



PT8952

High Impact Fire Retardant Urethane for Prototypes

DESCRIPTION

PT8952 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. A performance companion to the recently-developed PT8902 high impact casting system, PT8952 produces parts with very high Izod impact strength with the added benefit of excellent fire retardant characteristics.

PT8952 is UL listed for UL 94V-0 at 0.1 inch (2.6 mm) thickness (UL File No. E238713), and meets the requirements of FAR 28.853 for flammability. This has been accomplished without the use of toxic Polybrominated Diphenyl Ethers (PBDEs)

PT8952 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. PT8952 has a 2 to 1 mix ratio by weight or volume, for easy measuring, whether hand mixing or cartridge dispensing. PT8952 will solve the problem of brittle fire retardant parts!! It has very high Izod Impact strength, tensile strength and flexural strength, so it has outstanding toughness built-in.

PRODUCT SPECIFICATIONS

	PT8952-A	PT8952-B	ASTM Method
Color	Light Amber	Clear	Visual
Viscosity, centipoise	60 cps	650 cps	D2392
Specific Gravity, gms./cc	1.20	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

* Two additional hardeners are available for use with PT8952 Part A to provide a longer pot life (11 minute - Part B1), and a shorter pot life (4 minutes - Part B2) for applications where these different working times are needed. There are only minute differences in the chemical makeup of these three hardeners, so the cured properties are the same, regardless of the hardener selected.

HANDLING and CURING

PT8952 works quite well in hand mix and pour applications. PT8952 is designed for hand pouring, pressure casting or vacuum casting processes. The material can also be twin-tube or machine cast. For best results, we recommend pressurizing the casting until it gels hard, no matter which process is used. 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.

PT8952 will gel hard at room temperature, and is tough enough to allow demolding after gel for subsequent post cure. This is advantageous in situations where the mold is needed for additional parts, or when the mold will not withstand the post curing temperature. Additional heat is not required for the initial gel in the mold. An oven post cure is required, however, to achieve maximum cured properties and the highest heat resistance. As to processing: PT8952 should be cast into molds preheated to 110°F minimum, and allowed to gel in a pressure chamber. The part should then be post cured in an oven for best properties. 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.

Pigments can be added to PT8952 Part A for short-term storage. Not all pigments are compatible. If PTM&W pigments are not used, they should be tested before making parts. We recommend PT8952 be cast into platinum-based (addition cured) RTV silicone rubber molds. Tin-based (Condensation cured) RTVs can inhibit the cure of PT8952 and cause surface tackiness on the cast part. Please make test casts before using tin-based RTVs.

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TYPICAL MECHANICAL PROPERTIES

	PT8952 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	Translucent Off-White	Visual
Mixed Viscosity, @ 77°F, centipoise	150 cps	D2393
Cured Hardness, Shore D	85 D	D2240
Specific Gravity, grams, cc	1.17	D1475
Density, lb./cu. Inch	.0422	D792
Specific Volume, cu. in./lb.	23.7	
Tensile Strength, psi	10,650 psi	D638
Elongation at Break, %	24.5 %	
Tensile modulus, psi	381,675 psi	
Flexural Strength, psi	15,445 psi	D790
Flexural Modulus, psi	424,275 psi	
Compressive Strength, psi	15,360 psi	D695
Compressive Modulus, psi	413,816 psi	
Izod Impact Strength, ft.lbs/inch, Method A, Notched	1.6	D256
Glass Transition Temperature, Tg (Peak) E' (Onset)	211°F 176°F	TMA
Heat Deflection Temperature, @ 66 psi Load	179°F	D648
Coefficient of Thermal Expansion Range: 100°F - 175°F	5.99 x 10 ⁻⁵ inch / inch / °F	D696
Flammability per UL 94 Specification	UL Listed for UL 94 V-0 at 0.1 inch (2.6 mm) - UL File No. E238713 -	UL 94

PACKAGING WEIGHTS

	Gallon Kit	Pail Kit	Drum Kit
PT8952 Part A	9 lb.	45 lb.	450 lb.
PT8952 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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