Joncryl® 901

Product Description **Joncryl 901 is an acrylic polyol for high solids urethane coating applications.**

Key Features & Benefits
- Excellent gloss retention
- Fast dry
- Long pot life

Chemical Composition **Acrylic polyol**

Properties

Typical Properties

Appearance	clear liquid
Non-volatile at 150°C (0.5g, 60 minutes)	~ 77%
Hydroxyl number of solids	~ 112
Viscosity at 25.0 ± 0.5°C (Brookfield #4 LV, 30 rpm, 30 seconds)	10,000 – 25,000 cP
Density at 20°C	~ 1.07 g/cm^3 (8.9 lbs/gal)
Equivalent weight as supplied, of solids	~ 650, 500
Tg	~ 20°C
Solvent	Methyl n-amyl ketone

* These typical values should not be interpreted as specifications.

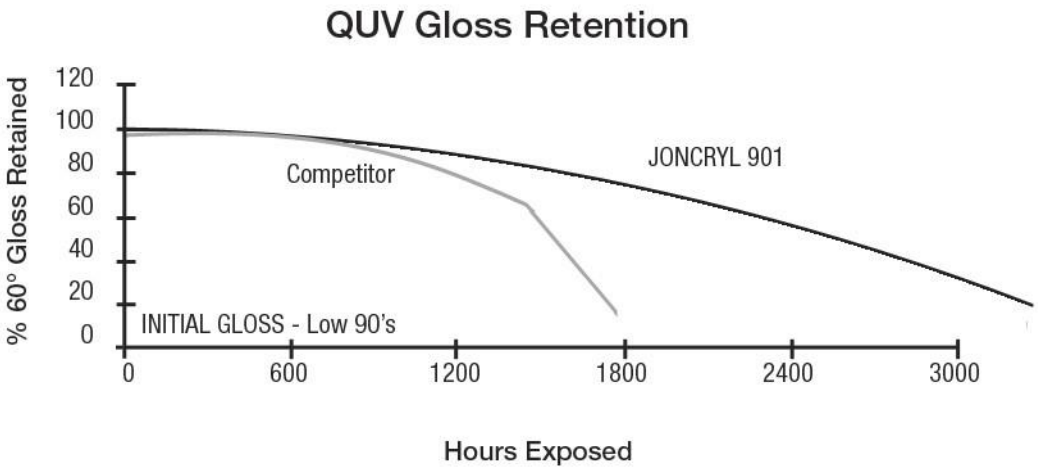
Application

Joncryl 901 is an innovative acrylic oligomer for high solids polyurethane coatings. High solids coatings containing as low as 3.2 pounds per gallon of VOC (Volatile Organic Compounds) can be formulated to spray by conventional or airless equipment. **Joncryl** 901 displays excellent viscosity characteristics without the addition of low molecular weight reactive diluents. Paints formulated with **Joncryl** 901 should be considered as a candidate for high performance maintenance and transportation coatings as a replacement for conventional solids urethane finishes.

Joncryl 901 is recommended for applications such as:
- Interior/exterior general metal coating applications
- Automotive refinish applications.

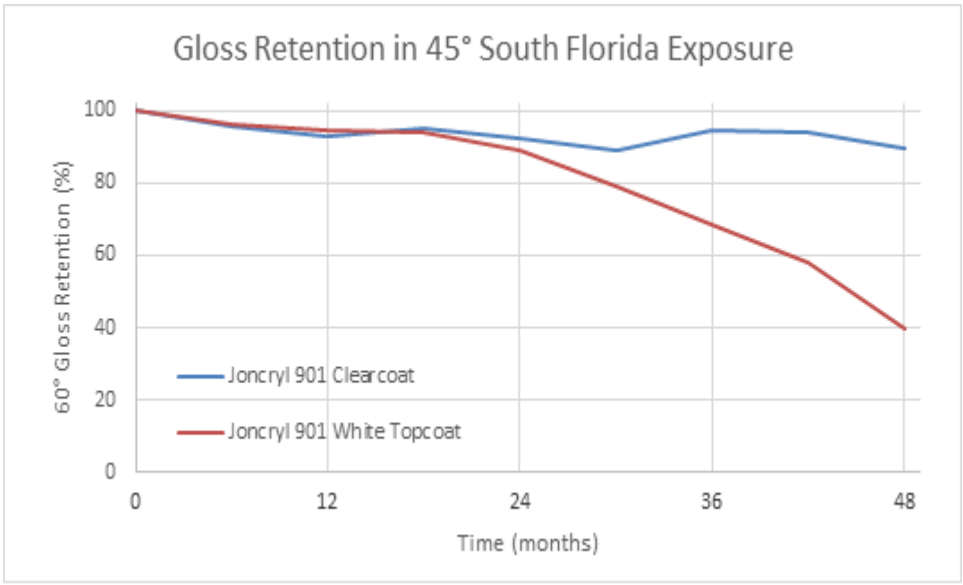
QUV Gloss Retention

When formulated into a white topcoat formulation, **Joncryl** 901 offers superior QUV gloss retention when compared to other systems of similar viscosity/VOC. QUV gloss retention results were obtained using UVB-313 bulbs with 4 hours of light at 60°C followed by 4 hours of condensation at 40°C. Both coatings are white topcoat formulations at 2.8 lbs/gal VOC, 17% PVC, with Basonat® HI 100 as the crosslinker. The coatings are catalyzed with 0.005% dibutyltin dilaurate. No UV stabilizers were utilized.



