

Joncryl® 1540

Product Description	Joncryl 1540 is a thermosetting acrylic emulsion for industrial coating applications.
Key Features & Benefits	<ul style="list-style-type: none">- Hydroxy functional emulsion- Faster cure- Good flexibility- Good chemical resistance- Thermoset
Chemical Composition	Acrylic emulsion

Properties

Typical Properties	Appearance	semi-translucent emulsion
	Non-volatile at 145°C (2g, 30 minutes)	% ~ 42.5
	pH at 25°C	~ 8.5
	Viscosity at 25°C (Brookfield #2LV, 30 rpm, 30 seconds)	cps ~ 500
	Density at 20°C	g/cm ³ (lbs/gal) 1.03 (8.62)
	Acid number (on solids)	12.65
	OH Equivalent weight (on solids)	985
	Hydroxy number (on solids)	56.9
	MFFT	°C 40
	Tg	°C 42
	Neutralizing Amine	Ammonia
	Freeze-thaw stable	Yes

* These typical values should not be interpreted as specifications.

Application

Joncryl 1540 is a hydroxy functional latex that can be used along with various melamines for waterborne thermoset coatings. Fast cure, chemical resistance, flexibility, and oven stability can be obtained using the recommended starting point formulation (601-BX).

Joncryl 1540 is recommended for applications such as:

- Interior/exterior general metal industrial coating applications
- Interior/exterior machine or equipment coating applications

Formulation Guidelines

DMEA (dimethyl ethanolamine) is used in this formulation to prevent gelling at 120°F. DMEA will also slow the cure of the melamine, so it is important to balance hot-box stability with performance. If long term hot-box stability is not needed, less DMEA can be used. Raybo¹ 60, which is used for flash rust inhibition, also contains amines which appear to help hot-box stability. Even if you are applying a Joncryl 1540-based coating to non-metallic surfaces, the use of Raybo¹ 60 as a package stabilizer is recommended.

¹Registered trademark of Raybo Chemical Company.

The use of Nacorr² 1552, a corrosion inhibitor, is not typical in waterborne systems. We have found that it is compatible with Joncryl 1540 and has catalytic properties (Nacorr² 1552 is a zinc salt of dinonylnaphthalene sulfonic acid). Further studies with Nacorr² 1552 and Joncryl 1540 have shown less drift in minimum temperature requirements over time compared to other blocked catalysts. We believe the nature of this combination results in positive synergy between the two. Higher levels of Nacorr² 1552 than used in the starting point formulation may result in poor adhesion of a second coat of starting formulation to a previously cured first coat of material (poor inter-coat adhesion).

Only a small amount of associative thickener is required for this formulation. The nature of Joncryl 1540 should allow for high associative thickener efficiency.

The fast cure nature of Formula 601-BX allows the use of highly methanol-etherified melamine-formaldehyde resins. The use of faster cure, high imino melamines may result in poorer hot-box stability of the coating.

Starting Point Formulation

The following starting point formulation is recommended for an initial evaluation of Joncryl 1540. Additional optimization of the formulation may be desired to achieve maximum suitability for specific applications.

Joncryl 1540 MELAMINE/ACRYLIC WHITE METAL COATING, Formula 601-BX

Materials	Pounds	Gallons
Grind:		
Water	60.7	7.28
Foamaster [®] MO 2152	2.0	0.27
Surfynol ⁴ CT-324	11.0	1.25
Ti-Pure ⁵ R-706	212.7	6.39
Disperse at high speed to 6.5+ Hegman		
Joncryl [®] 1540	546.1	63.36
Premix:		
Highly methanol-etherified melamine-formaldehyde resin	99.5	9.95
Ethylene glycol monobutyl ether	24.6	3.28
DMEA	1.2	0.16
Water	40.0	4.80
Then add:		
Water	14.0	1.37
Nacorr ² 1552	2.6	0.31
Raybo ¹ 60	10.8	1.16
Polyurethane thickener	10.8	0.11
Total	1,026.2	100.01

Formulation Attributes

Solids	54.6% by wt, 43.9% by volume
Density	10.3 lbs/gal
PVC	14.5%
VOC (calculated)	35 g/l, 0.3 lbs/gal

Cure Conditions

Flash-Off Period	1 to 10 minutes
Recommended Bake Schedule	300°F, 15 minutes or equivalent

²Registered trademark of King Industries, Inc.

³Registered trademark of Allnex Group.

⁴Registered trademark of Air Products and Chemicals, Inc.

⁵Trademark of The Chemours Company FC, LLC.

Safety

General

The usual safety precautions when handling chemicals must be observed. These include the measures described in Federal, State and Local health and safety regulations, thorough ventilation of the workplace, good skin care and wearing of protective goggles.

Safety Data Sheet

All safety information is provided in the Safety Data Sheet for Joncryl 1540.

Storage

Please refer to the "Handling and Storage of polymer dispersions" brochure.

Important

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