

Description

Topcoat #6 and #9 are aliphatic two-component package polyurethane products. It is ASTM Type III, oil-free product and is available in clear and pigmented versions. This unique coating is formulated for exterior applications and has excellent gloss and color retention. Topcoats provide excellent resistance to corrosion, abrasion, chemicals and impact. Topcoats may be used on various substrates, wood, plastics and concrete. Topcoats may be applied via conventional, airless or electrostatic spray, brush, and applicator pads. Topcoat #6 and #9 may be used in combination with high build for exterior or interior industrial maintenance and product finishing where corrosion resistance and excellent long-term protection are important. The coatings have been used successfully with urethane base coats on aircraft, railroad cars, ships, storage tanks, metal bridges, piping and structural steel, and on concrete, wood and some plastics, including vinyl. Resistance of the coated parts to wear, weathering, corrosion and impact are rated with the highest of all commercially available coating types. The flexibility is inherent in the basic polymer and not achieved by the use of plasticizers, therefore, the coatings are not subject to embrittlement with age. The Topcoat #6 and #9 coatings cure or polymerize to high molecular weight films by chemical reaction and partial reaction with the moisture in the air. The by-product of this reaction is carbon dioxide (CO₂), a gas. This reaction begins even before the solvent is completely evaporated. Under optimum conditions (i.e., 77° F (25° C) and 50% relative humidity), there are 70 grains of water present in the air to effect the cure. There are times when there is not enough moisture to cure moisture-curing polyurethane at a reasonable rate. Any climate conditions, which do not allow a minimum of 42 grains of moisture in the air, will retard cure resulting in reduced properties. Forty-two or less grains of moisture and the associated low temperature will slow the cure of the coatings. Usually, two to three weeks are required to develop the ultimate properties of the polyurethanes under optimum conditions. Values stated in this bulletin represent typical values as not all tests are run on each lot of material produced. For formalized product specifications for specific product end uses contact Industrial Polymers, Inc. Information provided herein is based upon tests believed to be reliable in as much as Industrial Polymers, Inc. has no control over the exact manner in which others may use this information, it does not guarantee the results to be obtained. Nor does Industrial Polymers, Inc. make any express or implied warranty of merchantability or fitness for a particular purpose concerning the effects or results of such use.

Application

Topcoat #6 and #9 may be applied via most methods of spraying, by brush, or lamb's wool applicator. In addition, the major products have been modified for roller application. Proper surface preparation and priming are required in order to obtain the long-term protection that Topcoat #6 and #9 provides. For old elastomer surfaces use Ultra Prime 450, and for blasted steel surfaces use Ultra Prime 350 along with Primer 450. Topcoat #6 and #9 can be thinned with toluene, Xylene, or M.E.K. Topcoat #6 and #9 is best applied between ambient temperatures of 55° F (13° C) and 95° F (35° C). The substrate temperature must be at least 5° F above the dew point. Coverage of 300 – 400 square feet per gallon for 1.5 – 2.0 dry mils, depending on porosity, roughness of surface, and product color. Dry film thickness of 2.0 mils maximum must be employed to avoid bubbling. Re-coat time when adequate humidity and good air circulation are available is three or four hours minimum at room temperature 77° F (25° C). For maximum inter-coat adhesion, re-coat within 24 hours. The use of catalyst or heat will shorten re-coat times. Catalyst T-12 may be used to accelerate cure if acceptable curing conditions exist. Co-reactant catalyze T-12 may be used in the last topcoat when superior chemical resistance is required. This catalyst also provides accelerated cure in low temperature or low humidity conditions. Topcoat #6 and #9 may be tinted just prior to use through the addition of commercial tinting concentrates, which are compatible with the urethane coating. Topcoat #6 and #9 may be cleaned up with paint strippers, which will facilitate removal of cured urethanes.

Chemical & Solvent Resistance

The following data illustrates the excellent chemical and solvent resistance of TopCoat #6 & #9 when used with the appropriate primer. Chemicals, which will attack urethane coatings, are strong oxidizing acids like nitric and chromic as well as some organic acids such as acetic at concentrations of 5% or higher. Also, some acids will cause color changes in certain green, yellow, orange, red and tan coatings.

Reagent	Solution (%)	Immersion	Splash or spillage
Acids, Inorganic Hydrochloric, Sulfuric & Phosphoric	10	Pass	Pass
Acids, Organic Acetic Citric/Lactic	5 & 10 10	Not Rec. Pass	Pass Pass
Alkalis Sodium Hydroxide Ammonium Hydroxide	10, 50 10, 50	Pass Not Rec.	Pass Pass
Salts Sodium & Calcium Chloride	20	Pass	Pass
Solvents Aliphatic 1 * Aromatic 2 * Alcohol's 3 * Ketones & Esters 4 *	----- ----- ----- -----	Pass Pass Pass Pass	Pass Pass Pass Pass
Miscellaneous Sea Water (Synthetic) Water at 160° F	----- -----	Pass Pass	Pass Pass

1. Aliphatic Solvents – gasoline, hexane, JP-4, brake fluid
2. Aromatic Solvents – xylene, toluene
3. Alcohol's – ethyl, ethylene glycol, glycerol (note: fail in methyl alcohol immersion)
4. Ketones & Esters – acetone, methyl ethyl ketone, ethyl acetate

Spraying

Thin the material with xylene or toluene. For conventional spraying, thin to 18 – 20 seconds (Zahn #2 cup) and for airless, to 20 – 25 seconds. With conventional and airless spray equipment, spray with a cross pattern. A light mist (tack) coat should be applied and followed with a full wet coat of 3 – 4 mils wet. Thicker films will cause bubbling.

