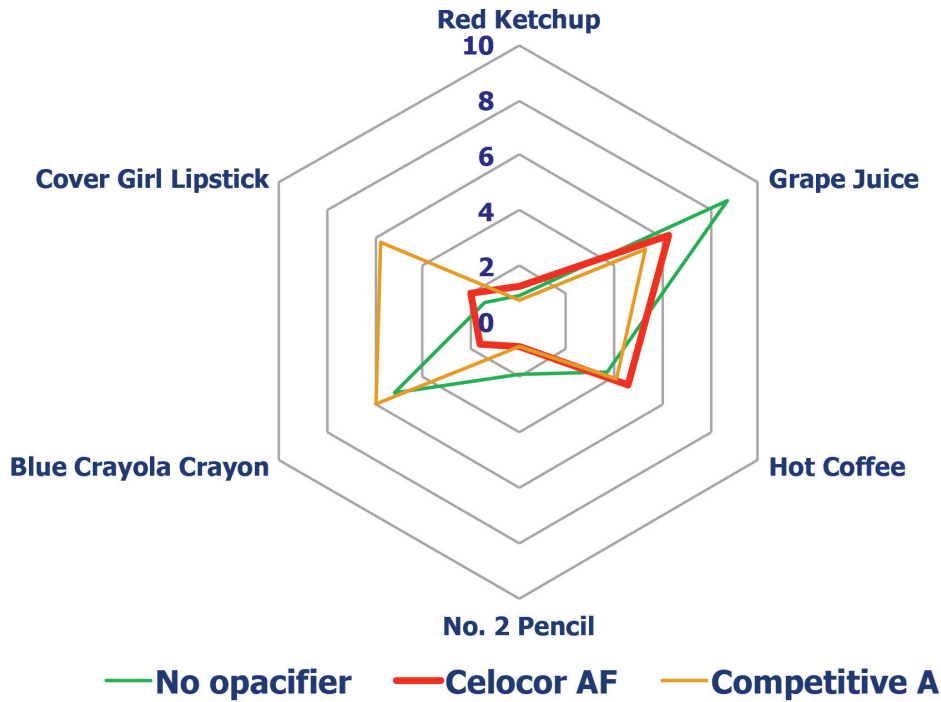
# CELOCOR<sup>®</sup> AF OPAQUE POLYMER

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## Case Study #1 (continued)

### Adding CELOCOR<sup>®</sup> AF can improve washability in VAE-based flat paints

#### $\Delta E$ Washability



- CELOCOR<sup>®</sup> AF gave the best overall washability except against Yellow Mustard

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## Case Study #2

Interior / Exterior Semi-Gloss Paint Based on SNAP® 720 (100% Acrylic)

### Interior / exterior semi-gloss paint: Formulation adjustment

#### Control Paint Properties

PVC = 25%  
Volume Solids = 35.3%  
TiO<sub>2</sub> = 250 lbs (21.6% PVC)  
MINEX® 10 = 25 lbs

