Industrial Coatings

Technical Data Sheet

Joncryl® PRO 1537-A

(old: Joncryl® PRO 1537)

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Product Description	**Joncryl® PRO 1537 A is an acrylic emulsion polymer for fast dry industrial coatings.**
Key Features & Benefits	***- Solution-like Rheology*** ***- High Gloss*** ***- Excellent Adhesion***
Chemical Composition	**Acrylic emulsion polymer**

Properties

Typical Properties	Appearance	translucent emulsion
	Non-volatile at 145°C (2g, 30 minutes)	~ 46.0 %
	pH at 25°C	~ 8.5
	Viscosity at 25°C (Brookfield #2LV, 30 rpm, 30 seconds)	~ 50 – 600 cps
Typical Characteristics	Density at 20°C	1.04 g/cm^3 (8.70 lbs/gal)
	MFFT	50°C
	Freeze-thaw stable	Yes

These typical values should not be interpreted as specifications.

Applications

Joncryl® PRO 1537 A is an ultra-fine particle size acrylic emulsion polymer for general and specialty purpose industrial finishing and architectural paints. It provides a unique balance of expected acrylic benefits along with many “alkyd-like” features not found in other emulsion polymers.

Joncryl® PRO 1537 A is recommended for applications such as:

- Interior/exterior general metal industrial coating applications
- Interior/exterior architectural coatings

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The following table illustrates key advantages derived from paint formulated with Joncryl® PRO 1537

	Polymer Grind	Surfactant Grind
Formula	**Formula 436-D18**	**Formula 436-F1H**
Polymer	Joncryl® PRO 1537 A	Joncryl® PRO 1537 A
PVC	18.9	19.2
Initial Viscosity	95 KU	98 KU
Heat Aged Viscosity	92 KU	97 KU
ICI Viscosity	1.3 poise	1.8 poise
Gloss (3 mil DD over a sealed chart), 20˚ / 60˚	73 / 92	74 / 92
Image Clarity	Excellent	Excellent
Wet Adhesion – Thumb Twist	Excellent	Excellent
Peel Resistance	Fair	Fair
Block Resistance (2 psi, 24 hr. dry), Room Temp.	Excellent	Excellent
120˚ F	Fair	Fair

Formulation Guidelines

Coalescing - To achieve good film formation, it is necessary to have sufficient solvent present after most of the water has evaporated. Joncryl® PRO 1537 A has been shown to form a good film at 77° F/50% relative humidity (RH) when levels of 28 phr coalescing solvent are used. As ambient conditions become more severe (below 60°F and/or above 70% RH), slower evaporating and/or hydrophobic solvents will be required to achieve good film formation. The use of a plasticizer, in the range of 4 – 8% of polymer solids, will also facilitate this.

Thickening - Experience to date indicates Joncryl® PRO 1537 A will formulate to a higher viscosity without thickener addition. If a further increase in viscosity is desired, Joncryl® PRO 1537 A demonstrates excellent response to associative thickeners, thereby helping to control costs. The use of hydrophilic solvents and surfactants will reduce the efficiency of associative thickener.

Titanium Dioxide - The very high gloss potential of Joncryl® PRO 1537 A provides wider formulating flexibility than conventional acrylics. A high gloss can be developed with a wider selection of titanium dioxide gloss grades.

Rheology Modification - The balance between KU and ICI viscosity is dictated by the desired pickup and application properties. A particular KU and ICI level can be reached through the proper selection of rheology modifiers, polymer solids, co-solvents and colorants. With paints containing Joncryl® PRO 1537 A, Rheovis® PU 1214 NC and other urethane associate thickeners provide a good balance of high and low shear viscosity and maintain a high level of paint performance.

Tint Compatibility - Joncryl® PRO 1537 A exhibits a high degree of tint compatibility with most water-based colorants.

Joncryl® PRO 1537 A as a Modifier - Joncryl® PRO 1537 A is an excellent modifier for existing paint systems. By replacing a portion of the existing polymer with Joncryl® PRO 1537 A, properties such as stain resistance, adhesion and gloss potential will be improved.

Starting Point Formulation

The following starting point formulation is recommended for an initial evaluation of Joncryl® PRO 1537 A. Additional optimization of the formulation may be desired to achieve maximum results for specific applications.

