ROVACE 661 Vinyl-Acrylic Emulsion
For Use in Latex Paints

Introduction
ROVACE™ 661 Vinyl-Acrylic Emulsion is based on a high molecular weight film forming resin of controlled particle size designed primarily as a binder for use in latex paints. It has a long history of proven performance in the paint and coatings industry. The versatility of this binder provides the paint formulator with an opportunity to develop a variety of interior coatings. Excellent performance properties can be obtained with paints based on ROVACE™ 661 Vinyl-Acrylic Emulsion at high, medium and low PVC levels.

Benefits
- Excellent versatility
- Very good consistency
- Good scrub resistance
- Very good, cold temperature touch-up
- Low residual monomers
- Economical formulations

Typical Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Typical Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solids Content, %</td>
<td>55</td>
</tr>
<tr>
<td>Viscosity, Brookfield, (25°C), cps</td>
<td>900</td>
</tr>
<tr>
<td>Emulsifying System</td>
<td>Non-ionic</td>
</tr>
<tr>
<td>Density, Wet, 25°C</td>
<td></td>
</tr>
<tr>
<td>US lb/gal</td>
<td>9.0</td>
</tr>
<tr>
<td>kg/L</td>
<td>1.08</td>
</tr>
<tr>
<td>Bulk Value, US gal/lb</td>
<td></td>
</tr>
<tr>
<td>Dry Solids, Wet</td>
<td>0.105</td>
</tr>
<tr>
<td>Wet</td>
<td>0.114</td>
</tr>
<tr>
<td>pH</td>
<td>4.75</td>
</tr>
<tr>
<td>Average Particle Size, µm</td>
<td>0.3</td>
</tr>
<tr>
<td>Minimum Film Formation Temperature, (MFFT), °C</td>
<td>5</td>
</tr>
</tbody>
</table>

1. These properties are typical but do not constitute specifications.
Performance

Coatings formulated with ROVACE™ 661 Vinyl-Acrylic Emulsion exhibit outstanding properties in the important performance areas of drying, scrub resistance, hiding, colorant acceptance, color retention, sealing efficiency, hold-out, freeze-thaw resistance, water resistance, package stability, and overall appearance and application. Finished products such as primer sealers, flat wall paints and semigloss enamels can be developed in both premium and low cost quality ranges.

ROVACE™ 661 Vinyl-Acrylic Emulsion was designed primarily for use in interior latex paints. Dow recommends using a RHOPLEX™ 100% Acrylic Emulsion Binder for best performance in quality exterior applications, for both wood and masonry. Based on our experience, ROVACE™ Vinyl-Acrylic Emulsions offer similar exterior performance to other commercially available vinyl-acrylic emulsions. When formulating with vinyl-acrylic emulsions for exterior applications, we recommend exposure studies to verify performance prior to commercial introduction.

Formulating

ROVACE™ 661 Vinyl-Acrylic Emulsion is designed to perform in paint formulations which are optimized for vinyl-acrylic emulsions. When substituting for an existing binder, the formulator should make a solid-on-solid replacement of ROVACE™ 661 Vinyl-Acrylic Emulsion for the current binder and evaluate performance.

Coalescent

ROVACE™ 661 Vinyl-Acrylic Emulsion requires a coalescing agent to achieve optimal film properties. Concentrations will vary with formulation variables such as PVC and volume solids. Texanol ester alcohol is recommended at a level of 6 to 9% on polymer solids for most applications.

Thickeners/Rheology Modifiers

Both cellulosic and rheology modifiers can be used with ROVACE™ 661 Vinyl-Acrylic Emulsion. If additional flow and/or film build is desired, then ACRYSON™ Rheology Modifiers should be evaluated. However, care should be taken to evaluate the impact that these additives will have on water sensitivity and adhesion. A HASE type such as ACRYSON™ TT-935 Rheology Modifier, and HEURs such as SCT-275 and ACRYSON™ RM-825 Rheology Modifier is recommended.

Defoamer

Both silicone-free and silicone-containing defoamers are effective with ROVACE™ 661 Vinyl-Acrylic Emulsion. Recommended defoamers include: Colloid 640, Colloid 643, Colloid 681F, Nopco NDW, Foamaster 111, Dee Fo 97-2, and Drew L-475.

Dispersant

ROVACE™ 661 Vinyl-Acrylic Emulsion has been successfully formulated with TAMOL™ 731A, TAMOL™ 850 and TAMOL™ 963 Dispersants to achieve maximum hiding, flow and stability.

Surfactants

Surfactants are a very important part of good pigment wetting, color acceptance, and wetting of the substrate. The following surfactants work well with ROVACE™ 661 Vinyl-Acrylic Emulsion: TRITON™ N-57, TRITON™ N-101, TRITON™ GR-5M, TRITON™ X-100, TEGITOL™ NP-9, Igepal CO-610, Igepal CO-630, and Igepal CTA-639.
Freeze Thaw/
Wet Edge Control

Ethylene and propylene glycol are added to improve stability and give wet edge. In semigloss paints, propylene glycol is preferred because it promotes better drying characteristics at the level necessary for good wet edge.

Safe Handling
Information

The Dow Chemical Company Material Safety Data Sheets (MSDS) contain pertinent information that you may need to protect your employees and customers against any known health or safety hazards associated with our products. Under the OSHA Hazard Communication Standard, workers must have access to and understand MSDS on all hazardous substances to which they are exposed. Thus, it is important that you provide appropriate training and information to your employees and make sure they have available to them MSDS on any hazardous products in their workplace.

The Dow Chemical Company sends MSDS on non-OSHA hazardous as well as OSHA hazardous products to both the “bill to” and “ship to” locations of all our customers upon initial shipment (including samples) of all of our products (whether or not they are considered OSHA-hazardous). If you do not have access to one of these MSDS, please contact your local Dow representative for an additional copy. Updated MSDS are sent upon revision to all customers of record. In addition, MSDS are sent on an annual basis to all customers of record.

MSDS should be obtained from your suppliers of other materials recommended in this bulletin.
Handling Precautions

Before using this product, consult the Material Safety Data Sheet (MSDS)/Safety Data Sheet (SDS) for details on product hazards, recommended handling precautions and product storage.

**CAUTION!** Keep combustible and/or flammable products and their vapors away from heat, sparks, flames and other sources of ignition including static discharge. Processing or operating at temperatures near or above product flashpoint may pose a fire hazard. Use appropriate grounding and bonding techniques to manage static discharge hazards.

**CAUTION!** Failure to maintain proper volume level when using immersion heaters can expose tank and solution to excessive heat resulting in a possible combustion hazard, particularly when plastic tanks are used.

Storage

Store products in tightly closed original containers at temperatures recommended on the product label.

Disposal Considerations

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.

Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products – from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

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