#### CELOCOR® AF-modified Paint Properties

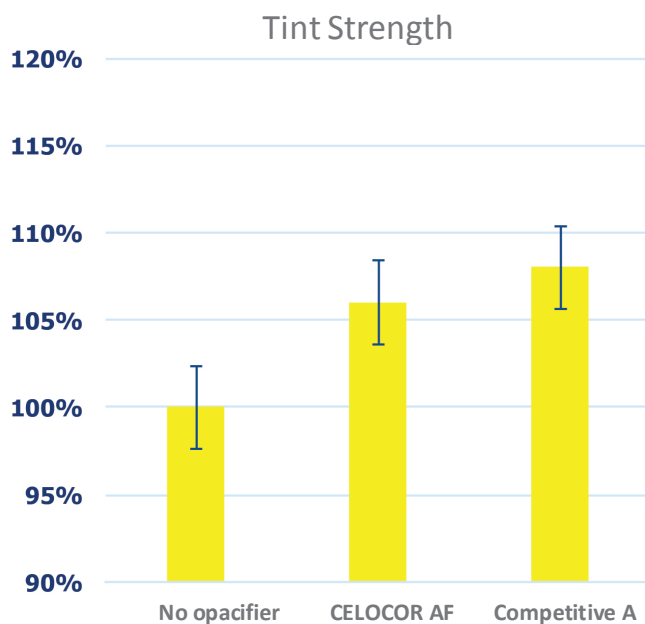
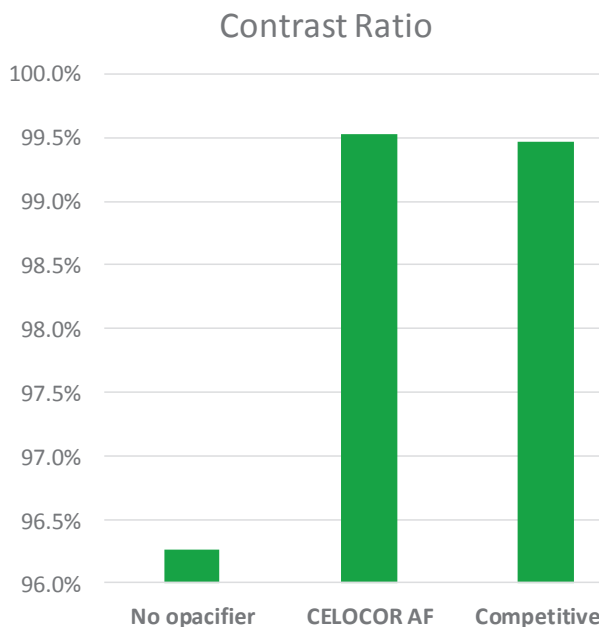
PVC = 30.3%  
Volume Solids = 37.4%  
TiO<sub>2</sub> = 230# (18.4% PVC)  
MINEX® 10 = 32 lbs  
CELOCOR® AF = 50 wet lbs (8% PVC)

#### Formulating Tip:

Reducing volume solids back to the original level allows for the formulation to be diluted by 6.5%, resulting in a reduction of TiO<sub>2</sub> to 230 lbs per 100 gallons and CELOCOR® AF to 50 wet lbs.

*Performance properties should be evaluated.*

### CELOCOR® AF displays excellent hiding in acrylic semi-gloss paints



- Contrast ratio improves with the addition of CELOCOR® AF
- Results indicate that the TiO<sub>2</sub> level could be reduced by 6-8% and still achieve Tint Strength equivalent to the control

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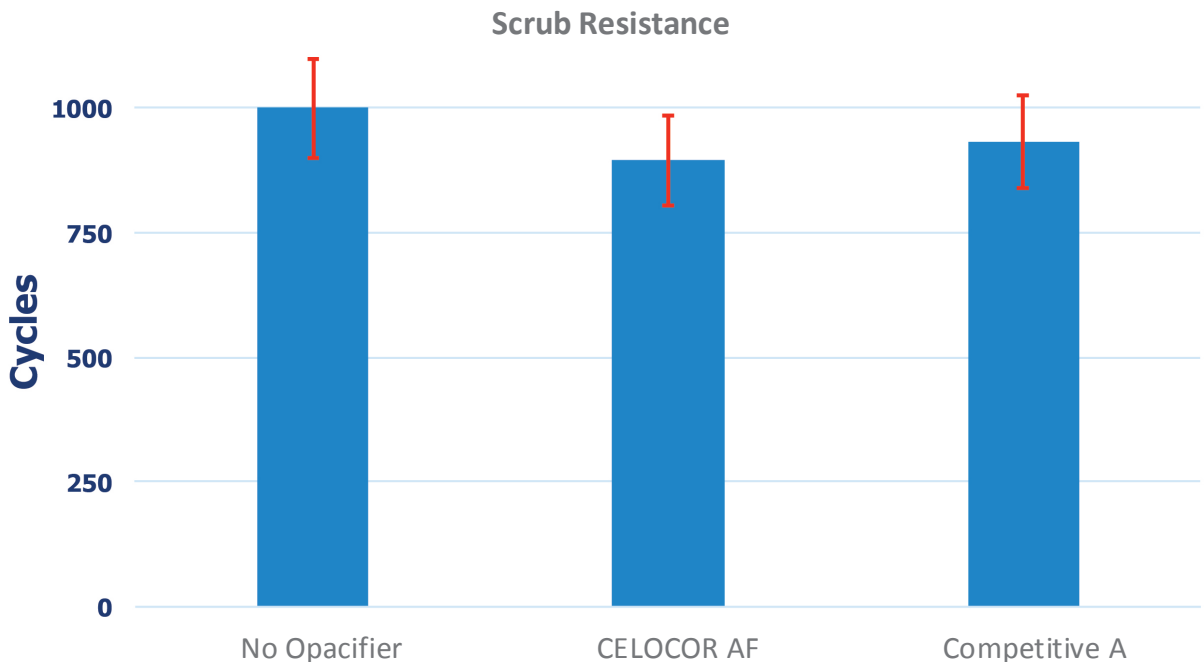
## Case Study #2 (continued)

