Dow Coating Materials

Architectural and Industrial Coatings Solutions

Leading innovation in technologies

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Dow Coating Materials: the expert’s expert

Dow Coating Materials continually strives to be the most innovative coatings raw material supplier, driving fundamental shifts in the coatings industry and moving the market as the expert’s expert in coatings solutions.

We’ve achieved a position as one of the world’s leading suppliers of architectural and industrial binders and additives, through collaboration, inspiration, innovation and growth, and offer material products, science, technology and manufacturing solutions to the architectural and industrial coatings industry worldwide. As one of the largest producers of raw materials for the coatings industry in architectural and industrial binders and additives, we are well positioned to find you answers which help you deliver the solutions your customers need.

From advanced hiding technologies to extreme exposure testing, we constantly rethink every aspect of the ways in which coatings can perform better and enhance our infrastructure and our lives. Innovations include:

— Low-VOC solutions for architectural and industrial coatings,
— Advanced hiding technology,
— Rheology modifiers and dispersants for all water-borne applications,
— Key ingredients for light industrial and wood coatings, traffic paint, and OEM applications,
— Formaldehyde abatement technology to improve indoor quality in buildings,
— Sensitizer labelling free grades are designed to enable formulators seeking to avoid the new H208 label on their products, while maintaining the same level of protection from biological contamination and performance properties as the grades previously supplied from Dow.

In essence, we’re the experts’ expert.
Dedicated to new development …

When we develop new products, by focusing on what matters to our customers, we are able to tailor the right solution for your applications. Innovation is not just confined to the lab, we are able to work with customers to optimize both technology and processes.

Apart from our leadership in environmentally advanced coatings – being the first to market acrylic water-borne ingredients for paints and coatings over 50 years ago – we take pride in our dedication to continued customer-focused innovation that address formulators’ critical needs:

- Improving sustainability while still advancing performance,
- Enhancing environmental durability and performance,
- Reducing application, manufacturing and processing costs,
- Enabling “smart” coatings that respond to external stimuli.

With our commitment to innovation and sustainability we are already working with customers today on the solutions of tomorrow.
... dedicated to customer support

We are committed to working with our customers to help deliver innovative coatings solutions. Our Research & Development laboratories and application centres are located strategically around the world to facilitate stronger customer collaboration, and we are backed by the global structure and resources of The Dow Chemical Company.

**Supply chain excellence**
Our supply chain in Europe and the strategically-placed plants ensure a high level of customer service, logistics and on-time delivery.

**Leading-edge technical support**
Dow Coating Materials has a dedicated and fully global team of qualified technical sales representatives and marketeers. The upshot is service to our customers and an on-going commitment to finding an efficient, mutually advantageous path to market.

Our paint testing exposure stations — at 14 locations and with 30,000 panels painted with over 100,000 different paint formulations — offer an invaluable insight into a given coating’s performance according to different climate conditions.

**Global and local capacity**
Global meets local at our Research & Development facilities, which are spread across the globe in the US, Europe, Asia and Latin America. When, for example, our regional technical services facilities in Valbonne, France, adapt ground-breaking chemistry innovations and the perfect polymer solutions to address local demands and consumer needs, we all benefit.

It’s all about being dedicated to you.
A portfolio designed to deliver

We make the products that make paint and coatings for almost any surface and nearly every purpose, whether it’s polymers which act as the building blocks for any coating formulation or additives that enhance the application properties, or contribute to reducing odour and VOCs (Volatile Organic Compounds).

As the "expert’s expert" we provide you with solutions, based on years of experience developing innovative products for a wide range of architectural and industrial applications.

In architectural coatings, we’re here to help you deliver answers to questions such as:
- How can I offer my customers masonry coatings that not only look great and resist weather damage, but continue to do so for years?
- Can I offer interior paints which are low odour and low VOC yet still deliver excellent results?
- Is it possible to create coatings which maximise performance of high value Titanium Dioxide TiO2 and at the same time improve their carbon footprint?

