

# Joncryl<sup>®</sup> PRO 1537 A

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

<b>Typical Properties</b>	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)	cps	~ 50 – 600
<b>Typical Characteristics</b>	Density at 20°C	g/cm <sup>3</sup> (lbs/gal)	1.04 (8.70)
	MFFT	°C	50
	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

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

	<b>Polymer Grind</b>	<b>Surfactant Grind</b>
<b>Formula</b>	<b>Formula 436-D18</b>	<b>Formula 436-F1H</b>
Polymer	Joncryl <sup>®</sup> PRO 1537 A	Joncryl <sup>®</sup> 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), at room temperature / at 120°F	Excellent / Fair	Excellent / 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 <sup>1</sup> CT-324	7.9	0.90
BYK <sup>2</sup> -022	1.0	0.14
Ti-Pure <sup>3</sup> R-900	154.0	4.62
<b>Disperse to desired fineness</b>		
<b>Letdown:</b>		
Joncryl® PRO 1537 A	575.5	65.40
Water	71.3	8.56
BYK <sup>2</sup> -025	1.6	0.20
Butyl Cellosolve <sup>4</sup>	24.0	3.19
Butyl Carbitol <sup>4</sup>	14.6	1.85
Texanol <sup>5</sup>	14.6	1.85
Solvesso <sup>6</sup> 150 Fluid	10.8	1.44
Raybo <sup>7</sup> 60	6.8	0.73
Fluorad <sup>8</sup> FC-129	0.4	0.04
Joncryl® Wax 26	12.0	1.47
Water	38.7	4.65
<b>Adjust pH to 9.0 – 9.2</b>		
Ammonia, 28%	4.19	0.56
<b>Total</b>	<b>974.2</b>	<b>100.0</b>

<sup>1</sup>Registered trademark of Air Products and Chemicals, Inc.

<sup>2</sup>Registered trademark of BYK-Chemie GmbH.

<sup>3</sup>Registered trademark of E.I. du Pont de Nemours and Company.

<sup>4</sup>Trademark of The Dow Chemical Company.

<sup>5</sup>Trademark of Eastman Chemical Company.

<sup>6</sup>Trademark of ExxonMobil Chemical Company.

<sup>7</sup>Registered trademark of Raybo Chemical Company.

<sup>8</sup>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		
	<b>Blister</b>	<b>Rust</b>
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)**

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

**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)**

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

**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

<sup>9</sup>Registered trademark of Troy Corporation.

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**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 PRO 1537 A.

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**Storage**

**General**

Please refer to the "Handling and Storage of Polymer Dispersion" brochure.

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