

Reichhold Acrylic Resins in Powder Coatings

Film-Forming Acrylic Resin Properties

Products	T _g (°C)	EEW (g/eq)	Key Features	Coating Type
FINE-CLAD A-253	50	425	Scratch and Mar Resistance	Clear Coats
FINE-CLAD A-254	49	525	High Flow	Clear Coats
FINE-CLAD A-257	50	480	Pigment Dispersion, Adhesion to Aluminum	Clear Coats and Pigmented
FINE-CLAD A-270	45	570	Pigment Dispersion	Pigmented
FINE-CLAD A-272	51	335	Scratch and Mar Resistance	Clear Coats

Reichhold's parent company, Dainippon Ink & Chemicals (DIC), is a world leader in glycidyl methacrylate (GMA) acrylic resin technology and has been developing and manufacturing acrylic powder coating resins for over 20 years. Acrylic resins have been used in powder coatings since the 1970's, and have been steadily growing in popularity.

Reichhold's FINE-CLAD® acrylic resins have three distinct uses in powder coating applications:

1. As **Primary Film-Forming** resins in automotive applications such as full-body clear coats and aluminum wheel coatings, and in decorative coatings for brass hardware.
2. As **Crosslinkers** for polyester resins in matte coatings where they act as gloss-control agents in applications such as automotive trims, archi-

tectural metals, and high-quality patio furniture.

3. As **Additives** that promote improved flow and leveling and enhanced stain and chemical resistance in polyester hybrid, polyester TGIC and polyurethane powder coatings.

FINE-CLAD® Acrylics as Film-Forming Resins

Acrylic powders display excellent film appearance and clarity in demanding clear coat applications such as automotive full-body clear coats, automotive wheels and parts and brass hardware. These powders contain acrylic resins crosslinked with a long-chain dibasic acid such as Dodecanedioic Acid (DDDA).

FINE-CLAD A-253 and **A-272** are excellent choices for full-body clear

coat applications requiring scratch and mar resistance, because of their high-oxirane functionality.

FINE-CLAD A-254 is an excellent candidate for powders in wheel and brass hardware applications where its high flow properties translate into high-DOI (distinctness of image) clear coats.

FINE-CLAD A-257 was engineered with dual functions in mind. Its proprietary chemistry gives excellent adhesion to aluminum for filiform corrosion-resistant wheel clears and in pigmented powders, it shows very good pigment dispersion.

FINE-CLAD A-270 is specially designed for coatings with demanding pigmentation requirements, including high-pigment-load formulas and hard-to-disperse chromatic colors.



FINE-CLAD® Acrylics as Crosslinkers

Acrylics are used as crosslinkers for polyester resins in matte powders where they act as gloss-control agents. These acrylic-cured matte powder coatings work well in applications such as automotive trims, architectural metals, and high-quality patio furniture.

Reichhold has developed four systems based on this technology. We refer to these systems as MULTI-CURE, SUPERDURABLE MULTI-CURE, DUAL COMPONENT and WEATHERABLE HYBRID.

Our acrylic crosslinkers can cure unique bi-functional polyesters that contain both carboxyl and hydroxyl groups (MULTI-CURE and SUPERDURABLE MULTI-CURE) as well as carboxylated polyester resins (DUAL COMPONENT and WEATHERABLE HYBRID). In each case, matte finishes are obtained with attractive features and excellent mechanical properties. The acrylic gloss-control agents, FINE-CLAD® A-249-A and A-266 have been designed to reduce gloss of polyester powder coatings, while A-229-30-A helps to raise cured film gloss, when used in combination with either gloss-control agent. By adjusting the ratios of gloss-control agent to A-229-30-A, the formulator can control gloss without sacrificing important coating properties.

Acrylic Crosslinker Properties

Products	T _g (°C)	EEW (g/eq)	Comments	Recommended System*
FINE-CLAD A-229-30-A	56	530	Increases Gloss	MULTI-CURE SUPERDURABLE MULTI-CURE DUAL COMPONENT WEATHERABLE HYBRID
FINE-CLAD A-249-A	64	465	Decreases Gloss	MULTI-CURE DUAL COMPONENT WEATHERABLE HYBRID
FINE-CLAD A-266	46	615	Decreases Gloss	SUPERDURABLE MULTI-CURE

*For more information, please ask your Reichhold sales representative for the product bulletins featuring these systems.

Acrylic Additive Properties

Products	T _g (°C)	EEW (g/eq)	OH Value (g/eq)	Use Level
FINE-CLAD A-241	66	530	50	2 – 3%
FINE-CLAD A-251	53	0	107	2 – 3%

Acrylics used as crosslinkers for polyester resins in matte powder coatings demonstrate no compatibility problems beyond those that would be encountered with other standard powder chemistries.

FINE-CLAD® Acrylics as Additives

Acrylic resins are used as additives to promote improved flow and leveling as well as enhanced stain and chemical resistance in polyester hybrid, polyester TGIC, and polyurethane powder coatings. Unlike standard flow aids, these reactive materials provide improvements in film properties by crosslinking into the powder coating

polymer backbone. These materials also help improve compatibility between batches of two individual powder coatings by improving each powders' crater resistance. FINE-CLAD A-241 contains oxirane and hydroxyl functionality, and will crosslink into all thermoset powder chemistries. FINE-CLAD A-251 is hydroxyl functional and is particularly suited for polyurethane powder coatings.