### Gloss and block resistance are equivalent



- Equivalent gloss development is achieved when adding CELOCOR® AF compared to a control
- Adding CELOCOR® AF had no adverse effects on SNAP® 720's outstanding block resistance

### Scrub resistance is within expected variation of semi-gloss acrylic paints based on SNAP® 720



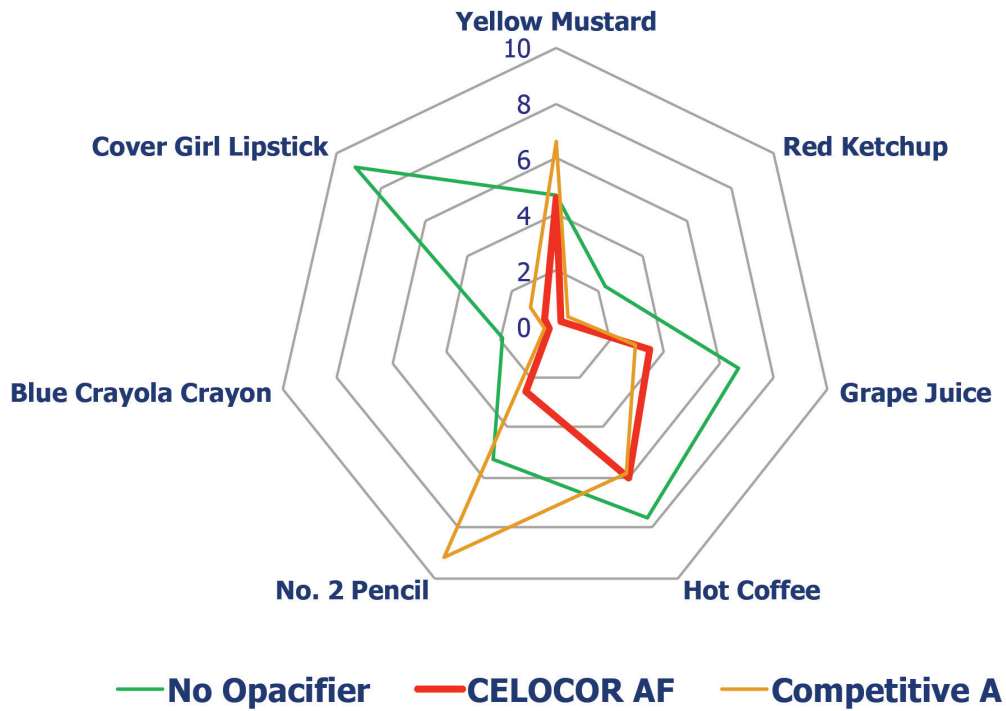
# CELOCOR<sup>®</sup> AF OPAQUE POLYMER

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## Case Study #2 (continued)

### Adding CELOCOR<sup>®</sup> AF can improve washability in semi-gloss acrylic paints

#### Δ E Washability



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## Case Study #3

High Quality Flat Paint Based on ENCOR® 662 (100% Acrylic)