In industrial coatings, we’re here to help you deliver answers to questions such as:
- How can water-borne road marking paints dry fast yet last longer than conventional solvent-borne paints?
- Does coating a bridge have to be a never-ending job?

With one of the largest portfolio of technologies and services for formulators of architectural and industrial coatings, we offer you a broad product range for paints and finishes as well as tailored formulations and solutions.

It’s a portfolio designed to help you deliver.
Key technologies

Binders

The Dow Coating Materials line of binders is based on the most advanced Dow technology. In architectural coatings, paint formulators benefit from a comprehensive range of emulsion polymers for interior and exterior use, including wall and trim coatings, primers, stains and masonry coatings. We offer products with excellent adhesion to various substrates, enhanced tint retention, excellent dirt pick-up resistance and surfaces that are easy to clean without damaging the paint films. We also offer performance durability, low odour and an enhanced profile.

Our industrial coatings offering provides excellent adhesion to substrates, enhanced resistance, fast drying, and excellent whiteness and retro-reflectivity retention – for road marking paint application.

Hiding Technologies

Dow Coating Materials is one of the pioneers and global leaders in the category of opaque polymers, with over 30 years of experience around the globe. The extended EVOQUE™ Pre-Composite Polymer Technology range is designed to help paint formulators to increase the hiding efficiency of TiO₂, whilst ROPAQUE™ Opacifying Polymers have hollow-sphere particles specifically engineered to improve opacity and the whiteness of paint. This technology permits paint manufacturers to both optimise the total formulation and improve key attribute performance.

Our knowledge and expertise in hiding technologies and opaque polymers are globally recognised and we will continue to innovate in this area.
Dow Coating Materials offers an extensive portfolio of rheology modifiers and thickeners. Based on different technologies, they are designed to control the flow of paint and maximise a coating’s performance and application properties.

Our broad range of products are marketed under the ACRYSOL™, CELLSIZE™ and WALOCEL™ trade names and are suitable for a wide range of applications from decorative paints to industrial and construction applications. They can be used separately, or in combination with one another.

ACRYSOL™ Rheology Modifiers with low as-shipped viscosity, are easy to incorporate and handle during the coating manufacturing process, and are resistant to microbial attack.

Dispersants are a small but key ingredient in paint. They bring compatibility and stability and lead to both economic and performance benefits. In architectural coatings their primary role is to ensure good pigment and filler dispersion which helps formulators to optimise the level of Titanium Dioxide TiO₂. They also contribute to properties such as color acceptance, opacity, scrub, gloss, heat-aging and shelf-life. In industrial coatings water and corrosion resistance properties are key attributes.

Dow Coating Materials offer a range of polyacid and polymeric dispersants marketed under the OROTAN™ trade name with hydrophobic and hydrophilic grades, each with enhanced properties. They offer an unparalleled level of choice to the paint formulator from primers to top-coats, and interior to exterior applications. Our dispersants have been designed for flawless compatibility with ACRYSOL™ Rheology Modifiers.
Architectural Coatings: making the world a brighter place

Detailed product information
Decorative interior wall paints

Dow is a technology leader and one of the largest suppliers of emulsions technology for decorative paints in the world. We have a global manufacturing foot-print and understand the market needs affecting our industry today.

Dow’s portfolio for interior wall paints deliver application ease, performance, efficiency, cost and regulatory compliance. With Dow’s wide range of binders and additives, you can formulate interior paints which will offer solutions for your customer needs.

Innovations for interior wall paints include:

» A new binder technology that facilitates the formulation of low odour, low VOC, good performance interior wall paints that help to reduce significantly the amount of aldehydes in the interior air. The technology assists paint manufacturers to offer functional coatings that can help to purify the indoor air yielding benefits for the inhabitants while helping building owners comply with new regulations. Lab tests show that paints based on this binder technology can lower formaldehyde concentrations by 80% or more. The abatement is irreversible and water is the only by-product of the chemical reaction.

» Sensitizer labelling free grades designed to help formulators seeking to avoid the new H208 label on their products, while maintaining the same level of protection from biological contamination and performance properties as the grades previously supplied from Dow.

