



PT7988 Shore D-90 Tough Hard Urethane

DESCRIPTION

PT7988 is a two-component polyurethane casting system that cures to a very hard and durable Shore D 90 elastomer. This system is very easy to process. The mixed viscosity allows easy filling of complicated closed molds, and picks up fine details on the pattern. PT7988 has a ½ hour pot life, which allows time for mixing and deairing, and it cures rapidly, for fast mold turn-around.

PT7988 is particularly well suited for the production of a variety of patterns, molds and fixtures for the foundry industry. The high cured hardness lets this material perform well in thin cross-section areas on patterns that might otherwise move and deflect with softer materials. The red color provides good contrast with typical foundry sand. Also, PT7988 has good hot strength, so it will not soften when in contact with hot sand.

PT7988 can be considered a very low hazard potential product, as it does not contain any toxic or regulated raw materials in its makeup. It does not contain methylene dianiline (MDA), or other potentially harmful aniline derivatives, nor does it contain MBOCA or TDI, and it does not include any hazardous or potentially regulated diluents. PT7988 is an ideal candidate for the most demanding tooling applications where its high hardness, tough cured properties, very good abrasion resistance and good hot strength allow it to perform well.

PRODUCT SPECIFICATIONS

	PT7988 A	PT7988 B	ASTM Method
Color	Brown	Reddish Brown	Visual
Viscosity, @ 77°F, centipoise	260 cps	14,000 cps	D23932
Specific Gravity, gms./cc	1.229	1.747	D1475
Mix Ratio, By Weight	50A : 100B By Weight	100A : 144B By Volume	PTM&W
Pot Life, 4 fl. Oz. Mass @ 77°F	25 - 30 minutes		D2471

HANDLING and CURING

In general, with polyurethane elastomers, full properties are developed in 7 days at room temperature (75°F). Temperatures below 75°F will lengthen the cure time, and if the ambient temperature is below 60°F, additional heat may be necessary for proper cure. Elevated temperatures will accelerate the cure of urethanes, but care must be taken if a higher temperature is used to cure the material. Generally, the higher the curing temperature, the greater the final cured shrinkage. When heat curing for more rapid processing, to best control shrinkage, the casting should be allowed to set for 12 to 18 hours at room temperature before an oven post cure. A typical accelerated curing cycle, therefore, would be: Allow to gel on the pattern for 12 to 18 hours at room temperature (70°F to 80°F), then post cure for a minimum of 8 hours at 150°F to 165°F and allow to cool before demolding.

PT7988 is a fairly rapid curing material, and can develop handling properties sufficient for demolding in a few hours at room temperature. This feature will allow more rapid production of multiple pattern sets from the same master in a short time. In a single work shift, PT7988 castings can be demolded and set aside to complete the cure, while an additional casting is made off the pattern, and subsequently demolded on the following shift.

TYPICAL MECHANICAL PROPERTIES

	PT7988 A / B		ASTM Method
Mix Ratio	50A : 100B By Weight	100A : 144B By Volume	PTM&W
Color	Reddish Brown		Visual
Mixed Viscosity, @ 77°F, centipoise	5,000 cps		D2393
Working Time, 4 fl. Oz. Mass, @77°F	25 - 30 minutes		D2471
Cured Hardness, Shore D	90 Shore D		D2240
Shrinkage, Cast Bar, Mold #1 (0.053 gal.)	Shrinkage: in./in. Shrinkage:in./ft.	0.001 inch / inch 0.012 inch / foot	D2566
Specific Gravity, grams, cc	1.61		D1475
Density, lb./cu. Inch	.0581		D792
Specific Volume, cu. in./lb.	17.2		D792
Tensile Strength, psi	6,298 psi		D638
Elongation at Break, %	6.51 %		
Tensile modulus	723,590 psi		D412
Flexural Strength, Cast Bar	11,194 psi		D790
Flexural Modulus, Cast Bar	767,852 psi		
Compressive Strength, psi	14,405 psi		D695
Compressive Modulus, psi	606,947 psi		
Izod Impact Strength, ft.lbs./inch of notch, Notched	0.364		D256
Glass Transition Temperature, Tg, DMA	137°F (Room Temp Cure) 202°F (RT + 200°F Cure)		D4065

PACKAGING WEIGHTS

	Gallon Kit	Pail Kit
PT7988 A	5.75 lb.	50 lb.
PT7988 B	11.5 lb.	100 lb. (2 @ 50 lb.)
Kit	17.25 lb.	150 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, 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, nitrile rubber 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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