Joncryl® 911

General	Joncryl® 911 is an acrylic polyol for high solids industrial polyurethane coating applications.
Key features & benefits	high equivalent weight good durability low VOC cost effective
Chemical nature	acrylic polyol

Properties

Appearance clear liquid

Typical characteristics
(should not be interpreted as specifications)

solids	77 % wt
solids	72 % volume
hydroxyl number of solids	70
viscosity	7,000 cps
equivalent weight as supplied	1,040
equivalent weight of solids	800
density as supplied	8.8 lbs/gal, 1.05 g/mL
density as solids	9.4 lbs/gal, 1.13 g/mL
Tg (measured)	7 °C, 44.6°F
solvent	n-Butyl acetate

Application

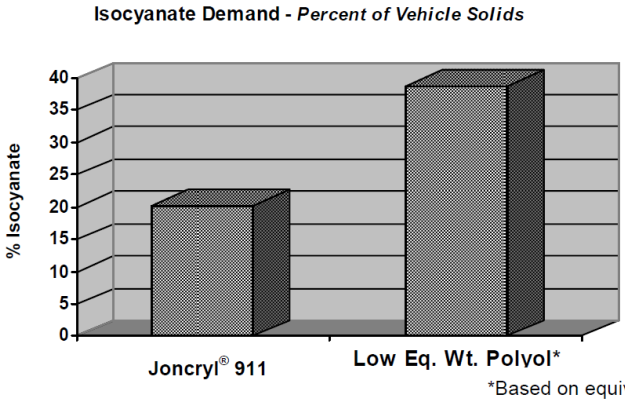
Joncryl® 911 is a high equivalent weight acrylic polyol designed for two-component acrylic urethane coating applications.

Joncryl® 911 is recommended for applications such as:

- Interior/exterior general metal coating applications

High Equivalent Weight Low Isocyanate Demand

Joncryl® 911's equivalent weight of 800 (on solids) means less expensive isocyanate is required as compared to lower equivalent weight polyols. The following graph demonstrates the reduction in isocyanate required for typical 2.8 lbs/gal VOC white topcoat formulation when using Joncryl® 911 as compared to a typical low equivalent weight polyol.



*Based on equivalent weight of 320.

Cure/Dry Characteristics

The following graph illustrates the cure rates/dry times of a white topcoat formulation based on Joncryl® 911. Due to the increased reactivity of Joncryl® 911, catalysts are not normally used. If increased reactivity is desired, typical urethane catalysts such as dibutyltin dilaurate can be used. If a catalyst is used, the dry times and the pot life will both be reduced. 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 cps.

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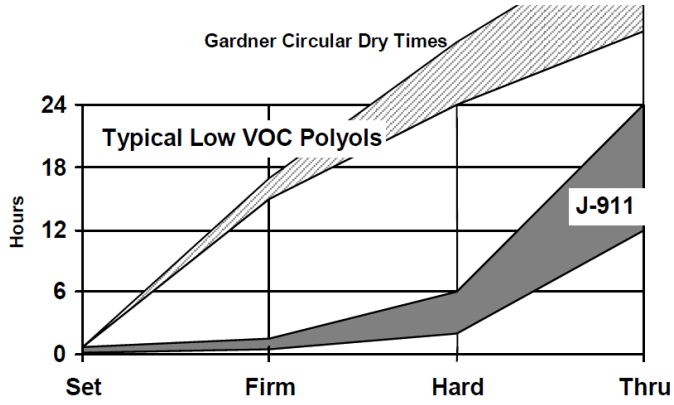

Evaluations of Gardner dry times are very subjective. The dry times will normally lie somewhere within the area plotted on the chart above.

Formulation guidelines

Crosslinker Selection

For maximum gloss retention properties, aliphatic isocyanates are recommended. The 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 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. Toluene especially provides for low viscosity/VOC. Glycol ether acetates can be used, but normally do not provide low viscosity/VOC. PM-Acetate should be avoided due to its film retention characteristics.

Catalysis

Due to the increased reactivity of Joncryl® 911, a catalyst is not normally required. If additional speed of cure is desired, typical urethane catalysts such as dibutyltin dilaurate can be utilized. 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.

Use as a Modifier

Joncryl® 911 can be used as a modifier to upgrade the performance of low molecular weight polyesters and acrylic polyols. It can also be used to lower the viscosity/VOC of higher VOC systems including acrylics and polyesters.

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

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