### ENCOR® 662-based high quality flat paint: Formulation adjustment

#### Control Paint Properties

PVC = 45.1%  
Volume Solids = 35.3%  
TiO<sub>2</sub> = 225 lbs (17.9% PVC)  
MINEX® 4 = 90 lbs

#### CELOCOR® AF-modified Paint Properties

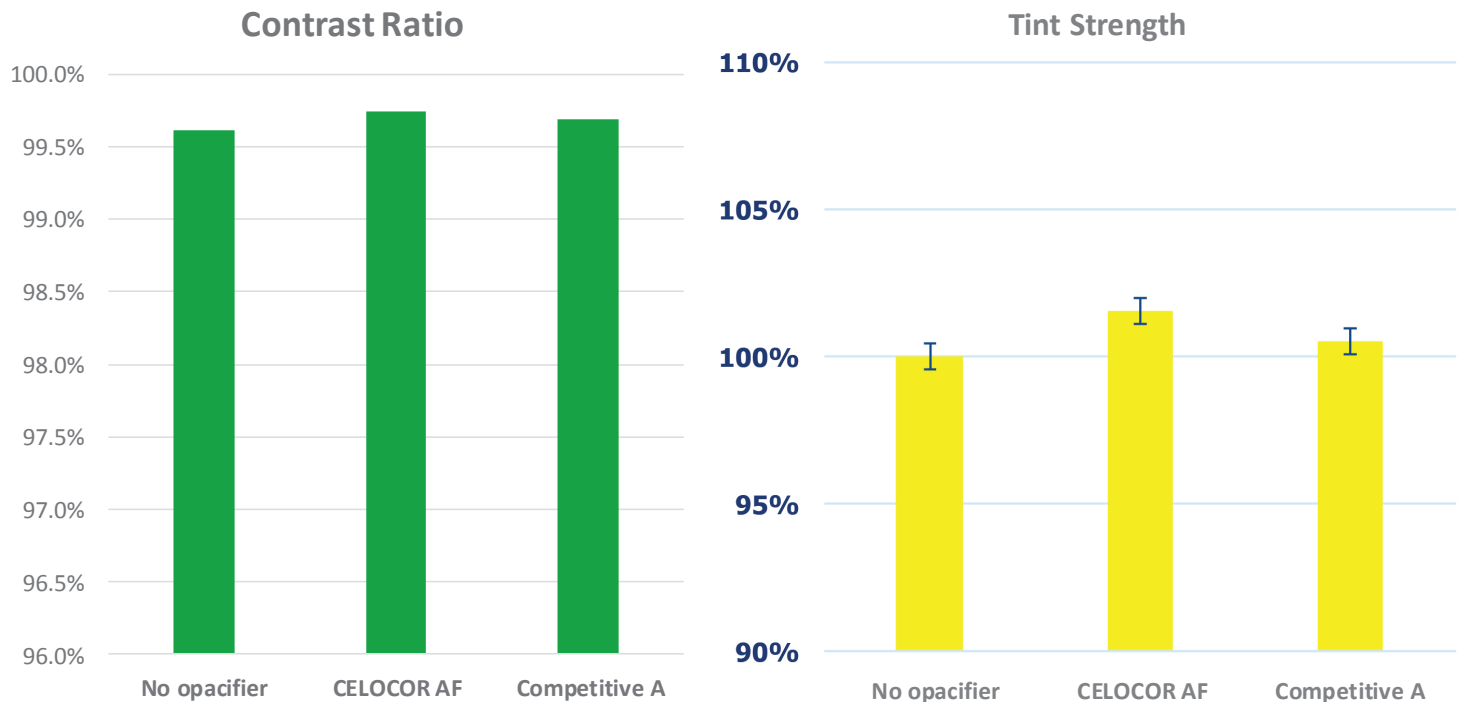
PVC = 48.7%  
Volume Solids = 37.8%  
TiO<sub>2</sub> = 204# (16.3% PVC)  
MINEX® 4 = 105 lbs  
CELOCOR® AF = 44 wet lbs (7% PVC)

#### Formulating Tip:

Reducing volume solids back to the original level allows for the formulation to be diluted by 6.5%. This results in a reduction of TiO<sub>2</sub> to 204 lbs per 100 gallons and CELOCOR® AF to 44 wet lbs.

