



PT8959 Fire Retardant 85D Urethane for Machine Dispensing

DESCRIPTION

PT8959 is a hard, tough polyurethane which is ideally suited for the rapid production of prototype and/or production parts that have high heat resistance and tough cured properties. It has an easy 1 : 1 mix ratio by weight or volume, a low mixed viscosity, and a fast cure and demold capability, for quick, efficient production. PT8959 works equally well with meter-mix machines or twin-tube cartridge guns. This material is UL listed for UL 94V-0 at 0.12 inch (3 mm) thickness (UL File No. E238713), and meets the requirements of FAR 25.853 for flammability resistance in thin-walled parts.

FEATURES and BENEFITS

- Low Viscosity - Easy Room Temperature Processing
- Very Good Heat Resistance
- Lower Specific Gravity - More Parts Per Pound
- Fast Demold Time - Even At Room Temperature
- No Hazardous Antimony or Brominated Fire Retardant Compounds
- UL Listed for UL 94V-0 in 0.12" (3.0 mm) Thickness (UL File No. E238713)
- Balanced 1 : 1 Ratio - Good for Machine Dispense or Cartridges
- No Restricted or Hazardous Metal Compounds

PRODUCT SPECIFICATIONS

	PT8959 Part A	PT8959 Part B	Test Method
Color	Amber	White	Visual
Viscosity, centipoise	200 cps	1800 cps @ 77°F (580 cps @ 110°F)	ASTM D23932
Specific Gravity, gms./cc	1.19	1.18	ASTM D1475
Mix Ratio, Part A : Part B	100 : 100 By Weight or Volume		PTM&W
Pot Life, 4 fl. Oz. Mass @ 77°F	110 - 120 seconds		ASTM D2471

HANDLING and CURING

PT8959 Parts A and B are very compatible, and combine readily and quickly. The combined materials have a low mixed viscosity, so the filling of even highly detailed molds and thin cross sections is accomplished with ease. PT8959 gels rapidly, and it is possible to demold parts within 45 minutes, even at room temperature, if it is desirable, to recycle the molds quickly. If the Part B is warmed slightly (110°F to 115°F, for example), the mixed viscosity is even lower, and the demold time will be shortened somewhat. At demold, PT8959 has hardened sufficiently to allow complicated parts to be removed from the mold without distortion. They can then be set aside and allowed to cure, or given an oven post cure, depending upon preference. PT8959 will cure completely at room temperature, but it is usually preferable to heat cure the gelled parts for more rapid turnaround. As with most urethanes, PT8959 will cure at room temperature in 3 to 5 days, and achieve virtually full properties by that time. A more realistic production cure, however, would be to allow the material to gel at room temperature, followed by an oven post cure. The temperature and duration of the post cure will be determined by factors such as part size and configuration, mold material and temperature, length of time in the mold and others. An oven post cure for PT8959 parts should be a minimum of 4 to 6 hours @150°F. If parts are to be put into elevated temperature service immediately, and there is no time to allow the parts to complete their cure at room temperature, then additional time at 150°F will improve the heat resistance. Increasing the post cure temperature to 180°F will shorten the time required for full cure. Curing temperature decisions must include consideration of part thickness and shrinkage tolerances. With urethanes, increasing curing temperatures will cause some increase in shrinkage.

TYPICAL MECHANICAL PROPERTIES

		PT8959 A / B	ASTM Method
Mix Ratio, By Weight or Volume		100 : 100	PTM&W
Color		Cream	Visual
Mixed Viscosity, centipoise,		950 cps	D2393
@ 77°F	@ 110°F	500 cps	
Working Time, 4 fl. Oz. Mass,		110 - 120 sec.	D2471
Cured Hardness, Shore D		86 D	D2240
Specific Gravity, grams / cc		1.18	D1475
Density,		.0426	D792
	lb./cu. Inch		
Specific Volume,		23.5	D792
	cu. in./lb.		
Tensile Strength, psi		9,030 psi	
Elongation at Break, %		5.52 %	D638
Tensile modulus, psi		4.80 x 10⁵ psi	
Flexural Strength, psi		14,401 psi	D790
Flexural Modulus, psi		4.77 x 10⁵ psi	
Compressive Strength, psi		14,670 psi	D695
Compressive Modulus, psi		4.26 x 10⁵ psi	
Izod Impact, ft.lbs./in.,		Notched, Meth. A	D256
		Notched, Meth. E	
		Unnotched	
		.68	
		4.83	
		7.00	
Glass Transition Temp, Tg, DMA,		Cured Overnight @R.T.	D4065
		195°F	
		214°F	
		Cured 6 hr. @ 150°F	
		227°F	
		Cured 6 hr. @ 180°F	
Heat Deflection Temperature,		@ 66 psi	D648
		@ 264 psi	
		224°F	
		208°F	
Coefficient of Thermal Expansion;		Range: 50°C to 100°C	D696
Flammability Per UL 94 Specification		UL Listed for UL94 V-0	UL 94
		at 0.118" (3 mm)	
		UL File No. E238713	
Water Absorption, 1/8" Sample, 24 hr. Immersion @ 150°F		.68 %	D570

PACKAGING WEIGHTS

	Gallon Kit	Pail Kit	Drum Kit
PT8959 Part A	9 lb.	45 lb.	450 lb.
PT8959 Part B	9 lb.	45 lb.	450 lb.
Kit	18 lb.	90 lb.	900 lb.

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