

# Industrial Coatings

## Technical Data Sheet

# Joncryl<sup>®</sup> 963 Polyol



<b>Product Description</b>	Joncryl <sup>®</sup> 963 is a very soft, low Tg, flexibilizing modifier resin used in high solids systems for very low VOC formulations.
<b>Key Features &amp; Benefits</b>	<ul style="list-style-type: none"><li>- <i>Flexibilizer</i></li><li>- <i>Enables low VOC formulas</i></li><li>- <i>Improves weatherability and acid-rain resistance</i></li></ul>
<b>Chemical Composition</b>	Acrylic polyol

### Properties

<b>Typical Properties</b>	Appearance	clear liquid
	Non-volatile	> 98%
	Hydroxyl number	~ 130
	Viscosity at 25°C (Brookfield #3LV, 12 rpm, 60 seconds)	2,000 – 12,000 cP
	Density at 20°C	~ 1.03 g/cm <sup>3</sup> (8.60 lbs/gal)
	Equivalent weight	~ 432
	Tg	~ -59°C

These typical values should not be interpreted as specifications.

### Applications

Joncryl<sup>®</sup> 963 is a very soft, flexibilizing, reactive modifier resin for use in high solids systems for low VOC coatings systems. It acts as a VOC reducer in coatings formulations and is a 98%+ solids, pourable liquid at room temperature. Compared to Joncryl<sup>®</sup> 960, Joncryl<sup>®</sup> 963 exhibits better acid-etch resistance and improved weathering properties.

Joncryl<sup>®</sup> 963 is recommended for applications such as:

- Interior/exterior general metal coating applications
- Automotive OEM and refinish applications

**Starting Point Formulation**

The following starting point formulation is recommended for an initial evaluation of Joncryl® 963. Additional optimization of the formulation may be required to achieve desired results for specific applications.

**Joncryl® 963 POLYURETHANE STARTING POINT FORMULA**

<b>Part A</b>	<b>Pounds</b>	<b>Gallons</b>
Joncryl® 906	363.26	41.75
Joncryl® 963	87.46	10.17
Efka® FL 3670	0.74	0.09
25% CAB <sup>2</sup> -551-0.01 in MAK	36.77	5.00
MAK	202.64	29.80
1% DBTDL in MAK	2.35	0.35
Subtotal	693.22	87.16
<b>Part B</b>		
Basonat® HI 100	124.94	12.84
<b>Total</b>	<b>818.16</b>	<b>100.00</b>

**Formulation Attributes**

Solids	59.2% by wt, 52.0% by volume
Viscosity (Brookfield)	172 cP
Catalyst level, DBTDL on TRS	0.005%
NCO:OH ratio	1.05:1
VOC (calculated)	3.35 lbs/gal, 400.9 g/l

**Coating Physical Properties and Chemical Resistance**

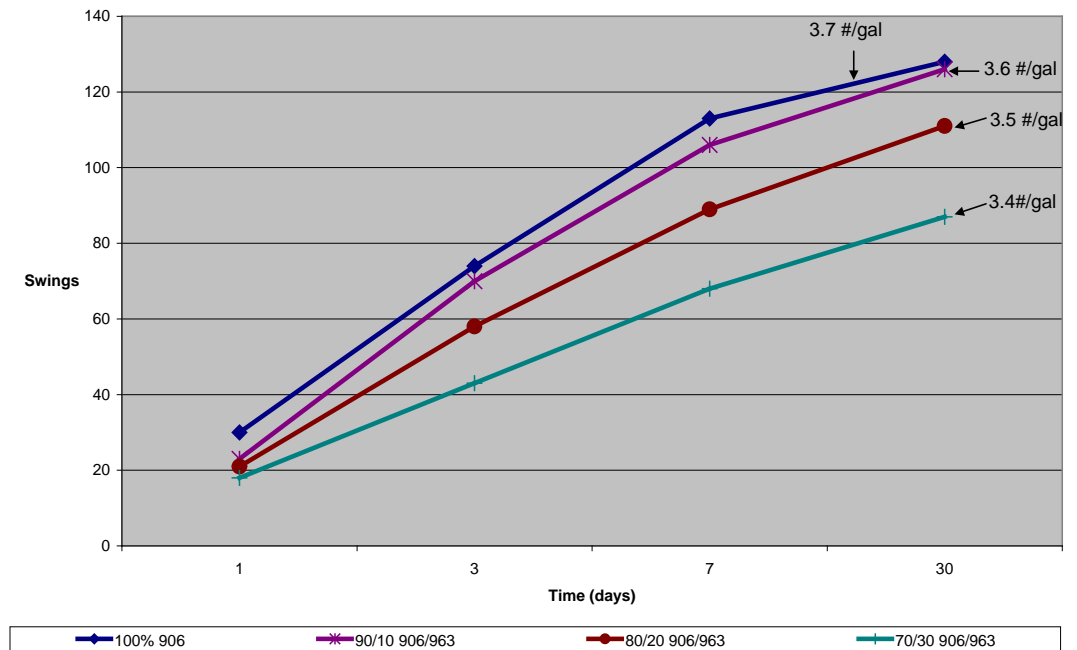
The following table shows the physical properties of this Joncryl® 963 clear coat formulation.

Pot life	6 hrs
Dry hard time	< 24 hrs
Pencil hardness	2H
König hardness	87
Direct impact	60 in/lbs
Reverse impact	20 in/lbs
Acid etch	pending
Chemical resistance	pending
Weatherability	pending

The graph below shows the effect of Joncryl® 963 in the clear coat formulation at 0%, 10%, 20%, and 30% levels. At a constant viscosity of 170 to 200 cP, the VOC and hardness of the clear coat formulation reduces with the increased usage of Joncryl® 963 .

**Graph A: König Hardness Development for Joncryl® 906 / Joncryl® 963 Combinations**

Joncryl 906/963 König Pendulum Hardness Development



<sup>2</sup>Registered trademark of Eastman Chemical Company.

Joncryl 906 / Joncryl 963		906	906 / 963	906 / 963	906 / 963
Combinations (%)		100%	90 / 10	80 / 20	70 / 30
VOC	lbs/gal	3.7	3.6	3.5	3.4
	g/L	440.3	429.3	415.8	400.9
Viscosity (cP)		194	172	172	172

Additional formulation work and testing is on-going for Joncryl® 963.

## 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 personal protective equipment.

### Safety Data Sheet

All safety information is provided in the Safety Data Sheet for Joncryl® 963.

## Important

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