PT8917, PT8918 & PT8919 Urethanes for Prototype and Production Parts

DESCRIPTION

PT8917, PT8918 & PT8919 are very low viscosity, modified polyurethane systems that provides tough cured parts with excellent heat resistance. They have an easy-to-measure, 1 to 1 mix ratio for convenient use in dispensing machines or hand-packed cartridges. These products are identical, except for color, for casting versatility: The clean white color of PT8919 and the translucent natural color of PT8918 provide attractive castings, and they are very easy to dye or pigment for a wide variety of colored parts. PT8917 is black in color, and parts made with it have a rich, opaque, deep black appearance. These products have a fast, 60 second gel time, which allows quick demolding of the parts, and more production in a day. Their very low mixed viscosity allows complete mold filling, even though they have a fast setting time.

PRODUCT SPECIFICATIONS

	PT8917, 18 & 19 Part A	PT8917, 18 & 19 Part B	ASTM Method
Color	Amber	PT8917-Black; PT8918-Translucent; PT8919-White	Visual
Viscosity, @ 77°F, centipoise	100 cps	2600 cps	D23932
Specific Gravity, gms./cc	1.20	1.04	D1475
Mixing Ratio	100 : 85 By Weight;	100 : 100 By Volume	PTM&W
Pot Life, 4 fl. Oz. Mass @ 77°F	60 - 70 seconds		D2471

HANDLING and CURING

PT8917, PT8918 & PT8919 will cure completely at room temperature, and they can be cured at elevated temperatures for faster production rates. The systems develop toughness rapidly in the mold, and can be demolded without breakage quickly - as soon as 15 minutes for most part configurations. After demolding, the part is allowed to complete the cure, either at ambient temperature 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).

PACKAGING WEIGHTS

	Gallon	Pail	Drum
PT8917, PT8918 or PT8919 Part A	10 lb.	45 lb.	440 lb.
PT8917, PT8918 or PT8919 Part B	8.5 lb.	38.5 lb.	375 lb.
Kit	18.5 lb.	83.5 lb.	815 lb.

TYPICAL MECHANICAL PROPERTIES

	PT8917, PT8918 and PT8919 A/B	ASTM Method
Mixing Ratio	100 : 85 By Weight; 100 : 100 By Volume	PTM&W
Color	PT8917-Black; PT8918-Translucent; PT8919-White	Visual
Gel Time, 4 fl. Oz. Mass, @77°F	60 - 70 seconds	D2471
Demold Time (1/8" Thick): Room Temp Cure 40°C to 60°C Cure	15 - 30 minutes 5 minutes	PTM&W
Cured Hardness, Shore D	85 Shore D	D2240
Shrinkage, in/in, Mold Number 0, Volume: .017 gallon	.015	D2566
Specific Gravity, grams, cc	1.16	D1475
Density, lb./cu. Inch	.0420	D792
Specific Volume, cu. in./lb.	23.8	D792
Izod Impact Strength, ft.-lbs./in. of Notch Method A	0.82	D256
Tensile Strength, psi	8,420 psi	D638
Elongation at Break, %	7.2 %	
Tensile modulus	274,110 psi	
Flexural Strength	11,212 psi	D790
Flexural Modulus	282,790 psi	
Compressive Strength	10,560 psi	D695
Glass Transition Temperature, Tg, DMA	259°F	D4065
Heat Deflection Temperature @ 66 psi @ 264 psi	252°F 236°F	D648
Coefficient of Thermal Expansion	6.95 x 10^{-5} in./in./ °F	D696

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 epoxy 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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