What can Dow technologies deliver for water-borne applications?

EVOQUE™ Binders & ROPAQUE™ Opacifying Polymer
— Optimal spacing to reduce the amount of TiO₂ in matt to semi-gloss paint formulation,
— High quality, low odour, low-VOC1), interior matt to semi-gloss wall paints.

PRIMAL™ Pure Acrylics
— Very good hiding, scrub and stain resistance,
— Suitable for use in kitchens and bathrooms,
— Very good color retention,
— High quality, low odour, low-VOC1), interior matt to semi-gloss wall paints,
— Smart coating for improving indoor air quality via formaldehyde abatement.

ACRYSOL™ Associative Rheology Modifiers, OROTAN™ Dispersants, ECOSURF™ Surfactants
Dow has a complete range of formulation additives,
— Broad formulation flexibility from low to high shear thickening,
— Excellent flow and leveling,
— Sag resistance,
— Good film building.

1) VOC substances are not intentionally added and are not knowingly introduced from another raw material.
<table>
<thead>
<tr>
<th>Technology</th>
<th>Segment</th>
<th>Product name</th>
<th>Description, features and benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binders</td>
<td>Matt to semi-gloss solvent-free paints</td>
<td>EVOQUE™ 2360</td>
<td>Self film-forming styrene acrylic binder designed to optimally space TiO₂ and maximise pigment efficiency. Delivers paint film for enhanced barrier properties. Low-VOC ¹), low odour.</td>
</tr>
<tr>
<td></td>
<td>Matt to semi-gloss paints</td>
<td>EVOQUE™ 2350</td>
<td>Styrene acrylic binder designed to optimally space pigment allowing TiO₂ reduction while maintaining hiding properties. Enables paint film with enhanced barrier properties.</td>
</tr>
<tr>
<td></td>
<td>Matt to semi-gloss solvent-free paints</td>
<td>PRIMAL™ SF-016</td>
<td>Self film-forming, low odour pure acrylic, versatile binder with excellent scrub properties and enhanced durability.</td>
</tr>
<tr>
<td></td>
<td>High cleanability semi-gloss to sheen paints</td>
<td>PRIMAL™ SG-380</td>
<td>Pure acrylic self cross-linking binder offering excellent stain removability, scrub resistance and anti-blocking properties.</td>
</tr>
<tr>
<td></td>
<td>Formaldehyde abatement</td>
<td>PRIMAL™ SF-208 ER</td>
<td>Acrylic Emulsion based on FORMASHIELD™ Technology is a low odour, acrylic polymer that has the distinct functionality of enhancing indoor air quality through reacting with selective organic compounds in the air.</td>
</tr>
<tr>
<td>Opaque polymers</td>
<td>Matt to semi-gloss paints</td>
<td>ROPAQUE™ Ultra E</td>
<td>Low VOC, low odour, enhanced organic opacifier allowing TiO₂ reduction, while improving the paint film properties such as scrub, dirt pick-up resistance and color retention.</td>
</tr>
<tr>
<td>Rheology modifiers and thickeners</td>
<td>Matt to semi-gloss paints</td>
<td>ACRYSOL™ RM-845</td>
<td>Easy-to-use, mid shear HEUR associative thickener.</td>
</tr>
<tr>
<td></td>
<td>Matt to semi-gloss paints</td>
<td>ACRYSOL™ DR-130</td>
<td>Efficient low-mid shear HASE thickener as replacement for HEC, with good viscosity upon dilution and good color properties.</td>
</tr>
<tr>
<td></td>
<td>Matt to semi-gloss paints</td>
<td>ACRYSOL™ DR-180</td>
<td>Highly efficient, high solids, mid-shear HASE rheology modifier showing excellent paint stability and colour acceptance. Its good flow and leveling performance lead to optimized applied hiding of final paint coats.</td>
</tr>
<tr>
<td>Dispersants</td>
<td>Matt to semi-gloss paints</td>
<td>OROTAN™ 731-A-ER</td>
<td>Versatile low odour hydrophobically-modified copolymer dispersant with excellent pigment wetting.</td>
</tr>
<tr>
<td></td>
<td>Matt to semi-gloss paints</td>
<td>ECOSURF™ LF-30</td>
<td>Versatile, APEO-free ²), low foaming surfactant</td>
</tr>
</tbody>
</table>