Joncryl® PRO 1537 A INDUSTRIAL WHITE, Formula 518-H5

Materials	**Pounds**	**Gallons**
Water	36.7	4.40
Surfynol[1] CT-324	7.9	0.90
BYK[2]-022	1.0	0.14
Ti-Pure[3] R-900	154.0	4.62
Disperse to desired fineness		
Letdown:		
Joncryl® PRO 1537 A	575.5	65.40
Water	71.3	8.56
BYK[2]-025	1.6	0.20
Butyl Celloslve[4]	24.0	3.19
Butyl Carbitol[4]	14.6	1.85
Texanol[5]	14.6	1.85
Solvesso[6] 150 Fluid	10.8	1.44
Raybo[7] 60	6.8	0.73

Fluorad[8*] FC-129	0.4	0.04
Joncryl® Wax 26	12.0	1.47
Water	38.7	4.65
Adjust pH to 9.0 – 9.2		
Ammonia, 28%	4.19	.56
Total	**974.2**	**100.0**

[1]Registered trademark of Air Products and Chemicals, Inc.
[2]Registered trademark of BYK-Chemie GmbH.
[3]Registered trademark of E.I. du Pont de Nemours and Company.
[4]Trademark of The Dow Chemical Company.
[5]Trademark of Eastman Chemical Company.
[6]Trademark of ExxonMobil Chemical Company.
[7]Registered trademark of Raybo Chemical Company.
[8]Contact BASF Technical Marketing for a suitable replacement.*

Formulation Attributes, Formula 518-H5

Solids	44.7% by wt, 34.7% by volume
Viscosity, Zahn 2 cup	41 seconds
PVC	13.3%
pH	9.2
VOC (calculated)	195 g/l, 1.63 lbs/gal

Typical Properties

1 mil dry film thickness on cold rolled steel		
Water spot tested - uncovered		
	Blister	**Rust**
2-hour dry / 10 minute* spot test	None	None
Gloss	20°: 50	60°: 85

*Rating defined by ASTM D714

Joncryl® PRO 1537 A ARCHITECTURAL INTERIOR HIGH GLOSS ENAMEL, Formula 436-D18 (Polymer Grind)

Materials	**Pounds**	**Gallons**
Grind		
Joncryl® PRO 1537 A	180.0	20.45
Propylene Glycol	34.0	3.94
BYK[2]-022	3.0	0.41
BYK[2]-156	3.0	0.31
Rheovis® PU 1214 NC	2.0	0.22
Ammonia	1.0	0.13
Ti-Pure[3] R-706	250.0	7.51
Grind at High Speed to 7 Hegman		
Letdown:		
Joncryl® PRO 1537 A	440.0	52.30
Premix:		
Texanol[5]	40.0	5.06
Dipropylene glycol monomethyl ether (DPM)	28.0	3.52
Water	16.7	2.0
Then add:		
Rheovis® PU 1214 NC	1.0	0.22
Acrysol[4] RM-2020	10.0	0.16
Joncryl® Wax 26	12.0	1.46
BYK[2]-024	3.0	0.36
Water	28.3	3.40
Total	**1,052.4**	**101.45**

Formulation Attributes, Formula 436-D18

Solids	52.5% by wt, 39.7% by volume
Viscosity, Stormer	95 KU
PVC	13.8%
Density	10.5 lbs/gal
VOC (calculated)	241 g/l, 2.01 lbs/gal

Joncryl® PRO 1537 A ARCHITECTURAL INTERIOR HIGH GLOSS WHITE, Formula 436-F1H (Surfactant Grind)

Materials	Pounds	Gallons
Propylene Glycol	30.3	3.51
Water	30.0	3.60
BYK[2]-156	10.0	1.02
Triton[4] CF-10	2.5	0.28
Mergal[9] 586	0.5	0.05
Ammonia	1.0	0.13
BYK[2]-022	3.0	0.41
Rheovis® PU 1214 NC	1.0	0.11
Ti-Pure[3] R-706	250.0	7.51
Grind at High Speed for 20 Minutes or 7 N.S.		
Joncryl® PRO 1537 A	598.4	68.0
Texanol[5]	40.0	5.06
Dipropylene glycol monomethyl ether (DPM)	28.0	3.52
Rheovis® PU 1214 NC	3.0	0.34
Acrysol[4] RM-2020	10.0	1.16
Joncryl® Wax 26	12.0	1.46
BYK[2]-024	3.0	0.36
Water	33.3	4.0
Total	**1,056.0**	**100.52**

Formulation Attributes

Solids	51.9% by wt, 39.0% by volume
Viscosity, Stormer	98 KU
PVC	19.1%
Density	10.5 lbs/gal
VOC (calculated)	237 g/l, 1.98 lbs/gal

[9]Registered trademark of Troy Corporation.

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.

Material Safety Data Sheet

All safety information is provided in the Material Safety Data Sheet for Joncryl® PRO 1537 A.

Important

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