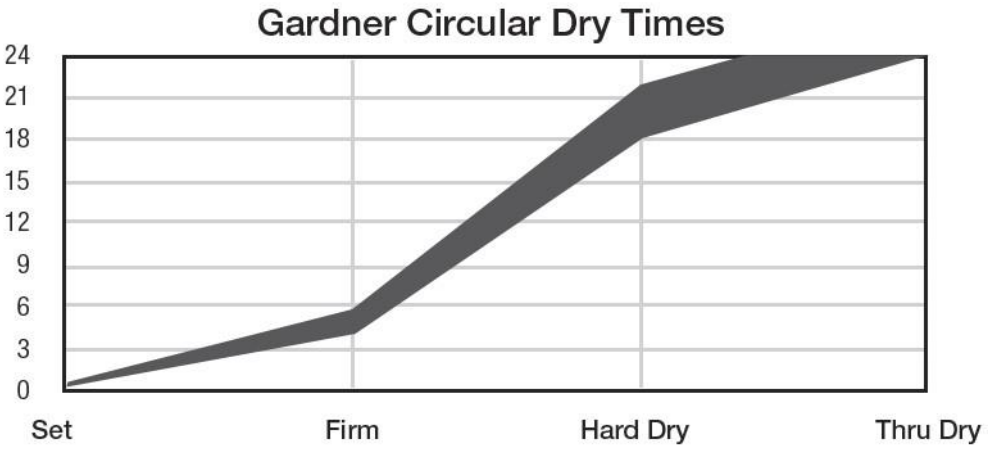
South Florida Weathering

The following graph demonstrates the 60° gloss retention of polyurethane coating formulations based on **Joncryl** 901 in South Florida weathering (ASTM G7-05). No UV stabilizers were used.



Cure/Dry Characteristics

The following graph illustrates the dry times/cure rates of a white topcoat formulation based on **Joncryl** 901. Evaluations of Gardner dry times are very subjective. The dry times will normally lie somewhere within the area plotted on the chart. The pot life of this system will normally be between 4 – 6 hours when pot life is defined as the time to double an initial viscosity of 250 cP.



Formulation Guidelines

Crosslinker Selection – For maximum gloss retention properties, aliphatic isocyanates are recommended. The isocyanurate (trimer) or biuret versions of hexamethylene diisocyanate can be used. The trimer version gives better gloss retention and reactivity. A ratio of 1.05:1 of isocyanate to hydroxyl is normally recommended in the industry. However, a ratio of 1:1 of isocyanate to hydroxyl is more economical and does not sacrifice performance properties.

Solvent Selection – Because the hydroxyl functionality of alcohols and glycol ethers can react with the isocyanates, their use should be avoided. Urethane-grade solvents should be used when available. Ketones will give the best viscosity/VOC due to a combination of good solvency and low density. Esters are the next best choice although they do not provide as low a viscosity/VOC as ketones due to their higher density. Generally, the lower the molecular weight of the solvent within the family, the lower the obtainable viscosity/VOC. Aromatics such as xylene and toluene provide good solvency and can be readily used in combination with the more polar solvents. Toluene provides for especially low viscosity/VOC. Glycol ether acetates can be used but normally do not provide a low viscosity/VOC. PM acetate exhibits film retention characteristics.

Catalysis – Catalysis with 0.005% dibutyltin dilaurate on total binder solids is normally recommended. Higher catalyst levels will result in shorter pot lives and faster cure rates. Other catalysts such as zinc octoate and other metallic soaps can also be used.

Additives – Efka® FL 3670 results in excellent flow and leveling. If a dispersant is necessary, Lecithin or Disparlon[1] KS-273N is recommended. For higher film build, thixatropes such as bentonite clays, fumed silicas, or organic additives such as Thixatrol[2] can be used.

[1]Registered trademark of King Industries, Inc.
[2]Registered trademark of Elementis Specialties, Inc.

Starting Point Formulation

The following starting point formulation is recommended for an initial evaluation of **Joncryl** 901. Additional optimization of the formulation may be required to achieve desired results for specific applications.

Joncryl 901 ACRYLIC/URETHANE GLOSS WHITE TOPCOAT, Formula 137-AA

Part A	**Pounds**	**Gallons**
Joncryl 901	211.82	23.80
Efka® FL 3670	2.29	0.28
MAK	39.58	5.84
Add while mixing:		
Ti-Pure[3] R-960	321.03	9.97
Disperse to 6 – 7 Hegman, then add:		
Joncryl 901	240.57	27.03
MAK	131.72	19.37
10% DBTDL in MAK	0.20	0.03
Subtotal	947.21	86.32
Part B		
Basonat® HI 100 NG	133.11	13.68
Total	**1,080.32**	**100.00**

Formulation Attributes

Solids	74.4% by wt, 59.0% by volume
Viscosity (Brookfield)	325 cP
PVC	17%
Pigment:Binder ratio	0.67
NCO:OH ratio	1:1
VOC (calculated)	2.76 lbs/gal, 331.3 g/l

Coating Physical Properties and Chemical Resistance:
The following table displays the physical properties and chemical resistance of **Joncryl** 901 White Topcoat, Formula 137-AA:

Gloss, 60°, 20°	97, 90
Pencil hardness	H
König hardness	106
Direct impact	38 in/lbs
Reverse impact	8 in/lbs
Acid resistance	8
Caustic resistance	9
Solvent resistance	9

Acid, caustic, and solvent resistances are rated on a scale of 1-10, with 10 equal to no effect after a 24-hour spot test.

[3]*Registered trademark of The Chemours Company.*

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** 901.

Important

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