



## PARALOID™ A-11 Solid Grade Thermoplastic Acrylic Resin

### Description

PARALOID A-11 acrylic resin is a hard resin with excellent durability and resistance properties. It is generally used with plasticizers or other modifiers to make coatings for metal, vinyl, and plastic.

PARALOID A-11 acrylic resin provides excellent color and color retention, high hardness, and excellent resistance to alcohol and water. It has properties similar to PARALOID A-10 and PARALOID A-101 solution grade resins and is used in similar applications. PARALOID A-11 acrylic resin is compatible with several other PARALOID resins such as PARALOID A-21, PARALOID B-44, and PARALOID B-82 and with other film formers including cellulosic, vinyl, silicone, and epoxy. PARALOID A-11 acrylic resin improves the hardness, color, and resistance properties of these materials.

### Solubility

Information about the solvent compatibility of PARALOID A-11 acrylic resin can be found in Dow brochure 82A114—PARALOID Solid Grade Resins, Solvent Selection Chart. Cosolvents often improve solubility. For example, a 35% solution of PARALOID A-11 acrylic resin in toluene has a viscosity of 1700 cP. The viscosity of a 9:1 toluene: n-butanol or isopropanol solvent system is about 900 cP even though PARALOID A-11 acrylic resin is insoluble in these alcohols.

### Typical Properties

These properties are typical but do not constitute specifications.

Physical Form	Powder
Chemical Composition	MMA Polymer
Tg, °C	100
Bulk Density, 25°C, lb./gal.	9.8
Solubility Parameter	9.4
Ultimate Hardness of Clear Films, KHN	18 to 19

### Properties in White Lacquers<sup>1</sup>

Tukon Hardness		Whiteness (K color low numbers best)		Cross Hatch <sup>3</sup>	
30 min. at 180°F	15.0	30 min. at 300°F	7.8	30 min. at 180°F	3
30 min. at 300°F	25.3	16 hrs. at 350°F	7.8	30 min. at 300°F	2
Pencil Hardness		Flexibility <sup>2</sup> , 1/8, 1/4, 1/2 inch mandrels		Mustard Staining (30 minute exposure)	
30 min. at 180°F	3H	30 min. at 180°F	8, 7, 6	30 min. at 180°F	None
30 min. at 300°F	5H	30 min. at 300°F	6, 4, 3	30 min. at 300°F	None
Gloss, 20°		Printing, 2 psi for 1 hour at 140°F		Gasoline Resistance (15 minute exposure)	
30 min. at 180°F	44	30 min. at 180°F	None	30 min. at 180°F	Trace–Dull
30 min. at 300°F	61	30 min. at 300°F	None	30 min. at 300°F	OK
Gloss, 60°		Knife Adhesion		Spray Conditions	
30 min. at 180°F	81	30 min. at 180°F	Fair–Poor	Viscosity, No. 4 Ford Cup, sec.	11
30 min. at 300°F	87	30 min. at 300°F	Fair–Poor	Solids Content, %	18.5

**Note:** Drying the coatings at 300°F for 30 minutes simulates final properties of the resin.

<sup>1</sup>The white lacquers were formulated at a titanium dioxide/binder ratio (solids basis) of 30/70. The properties were determined after coatings were sprayed on Bonderite 1000.

<sup>2</sup>The degree of cracking at the bend over each mandrel is rated on a 0 (no failure) to 10 (complete flaking) scale.

<sup>3</sup>The degree of flaking at the scribed cross hatch is rated on a 0 (no failure) to 5 (complete lift off) scale.

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