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²) APEO is not intentionally added and is not knowingly introduced from another raw material.
### Decorative trim paints

Dow’s product offering for sheen to high gloss trim paints are suited for formulating paints for window frames, doors, and skirting boards. Trim paints provide the finishing touches to home decoration on wood and non-wood surfaces like, MDF or HDF boards.

Dow’s products permit formulators to offer water-borne trim paints with the aesthetics of traditional alkyd-based paints, but with excellent durability and non-yellowing properties.

<table>
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<tbody>
<tr>
<td><strong>Binders</strong></td>
<td>High gloss to sheen interior and exterior paints</td>
<td>PRIMAL™ HG-1000</td>
<td>Self cross-linking acrylic hybrid based on HYDROTECH™ technology for enhanced gloss level, excellent flow and leveling and open time. Very good film properties and excellent adhesion to aged alkyds. Very good exterior durability.</td>
</tr>
<tr>
<td></td>
<td>Gloss to sheen interior and exterior paints</td>
<td>PRIMAL™ HG-415</td>
<td>Self cross-linking pure acrylic binder with good flow and leveling. Excellent film properties such as stain resistance, dirt pick-up resistance and adhesion to aged alkyds. Excellent exterior durability.</td>
</tr>
<tr>
<td></td>
<td>Gloss to sheen interior and exterior paints</td>
<td>PRIMAL™ HG-98</td>
<td>Self cross-linking pure acrylic binder with excellent film properties such as stain and early blocking resistance as well as adhesion to aged alkyds. Excellent exterior durability.</td>
</tr>
<tr>
<td></td>
<td>Thixotropic gloss to sheen interior and exterior paints</td>
<td>PRIMAL™ SF-021</td>
<td>Self cross-linking and self film-forming pure acrylic binder that can be formulated to give thixotropy. Excellent film performance such as stain resistance, dirt pick-up resistance as well as adhesion to aged alkyds. Excellent exterior durability.</td>
</tr>
<tr>
<td><strong>Thickeners</strong></td>
<td>High gloss to sheen interior and exterior paints</td>
<td>ACRYSOL™ RM-3000</td>
<td>High shear HEUR associative thickener with Newtonian rheological profile allowing excellent flow and leveling.</td>
</tr>
</tbody>
</table>

What can Dow technologies deliver for water-borne applications?

**PRIMAL™ and HYDROTECH™ Acrylics**
- Enhanced gloss, flow and leveling and ease of application, giving even and smooth surface properties,
- Fast drying and good block resistance,
- Low-VOC \(^1\) levels,
- Scratch and mar resistance and good water and chemical resistance for topcoat applications.

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Exterior masonry paints

Dow’s differentiated portfolio for exterior masonry paints deliver both enhanced aesthetic properties and excellent protection to mineral substrates from nature’s elements.

Masonry paint has to be durable and retain its original appearance, therefore properties like efflorescence and dirt pick-up resistance, as well as color and gloss retention are critical. Dow’s polymer technology leadership, supported by data from exposure stations around the globe allow us to offer a wide range of products and solutions.

Dow is one of the technology leader in binders for elastomeric thick film paints with high elongation and crack-bridging properties while maintaining very good surface appearance.

What can Dow technologies deliver for water-borne applications?

**PRIMAL™, ELASTENE™, EVOQUE™ Acrylics**
- Excellent exterior durability,
- Enhanced efflorescence resistance,
- Very good dirt pick-up resistance,
- Excellent gloss and color retention (especially for dark shades).

