



# PT8957

## High Impact Fire Retardant Urethane for Prototypes

### DESCRIPTION

PT8957 is a two-component urethane casting system developed to provide a tough, impact-resistant material for the production of durable short run and prototype parts. PT8957 is a modification of our PT8952 fire retardant high impact casting system, that is designed to have somewhat better fire retardant characteristics than PT8952, to make thinner section parts that possess both high impact strength as well as good fire retardant performance.

PT8957 meets the requirements of FAR 25.853 for flammability in 0.043 inch (1.1 mm) thickness. This has been accomplished without the use of toxic Polybrominated Diphenyl Ethers (PBDEs)

PT8957 is an unfilled liquid system that has a very low mixed viscosity. This allows it to fill thin, complicated mold sections quite readily, producing void-free parts routinely. It's 7 to 8 minute working time combined with this low viscosity provides ample time for complete mold filling on even the most complicated parts. PT8957 has a 2 to 1 mix ratio by weight or volume, for easy measuring, whether hand mixing or cartridge dispensing. PT8957 will solve the problem of brittle fire retardant parts!! It has very good Izod Impact strength, tensile strength and flexural strength, so it has outstanding toughness built-in.

### PRODUCT SPECIFICATIONS

	PT8957-A	PT8957-B	ASTM Method
Color	Light Tan	Clear	Visual
Viscosity, centipoise	120 cps	750 cps	D2392
Specific Gravity, gms./cc	1.25	1.11	D1475
Mix Ratio	100 : 50 By Weight or Volume		PTM&W
Pot Life, 4 fl. Oz. Mass @ 77°F	7 - 8 minutes		D2471

### HANDLING and CURING

PT8957 works quite well in hand mix and pour applications. The 7 to 8 minute pot life allows plenty of time to mix and deair before pouring, as the system components have very low viscosities that combine readily and flow into thin sections easily, minimizing pouring time.

The mixed PT8957 should be poured into a warm mold (heated to 110°F - 140°F) and given an initial oven heat cure before demolding. The material can be demolded after a minimum of 2 to 3 hours at 150°F to 160°F, and then the cure can be completed out of the mold. An oven post cure is required, to achieve maximum cured properties and the highest heat resistance. If the part has relatively thick wall sections and a flat surface it can be positioned on, then it can be post cured unsupported in the oven. However, if there are thin walls or standing sections, the part should be supported on a fixture in the oven for the post cure. It is advisable to support the part in the mold or on a fixture all cases for repeatable good results. As to processing:

Curing time will depend upon the part thickness, mold type and construction and curing temperature. For example, at a temperature of 180°F, cure can be completed in 6 to 8 hours. If the curing temperature is lower, 150°F, for example, the cure time may take as long as 12 to 18 hours.

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### TYPICAL MECHANICAL PROPERTIES

	PT8957 A/B	ASTM Method
Mix Ratio	100 : 50 By Weight or Volume	PTM&W
Working Time, 4 fl. oz. mass, @ 77°F	7 - 8 minutes	D2471
Color	Dark Amber	Visual
Mixed Viscosity, @ 77°F, centipoise	200 - 250 cps	D2393
Cured Hardness, Shore D	88 D	D2240
Specific Gravity, grams, cc	1.20	D1475
Density, lb./cu. Inch	.0435	D792
Specific Volume, cu. in./lb.	23.0	
Tensile Strength, psi	10,676 psi	D638
Elongation at Break, %	25.0 %	
Tensile modulus, psi	390,220 psi	
Flexural Strength, psi	16,743 psi	D790
Flexural Modulus, psi	435,747 psi	
Compressive Strength, psi	12,878 psi	D695
Compressive Modulus, psi	406,265 psi	
Izod Impact Strength, ft.lbs/inch, Method A, Notched	1.42	D256
Glass Transition Temperature, T <sub>g</sub> (Peak) E' (Onset)	203°F 179°F	TMA
Flammability per FAA FAR Volume III, Part 25.853	Passes 60 Second Burn Test at 0.043 inch (1.1 mm)	FAA

### PACKAGING WEIGHTS

	Gallon Kit	Pail Kit	Drum Kit
PT8957 Part A	9 lb.	45 lb.	450 lb.
PT8957 Part B	4.5 lb.	22.5 lb.	225 lb.
Kit	13.5 lb.	67.5 lb.	675 lb.

### SAFETY and HANDLING

PTM&W urethane products are made from raw materials carefully chosen to minimize or even eliminate toxic chemicals, and therefore offer the user high performance products with minimum hazard potential when properly used. Generally, the PTM&W urethane resins and hardeners will present no handling problems if users exercise care to protect the skin and eyes, and if good ventilation is provided in the work areas. However, many urethane resins and hardeners can be irritating to the skin, and prolonged contact may result in sensitization; and breathing of mist or vapors may cause allergenic respiratory reaction, especially in highly sensitive individuals. As such, avoid contact with eyes and skin, and avoid breathing vapors. Wear protective rubber apron, clothing, gloves, face shield or other items as required to prevent contact with the skin. In case of skin contact, immediately wash with soap and water, followed by a rinse of the area with vinegar, and then a further wash with soap and water. The vinegar will neutralize the hardener and lessen the chances of long term effects. Use goggles, a face shield, safety glasses or other items as required to prevent contact with the eyes. If material gets into the eyes, immediately flush with water for at least 15 minutes and call a physician. Generally, keep the work area as uncluttered and clean as possible, and clean up any minor spills immediately to prevent accidental skin contact at a later time. Keep tools clean and properly stored. Dispose of trash and empty containers properly. Do not use any of these types of products until Material Safety Data Sheets have been read and understood.

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## PTM&W Industries, Inc.

10640 S. Painter Avenue Santa Fe Springs, CA 90670-4092  
 562-946-4511 800-421-1518 FAX: 562-941-4773  
 Visit Us At: [www.ptm-w.com](http://www.ptm-w.com) Send Questions To: [info@ptm-w.com](mailto:info@ptm-w.com)