*Performance properties should be evaluated.*

### CELOCOR® AF displays excellent hiding in acrylic flat paints



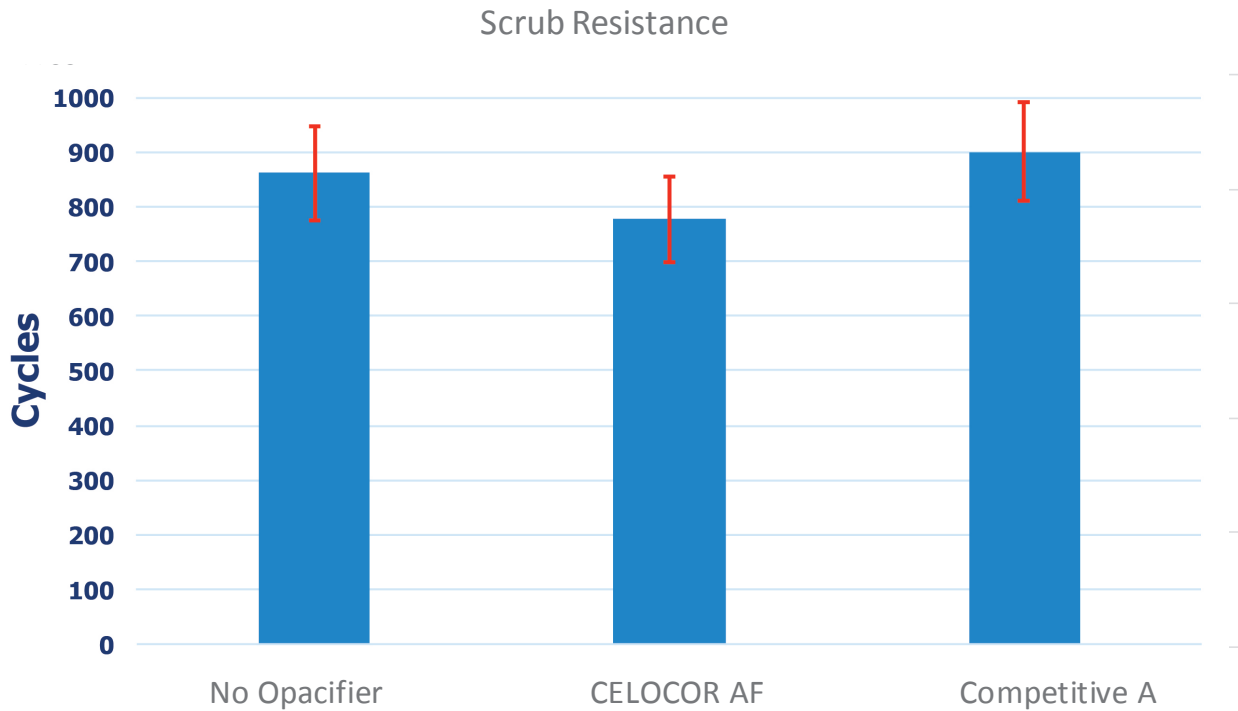


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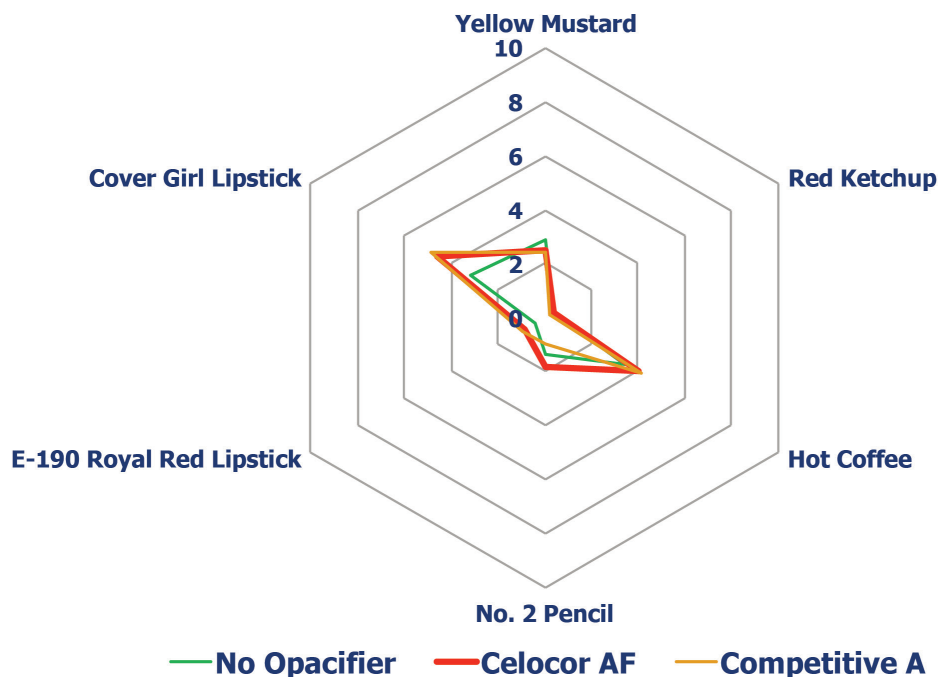
## Case Study #3 (continued)

### Scrub resistance is within the expected variation of ENCOR® 662-based acrylic paints



### ENCOR® 662-based flat acrylic paints have excellent washability

#### Δ E Washability



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## Formulating with CELOCOR® AF

**As a starting point, typically 1% PVC of TiO<sub>2</sub> is replaced with 4% PVC of CELOCOR® AF**

- The level of CELOCOR® AF can be increased and the corresponding level of TiO<sub>2</sub> can be decreased to achieve the optimum cost/performance balance

**Extender pigments and/or latex may need to be adjusted to maintain desired:**

- Performance properties
- Pigment volume concentration
- Volume solids

**In this datasheet, *only extender levels* were increased to maintain gloss & sheen**

### **Key Finding:**

Adding opacifier before the final latex was added gave the best results.

## Replacing another opacifier with CELOCOR® AF

**If current opacifier provides lower tint strength than CELOCOR® AF:**

- Replace current opacifier with CELOCOR® AF on an equal volume solids basis
- Remove titanium dioxide in 0.5% PVC increments until equal tinting strength is achieved

**If current opacifier provides higher tint strength than CELOCOR® AF:**

- Increase the level of CELOCOR® AF in 0.5% PVC increments until equal tint strength is achieved

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## Product Safety