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<tr>
<td>Binders</td>
<td>Thin Masonry Film</td>
<td>PRIMAL™ AC-412</td>
<td>Self film-forming pure acrylic binder based on AVANSE™ technology for optimal film performance with improved efflorescence resistance and color retention. Can be formulated in primer.</td>
</tr>
<tr>
<td></td>
<td>Thin Masonry Film</td>
<td>EVOQUE™ 1310</td>
<td>Pure acrylic binder designed to encapsulate TiO₂ allowing pigment reduction for same opacity and providing optimal film performance. Improved dirt pick-up resistance, color retention and efflorescence resistance.</td>
</tr>
<tr>
<td></td>
<td>Thin Masonry Film</td>
<td>EVOQUE™ 2350</td>
<td>Styrene acrylic binder designed to encapsulate TiO₂ allowing pigment reduction for same opacity and providing optimal film performance. Very good cost / performance balance.</td>
</tr>
<tr>
<td></td>
<td>Elastomeric Wall Coating</td>
<td>ELASTENE™ 404</td>
<td>Pure acrylic binder with high elongation properties and good dirt pick-up resistance. Allows highest elastomeric coating classification (A5 according to EN 1062-7)</td>
</tr>
<tr>
<td>Opaque polymers</td>
<td>Thin Masonry Film and Elastomeric Wall Coatings</td>
<td>ROPAQUE™ Ultra E</td>
<td>Enhanced organic opacifier allowing TiO₂ reduction while improving the paint film properties such as scrub, dirt pick-up resistance and color retention.</td>
</tr>
<tr>
<td>Rheology modifiers and thickeners</td>
<td>Thin Masonry Film and Elastomeric Wall Coatings</td>
<td>ACRYSOL™ SCT-275</td>
<td>Mid shear HEUR associative thickener with minimal water sensitivity.</td>
</tr>
<tr>
<td></td>
<td>Thin Masonry Film and Elastomeric Wall Coatings</td>
<td>ACRYSOL™ RM-5000</td>
<td>High shear HEUR associative thickener with minimal water sensitivity.</td>
</tr>
<tr>
<td>Dispersants</td>
<td>Thin Masonry Film and Elastomeric Wall Coatings</td>
<td>OROTAN™ 731- A-ER</td>
<td>Versatile hydrophobically-modified copolymer dispersant with minimal water sensitivity.</td>
</tr>
</tbody>
</table>

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Exterior wood paints

Protecting wood from nature’s elements is one of the most important functions of a paint. The paint has to be durable, retain its color and gloss and be flexible enough to cope with the natural “working of the wood” over time. Different wood species also present a challenge to the paint.

Dow’s expertise in designing polymers and testing them in our numerous exposure stations around the globe allow us to offer a wide range of products to fit all climatic and regional needs and preferences.

What can Dow Technologies deliver for water-borne applications?

PRIMAL™, EVOQUE™, FINNDISP™ and PRIMAL™ MULTILOBE

- Low-VOC \(^1\) levels,
- Good weathering, water resistance and resistance to dirt pick-up,
- Easy to handle, wet adhesion, early block,
- Fast drying and good block resistance,
- Good combination of flexibility and toughness.

