



PT8907

TOUGH, HEAT RESISTANT URETHANE for PROTOTYPE and PRODUCTION PARTS

DESCRIPTION

PT8907 is a low viscosity, modified polyurethane system designed for machine dispensing applications for the fast, efficient production of tough, durable castings and parts. It has a low mixed viscosity which allows easy mold filling into thin sections with low pressure. It develops strength very quickly, and allows fast demold times for more cycles per day. The cured material is very tough and can be demolded without fear of breakage. It is not brittle in thin sections! The heat resistance of PT8907 is very good. It has a high heat distortion temperature - even with only a room temperature cure. A much broader range of part types can be considered with PT8907, as it will withstand exposure to heat better than other materials of this type. PT8907 is a tougher, more versatile product than previously available materials for this application.

The PT8907 Part B1 hardener provides a longer working life system that is designed for casting thicker wall sections and larger parts. The longer pot life of this system allows these larger castings to be made with minimum shrinkage in the finished part. Since they have the same mix ratio, the PT8907 standard Part B and the B1 hardener can be blended for intermediate working and cure times to suit the sizes of different parts.

Among the advantages that PT8907 offers the user are:

- Low Mixed Viscosity - Excellent Flow for Low Pressure Molding**
- Faster Demold Time - Under 10 Minutes - Faster Production Rates!**
- Toughness Developed Quickly for Demolding Without Breakage**
- Low Cured Shrinkage**
- Extremely Tough Cured Properties - Excellent in Thin Sections**
- Very High Heat Resistance - Glass Transition Temperature is 326°F!**
- Easy to Color with Standard Dyes and Pigments**

PRODUCT SPECIFICATIONS

	PT8907 Part A	PT8907 Part B	PT8907 Part B1	ASTM Method
Color	Tan	Black	Black	Visual
Viscosity, centipoise, @ 77°F	200 cps	1,800 cps	2,000 cps	D2392
Specific Gravity, gms./cc	1.24	1.02	1.05	D1475
Mix Ratio		80A to 100B By Wt.; 67A to 100B By Vol.		PTM&W
Pot Life, 4 fl.oz. Mass @ 77°F		45 - 55 sec.	10 minutes	D2471

HANDLING and CURING

PT8907 is capable of curing at room temperature, however, it is usually cured at elevated temperatures for faster production rates and better cured properties. The system develops toughness rapidly in the mold, so it can be demolded without breakage quickly - as soon as 10 minutes for some part configurations. The part is then allowed to cure, either at ambient temperatures or with heat. In all curing situations, parts should be allowed to cure with a minimum of applied stress, to prevent distortion. If the part has a flat side, or surface upon which it can rest during cure, it is usually not necessary to utilize holding fixtures for room temperature curing. If the part design is such that there is no good base or flat plane on which it can sit, then some sort of fixture is probably a good idea. Full properties are developed with a room temperature cure in 6 to 7 days, though for many applications, sufficient cure for service is achieved sooner than this. Part size, shape and thickness all influence the cure rate, so evaluation is necessary to determine the exact amount of room temperature cure necessary. For applications that require the maximum cured properties, a heat cure is necessary to achieve the best results. A heat cure is mandatory for applications where parts will be subjected to elevated temperatures in service. After the part is demolded at room temperature, it should be allowed to stabilize for a period of time, then oven cured in a supported condition. Recommended oven cure cycles are: [A] Overnight (14 to 16 hours) at 175°F, or, [B] 4 hours at 175°F (80°C), plus 4 hours at 212°F (100°C). The PT8907 Part B1 hardener cures very similar to the Part B hardener, with slightly longer demold times, due to the longer pot life of the system. Inasmuch as the B1 hardener is intended for larger, thicker parts; the heavier cross sections will somewhat offset the longer cure time of the B1 hardener, giving cure cycles very much like the Part B hardener.

Inasmuch as PTM&W Industries, Inc. has no control over the use to which others may put the material, it does not guarantee that the same results as those described herein will be obtained. The above data was obtained under laboratory conditions, and to the best of our knowledge is accurate. The information is presented in good faith to assist the user in determining whether our products are suitable for his application. No warranty or representation, however is intended or made, nor is protection from any law or patent to be inferred, and all patent rights are reserved. Before using, user shall determine the suitability of the product for his intended use, and user assumes all risk and liability whatsoever in connection therewith. In no event will PTM&W Industries, Inc. be liable for incidental or consequential damages. Buyer's sole and exclusive remedy in such instances shall be limited to replacement of the purchase price.

TYPICAL MECHANICAL PROPERTIES

	PT8907 A / B		PT8907 A/B1	ASTM Method
	7 Days @ R.T. Cure	14 Hrs.@ 175°F Cure	R.T. Cure	
Color	Black			Visual
Working Time, 4 fl. Oz. Mass, @77oF	45 - 55 seconds		10 minutes	D2471
Cured Hardness, Shore D	78 Shore D	79 Shore D	84 Shore D	D2240
Linear Shrinkage, inch / inch Mold #0 (.5" Radius x 10", .017Gal.) Mold #1 (.875" Radius x 10", .053Gal.)	.0090 .0129	.0099 .0144		D2566
Specific Gravity, grams, cc	1.11		1.13	D1475
Tensile Strength, psi	5,120 psi	5,805 psi	7,550 psi	D638
Elongation at Break, %	7.6 %	8.1 %	3.6 %	
Tensile modulus, psi	159,660 psi	159,359 psi	302,250 psi	
Flexural Strength, psi	7,700 psi	8,300 psi	12,865 psi	D790
Flexural Modulus, psi	185,712 psi	196,834 psi	339,024 psi	
Compressive Strength, psi	22,400 psi	25,180 psi	27,300 psi	D695
Izod Impact Strength, ft.lbs./inch of Notch, Method A, Notched	1.10	1.10	1.15	D256
Glass Transition Temperature, DMA:Tg (Peak)	304°F	326°F	245°F	D4065
Heat Deflection Temperature, @ 66 psi Load @ 264 psi Load	258°F 232°F	292°F 260°F		D648
Coef. of Thermal Expansion, Range 30°C to 60°C	7.02 x 10 ⁻⁵ in./in./ °F	6.93 x 10 ⁻⁵ in./in./ °F		D696

PACKAGING WEIGHTS

	Gallon Kit	Pail Kit	Drum Kit
PT8907 Part A	6.4 lb.	32 lb.	360 lb.
PT8907 Part B or B1	8 lb.	40 lb.	450 lb.
Kit	14.4 lb.	72 lb.	810 lb.

SPECIAL INFORMATION

As mentioned, the PT8907 hardeners Part B and Part B1 can be blended to provide intermediate working times for different sizes of parts. The chart below gives the pot life for various blends of PT8907 B and B1 hardeners.

% PT8907 B	100	75	50	25	20	15	10	5	---
% PT8907 B1	---	25	50	75	80	85	90	95	100
Pot Life @ 77°F	45 sec.	1 min.	1.5 min.	3 min	4 min 10 sec	5.5 min.	7 min.	8.5 min.	10 min.

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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