Before handling the materials listed in this bulletin, read and understand the product MSDS (Material Safety Data Sheet) for additional information on personal protective equipment and for safety, health and environmental information. For environmental, safety and toxicological information, contact our Customer Service Department at 1-866-837-5532 to find an MSDS, or visit our web site: [www.arkemacoatingresins.com](http://www.arkemacoatingresins.com)

No chemical should be used as or in a food, drug, medical device, or cosmetic, or in a product or process in which it may contact a food, drug, medical device, or cosmetic until the user has determined the suitability and legality of the use. Since government regulations and use conditions are subject to change, it is the user's responsibility to determine that this information is appropriate and suitable under current, applicable laws and regulations.

Arkema Coating Resins requests that the customer read, understand, and comply with the information contained in this publication and the current MSDS(s). The customer should furnish the information in this publication to its employees, contractors, and customers, or any other users of the product(s), and request that they do the same.

## Storage and Handling

Follow procedures typically recommended for polymer dispersions. Use corrosion-resistant storage tanks and piping. Air-operated diaphragm pumps are preferred.

Packaged material should be stored indoors in the original unopened and undamaged container, in a dry place. Exposure to direct sunlight should be avoided.

Avoid extreme temperatures. Do not freeze; store between 40-90°F (4-32°C).

For more details, refer to "Storage and Handling of Arkema Coating Resins Products – A Basic Guide".



Arkema Coating Resins  
410 Gregson Dr.  
Cary, NC 27511  
Telephone:  
1.800.777.8227

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