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<tbody>
<tr>
<td><strong>Binders</strong></td>
<td>Semi-gloss to sheen paints and stains</td>
<td>PRIMAL™ AC-337-ER</td>
<td>Hydrophobic pure acrylic binder with excellent exterior durability; good flexibility on wood, low water uptake, good adhesion on aged alkyd, very good gloss and color retention. High class also in stains.</td>
</tr>
<tr>
<td></td>
<td>Semi-gloss to sheen paints</td>
<td>PRIMAL™ MULTILOBE ML-520</td>
<td>Pure acrylic, high solids binder with multi-lobe morphology for unique rheology behaviour. Very good exterior durability.</td>
</tr>
<tr>
<td></td>
<td>Semi-gloss to sheen paints</td>
<td>EVOQUE™ 1380</td>
<td>Self cross-linking pure acrylic binder designed to encapsulate TiO(_2) allowing pigment reduction while maintaining opacity and providing excellent film performance. Improved dirt pick-up resistance, gloss and color retention.</td>
</tr>
<tr>
<td><strong>Opaque polymers</strong></td>
<td>Semi-gloss to sheen paints</td>
<td>ROPAQUE™ Ultra E</td>
<td>Enhanced organic opacifier allowing TiO(_2) reduction while improving the paint film properties such as dirt pick-up resistance and color retention.</td>
</tr>
<tr>
<td><strong>Rheology modifiers and thickeners</strong></td>
<td>Semi-gloss to sheen paints</td>
<td>ACRYSOL™ RM-845</td>
<td>Easy-to-use, mid shear HEUR associative thickener with minimal water sensitivity.</td>
</tr>
<tr>
<td></td>
<td>Semi-gloss to sheen paints</td>
<td>ACRYSOL™ RM-2020 E</td>
<td>High shear HEUR associative thickener with minimal water sensitivity.</td>
</tr>
<tr>
<td><strong>Dispersants</strong></td>
<td>Semi-gloss to sheen paints</td>
<td>OROTAN™ 731-A-ER</td>
<td>Versatile hydrophobically-modified copolymer dispersant with minimal water sensitivity.</td>
</tr>
</tbody>
</table>

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Industrial Coatings: tough performers for tough environments

Detailed product information
Water-borne road marking paints

Road-marking
Horizontal road-marking is essential for traffic safety: whether on highways, local roads, in cities or airports, road users are guided by traffic lines and signs that need to be visible at all times.

Dow Coating Materials has been an innovator in technologies that aid the application and durability of water-borne traffic paints. Our FASTRACK™ family of products offer fast dry times and excellent durability, reducing application and maintenance costs.

Why FASTRACK™?
— Water-borne ⇒ low-VOC emissions and safer to use for workers,
— Lower carbon footprint than alternative technologies,
— Quickset technology allows fast drying and opening to traffic when the paint is applied in suggested conditions,
— Specifically designed polymers for long term resistance to exposure to climatic conditions and traffic,
— > 25 years of formulation, application and testing expertise,
— Track record of innovation to address industry challenges.

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</thead>
<tbody>
<tr>
<td>Binders</td>
<td>All Roads Type 1 and 2</td>
<td>FASTRACK™ 53</td>
<td>Quick-dry polymer offering fast drying in critical climatic conditions, early wash-out resistance, and very good bead adhesion.</td>
</tr>
<tr>
<td></td>
<td>Durable All Roads Type 1 and 2</td>
<td>FASTRACK™ HD-21A</td>
<td>Patented self cross-linking polymer offering our highest level of durability combined with quick-dry technology. High build applications facilitate multi-year durability.</td>
</tr>
<tr>
<td></td>
<td>Cost-effective All Roads Type 1</td>
<td>FASTRACK™ 2011</td>
<td>High efficiency binder technology facilitating economical traffic paint formulations with very good drying time, durability and overall roadway performance.</td>
</tr>
<tr>
<td>Additive</td>
<td>Opaque Polymer</td>
<td>ROPAQUE™ Ultra E</td>
<td>Enhanced organic opacifier allowing TiO₂ reduction while maintaining traffic paint properties.</td>
</tr>
<tr>
<td></td>
<td>Rheology Modifier</td>
<td>ACRYSOL™ RM-12W</td>
<td>Low shear HEUR associative thickener offering anti-settling properties. Suitable for spray application.</td>
</tr>
</tbody>
</table>

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General industrial coatings

General industrial metal applications can be found in consumer goods, agricultural vehicles (ACE), or general machinery where the coating is factory applied. Total factory VOC emission level restrictions as well as environmental awareness are the main drivers for coating applicators to look for water-borne solutions to replace traditional solvent-borne systems. Corrosion resistance, adhesion to a wide range of treated and untreated surfaces as well as chemical resistance are important coating performance requirements. Typical dry film thicknesses are between 40 – 100 µm. Early block will allow for fast stacking ability after coating application, therefore improving productivity on high speed production lines.

