Joncryl® 942 Polyol

General

Joncryl® 942 is a fast curing acrylic polyol for high solids polyurethane coating applications.

Key features & benefits

- Lacquer-like dry times
- Very fast hardness development
- Good gloss and gloss retention
- Good chemical resistance

Chemical nature

Acrylic polyol

Properties

Appearance

pale yellow liquid

Typical characteristics
(should not be interpreted as specifications)

Non-volatile at 110°C (0.5g, 60 minutes)	~ 73.5%
Hydroxyl number	~ 140
Viscosity at 25.0 ± 0.5°C (Brookfield #4LV, 60 rpm, 30 seconds)	3,100 – 10,000 cP
Density at 20°C	~ 1.05 g/cm^3 (8.81 lbs/gal)
Equivalent weight as supplied, of solids	~ 544, 400
Tg	~ 26°C
Solvent	n-Butyl acetate

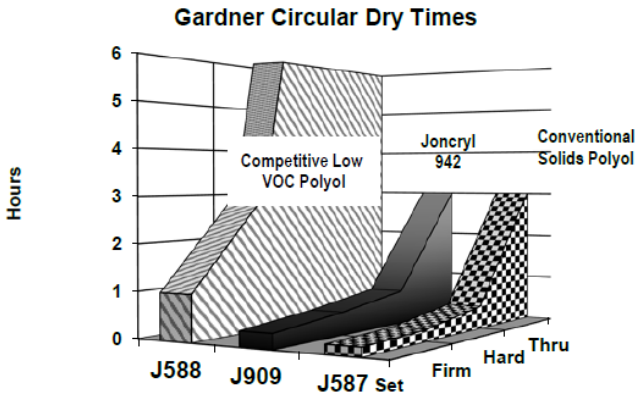
Application

Joncryl® 942 is an acrylic oligomer for medium solids urethane coatings. It is supplied in n-butyl acetate for use where odor is a concern and should be considered as a candidate for high performance, maintenance, automotive refinish, and transportation coatings as a replacement for conventional solids urethane finishes.

Joncryl® 942 is recommended for applications such as:

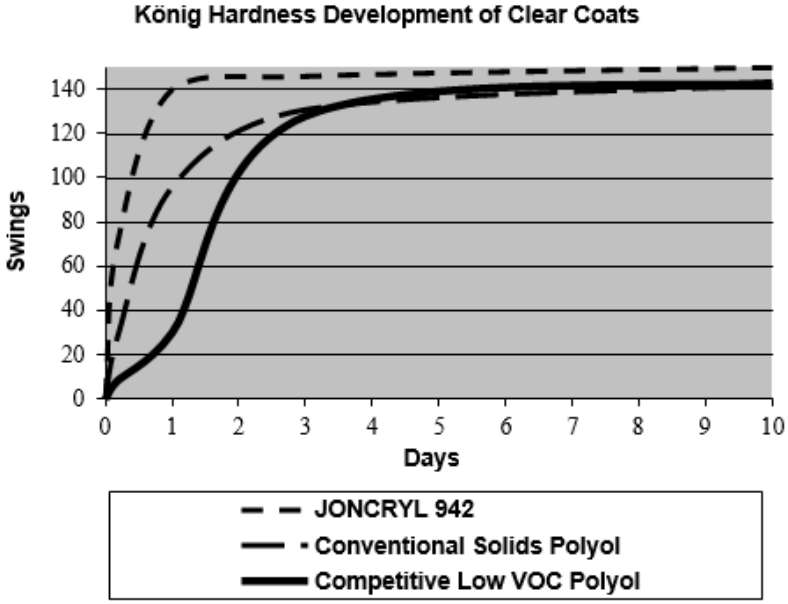
- Interior/exterior general metal coating applications
- Automotive refinish coating applications

The following graph illustrates the dry times/cure rates of a typical clear automotive topcoat formulation based on Joncryl® 942. Due to the increased reactivity of Joncryl® 942, catalysts are not normally used. If increased reactivity is desired, typical urethane catalysts such as dibutyltin dilaurate are recommended. If a catalyst is used, the dry times and pot life will both be reduced.



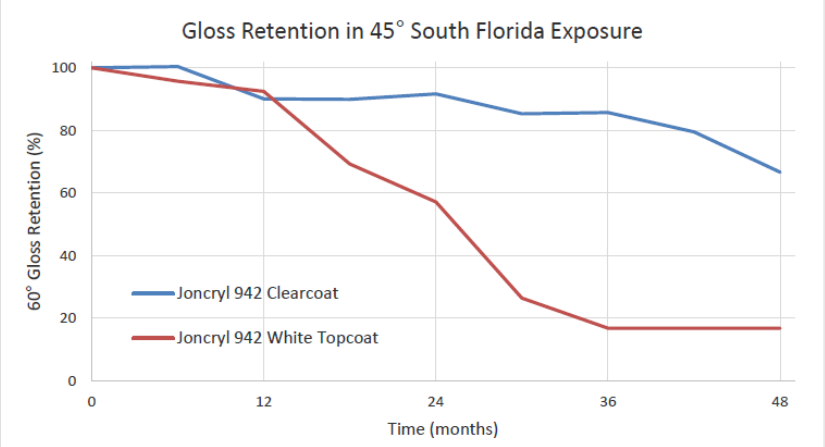
Evaluations of Garner dry times are very subjective. The dry times will normally lie somewhere within the area plotted on the chart above.

The following graph demonstrates the rapid hardness development obtained with Joncryl® 942 in an automotive refinish clear application.



South Florida Weathering

The following graph demonstrates the 60° gloss retention of polyurethane coating formulations based on Joncryl® 942 in South Florida weathering (ASTM G7-05). No UV stabilizers were used.



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 may give 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 isocyanates, their use should be avoided. Urethane-grade solvents should be used when available. Ketone solvents will give the best viscosity/VOC due to a combination of good solvency and low density. Esters generally provide the next best viscosity/VOC, but do not provide as low of a viscosity/VOC as the ketones due to their higher density. Generally, the lower the molecular weight of the solvent within the family, the lower the viscosity/VOC that is obtainable. Aromatics such as xylene and toluene provide good solvency and can be readily used in combination with the more polar solvents. Glycol ether acetates can be used but normally do not provide as low viscosity/VOC. PM acetate exhibits film retention characteristics. n-Pentyl propionate solvent provides excellent flow and leveling and should be considered as a tail solvent. Exempt solvents have been found to work well and should be considered when lower VOC capability is desired.

Catalysis

Due to the increased reactivity of Joncryl® 942, a catalyst is not normally required. If additional speed of cure is desired, typical urethane catalysts such as dibutyltin dilaurate can be utilized. If required, 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. 2,4-Pentanedione can be used to extend the pot life of systems when a tin catalyst has been utilized. 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.

For further detailed application information please contact our Technical Support Department.

Safety
When handling this product, please comply with the advice and information given in the safety data sheet and observe protective and workplace hygiene measures adequate for handling chemicals.

Note
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