Siphon Feed

	SCM Glidden	Blinks	DeVibiss	Graco
Gun	N/A	62	JGA 502	208-615

Fluid Tip		66 (.070")	AV-1115-EX (.070")	172-041 (.070")
Needle		365	JGA-402-DEX (.070")	208-483 (.070")
Air Cap		66 SH	No. 30 (MB-4039-30)	208-765
Atomizing Pressure		40-50 psi (276-345 kPa)	40-50 psi (276-345 kPa)	40-50 psi (276-345 kPa)

Pressure Pot

	SCM Glidden	Blinks	DeVibiss	Graco
Gun	N/A	62	JGA 502	208-477
Fluid Tip		63B	AV-1115-FX* (.0425")	208-481 (.425")
Needle		363A	JGA-402-FX (.0425")	172-039 (.0425")
Air Cap		63 PB	770 (AV-1239-770)	169-877
Fluid Pressure		15-25 psi	15-25 psi (102-172 kPa)	15-25 psi (102-172 kPa)
Atomizing Pressure		30-50 psi	30-50 psi (241-345 kPa)	30-50 psi (241-345 kPa)

Airless Spray

	SCM Glidden	Blinks	DeVibiss	Graco
Gun	EZ300 or G-Gun	No. 700	JGB-510 or JGN-502	205-591 or 208-663
Tip Size	813 (8" Fan .013") 815 (8" Fan .015")	9-1860 (13 1/2" Fan .018") 9-1540 (8" Fan .015") 9-1580 (13" Fan .015")	Tip 0815 (8" Fan .015")	163-415 (8" Fan .015") 163-614 (12" Fan .014") 163-616 (12" Fan .016")
Pump	Glidden "500" Portable electric pump	Model 98-901, Falcon 3A, 30:1 Model 98-903, Hawk 4B, 30:1	Model QFA 32:1	28:1, 30:1 or Bulldog
Air Pressure	N/A	Depending of viscosity 65-100 psi (4489-689 kPa)	Depending on viscosity 65-100 psi (448-689 kPa)	Depending on viscosity 65-100 psi (448-689 kPa)

Depends upon viscosity of material to be sprayed. Higher viscosity readings require larger tip and needle combinations.

Typical Properties

	Viscosity	Specific Gravity	Weight Per Gallon
Component A	350 cps	0.98	8.16 lb.
Component B	300 cps	1.00	8.37 lb.
Mixed	325 cps	0.99	8.27 lb.

Mixing Ratio	
By volume	1 part A to 1 part B
By weight	97 parts A to 100 parts B

Work life	30 minutes @ 72° F
Cure time	12 hours @ 77° F
Set time and Demold depend on temperature and relative humidity	

TopCoat #6 and #9 is tack free in 2 hours and dries hard in 12 hours under 77° F and 50% R.H. conditions. Room temperature cures of 24 hours permit light use. The coatings are usually suitable for normal use in 48 to 72 hours but continue to develop full properties for the following three weeks. At cool temperatures (below 60° F) and/or low humidity (below 40%) the addition of catalyst may be required, and at higher temperatures (above 85° F) the addition of slow solvents may be needed. Baking may accelerate the cure time in certain applications. Some typical conditions are, 150° F (65° C) for 30 minutes, 200° F (93° C) for 20 minutes.

Color	Percent By Weight	Solids By Volume	Theoretical Coverage Ft/2 gal/mil	Viscosity cps	lbs/gal Kg/l
Clear	75.35	70.63	1130	200	8.47 1.02
White	71.93	68.64	1098	250	9.07 1.09
Black	73.69	65.87	1054	200	8.57 1.03
Bon Red	74.10	65.18	1043	300	8.49 1.02
Orange	72.52	68.54	1097	250	9.15 1.10
Blue	73.74	69.04	1105	250	8.89 1.01
Yellow	73.33	67.99	1088	250	9.11 1.10

Color

Clear

**Storage
Shelf Life**

Topcoat #6 and #9 are shipped from the factory in sealed containers. The containers should be stored in a cool dry area that is protected from direct sunlight and moisture. Storage temperatures should not exceed 80° F. The shelf life of factory sealed containers stored under these conditions is six months. Containers that have been opened should be resealed immediately after material has been removed in order to prevent solvent evaporation. Keep away from heat, sparks and open flame.

Packaging

Topcoat #6 and #9 are both available in 2-quart, 2-gallon and 10-gallon kits.
TopCoat #6 and #9 have a hazardous rating for shipping.