What can MAINCOTE™ water-borne technology deliver?

- Low-VOC 1) levels, < 100 g/l typically, offering a better working environment,
- Excellent adhesion to various substrates, either treated or untreated,
- Fast hardness development for Direct-to-Metal applications,
- Good chemical resistance for topcoat applications.

<table>
<thead>
<tr>
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<th>Product name</th>
<th>Description, features and benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binders</td>
<td>Direct to Metal</td>
<td>MAINCOTE™ 1200</td>
<td>AVANSE™ based acrylic self-crosslinking resin for Direct To Metal applications with good corrosion resistance (&gt;300 hrs salt spray at 80 µm DFT), rapid hardness development and good chemical resistance.</td>
</tr>
<tr>
<td></td>
<td>General purpose</td>
<td>MAINCOTE™ 1071</td>
<td>AVANSE™ based styrene acrylic resin for primer applications offering excellent adhesion to various substrates offering best corrosion resistance.</td>
</tr>
<tr>
<td></td>
<td>Topcoat</td>
<td>MAINCOTE™ Protect</td>
<td>All acrylic resin for high gloss (&gt; 80 at 60°) topcoat applications with good coating adhesion, rapid early block development, good gloss retention and good chemical resistance.</td>
</tr>
<tr>
<td>Additive</td>
<td>Dispersant</td>
<td>OROTAN™ 165</td>
<td>High performance acrylic copolymer dispersant. Excellent water resistance properties, good gloss and corrosion resistance.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OROTAN™ 681</td>
<td>High performance dispersant for formulating metal primers, and corrosion-resistant topcoats for a variety of substrates. In gloss formulations (including high-gloss acrylic enamels), this dispersant facilitates the full development of the gloss potential of the resin. Used in conjunction with non-ionic rheology modifiers (ACRYSOL™ RM-2020 E) it improves flow and film-build and offers an alkyd-like feel when brushing.</td>
</tr>
<tr>
<td></td>
<td>Rheology modifiers</td>
<td>ACRYSOL™ RM-12W</td>
<td>Non-ionic, solvent-free 2) rheology modifier for providing high-low shear viscosity with extreme shear thinning rheology and excellent thickening efficiency. These attributes impart excellent sag resistance with minimal effect on flow and leveling.</td>
</tr>
<tr>
<td></td>
<td>and thickeners</td>
<td>ACRYSOL™ SCT-275</td>
<td>Non-ionic urethane rheology modifier to formulate exterior and interior paint coatings with excellent low to medium shear rate viscosity; high resistance to water, alkali and microbial attack.</td>
</tr>
<tr>
<td>Surfactants</td>
<td></td>
<td>TERGITOL™ 15-S-40</td>
<td>Low odor, high wetting, nonionic surfactant used in paints and coatings. Suggested to improve freeze-thaw, aged stability of the paints, wettability of the substrate.</td>
</tr>
</tbody>
</table>

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2) Solvents are not intentionally added and are not knowingly introduced from another raw material.

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Industrial wood coatings

Industrial Wood segment contains furniture, joinery and flooring applications where the coating is applied in the factory. Increased environmental awareness and the development of legislation are the driving coating applicators to look for water-borne solutions to replace traditional solvent-borne systems. Chemical resistance, film clarity and appearance “anfeuerung”, scratch resistance as well as early water resistance are important coating performance requirements. Typical dry film thicknesses are between 80 – 120 µm. Early block will allow for fast stacking ability after coating application, therefore improving productivity on high speed production lines.

What can PRIMAL™ water-borne technology deliver?
— Low-VOC 1) levels, < 50g/l typically,
— Excellent early block resistance to improve coating application line speeds for furniture coating applications,
— Excellent scratch resistance for topcoat applications,
— Good chemical resistance for topcoat applications.

<table>
<thead>
<tr>
<th>Technology</th>
<th>Segment</th>
<th>Product name</th>
<th>Description, features and benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binder</td>
<td>Furniture – medium quality (IKEA R2)</td>
<td>PRIMAL™ IW-3311</td>
<td>Acrylic self cross-linking hydrophobic resin with excellent chemical resistance, excellent scratch resistance and very good early block to maximize coating application line speeds. Most suitable for clear primer and topcoat applications.</td>
</tr>
<tr>
<td></td>
<td>Furniture – standard quality (IKEA R4)</td>
<td>PRIMAL™ E-2955</td>
<td>Economic all acrylic resin with excellent appearance “anfeuerung”, good chemical resistance and good block to maximize coating application line speeds. Suitable for clear and pigmented coating systems for primer and topcoat formulations.</td>
</tr>
<tr>
<td></td>
<td>Joinery – Primer and Topcoat</td>
<td>ROPAQUE™ Ultra E</td>
<td>Opaque core shell polymer to improve exterior durability (efflorescence- and dirt pick-up resistance, tint retention) as well as lower TiO₂ and resin content in the formulation for lower formulation costs. Most suitable for pigmented primer and mid-coat applications for joinery and furniture.</td>
</tr>
<tr>
<td>Additives</td>
<td>Rheology modifiers and thickeners</td>
<td>ACRYSOL™ RM-845</td>
<td>Low-VOC 1), mid shear viscosity builder (HEUR). Good spattering resistance and gloss potential.</td>
</tr>
<tr>
<td></td>
<td>Rheology modifiers and thickeners</td>
<td>ACRYSOL™ RM-12W</td>
<td>Excellent low shear builder. Excellent sag and sedimentation resistance. As co-thickener brings in-can structure.</td>
</tr>
<tr>
<td>Dispersants</td>
<td></td>
<td>OROTAN™ 165</td>
<td>High performance acrylic copolymer dispersant. Excellent water resistance properties and good gloss.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OROTAN™ 731-A-ER</td>
<td>Versatile hydrophobically modified copolymer dispersant with minimal water sensitivity.</td>
</tr>
</tbody>
</table>

1) VOC substances are not intentionally added and are not knowingly introduced from another raw material.
Liquid applied sound dampening

Noise resulting from mechanical vibrations can be found in personal vehicles, trucks, trains, white goods, machinery, and many other areas. In order to reduce the harshness of the undesired sounds induced by such vibrations, many technical solutions are currently applied. Dow’s innovative acrylic technologies can be formulated into a water-borne, liquid applied vibration dampening material. These solutions are considered among the best compared to alternative technologies.

Why Acrylic emulsion technology?
- Water-borne ⇒ low-VOC \(^1\) emissions & worker exposure,
- Liquid formulation ⇒ spray applied resulting in high efficiency processing,
- Acrylic technology offers maximum sound dampening capabilities ⇒ lower applied weight at equal performance.

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<th>Description, features and benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive OEM</td>
<td>ACOUSTICRYL ™ SD-382</td>
<td>Standard acrylic technology offering basic sound dampening performance at 20 °C.</td>
</tr>
<tr>
<td></td>
<td>ACOUSTICRYL ™ SD-500</td>
<td>Standard acrylic emulsion with maximum dampening at 40 °C.</td>
</tr>
<tr>
<td></td>
<td>ACOUSTICRYL ™ AV-1220 ER</td>
<td>Interactive acrylic technology offering enhanced sound dampening performance at 20 – 25 °C.</td>
</tr>
<tr>
<td></td>
<td>ACOUSTICRYL ™ AV-2240 ER</td>
<td>Interactive acrylic technology offering enhanced sound dampening performance over a broad range of temperatures (20 – 40 °C).</td>
</tr>
</tbody>
</table>

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source: Dow research

> Energy dampening ⇒ noise reduction

Safety
Water resistance
Odor/VOC
Ease of handling
Weight reduction
Labor cost reduction
Productivity
Damping efficiency

LSD: Liquid Sprayed Dampers

CLD (Bitumen Pads)
Epoxy LSD
Liquid Rubber LSD
Water-borne Acrylic LSD

\(\text{source: Dow research}\)
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