



PT8976

Shore D-80 High Modulus Urethane For Tough Parts

DESCRIPTION

PT8976 is a Shore D-80 urethane system that provides a unique combination of physical properties to enable the production of very tough and durable parts and assemblies. Parts made with PT8976 will have good rigidity and stiffness due to its very high modulus, and excellent resistance to breakage due to its very high tensile and impact strengths.

PRODUCT SPECIFICATIONS

	PT8976 Part A	PT8976 Part B	PT8976 Part B1	ASTM Method
Color	Clear	Black*	Black*	Visual
Viscosity,	1,250 cps	2,150 cps	2,150 cps	D2392
Specific Gravity, gms./cc	1.145	1.108	1.108	D1475
Mix Ratio, By Wt.	100 : 100 By Weight or Volume			PTM&W
Pot Life, 4 fl.oz. Mass @ 77°F	10 - 12 minutes		4 minutes	D2471

* A natural, unpigmented version of PT8976 is available by special order. Parts made with the natural version must be painted, as the natural version produces parts with a mottled surface finish.

HANDLING and CURING

The 10 minute pot life of PT8976 A/B is sufficient for hand mix and pour applications involving smaller parts. For larger parts, machine mixing and dispensing is the preferred method, to allow enough time to mix and deair before pouring. The Part B1 for this system is intended for machine mix applications where a faster demold time is desired. At the proper temperature, the warmed system components combine readily and flow into thin sections easily, minimizing pouring time.

The mixed PT8976 should be poured into a warm mold (80°F to 100°F). It is best to use a warm mold since the mixed material will flow and wet the surface of the mold better if it is warmed, and less time will be required to heat up the assembly if the mold is preheated. If the material is to be given an immediate heat cure to cycle molds faster, the material can be demolded after a minimum of 1.5 to 2 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 that 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 in all cases, for repeatable good results.

As to processing: Minimum curing time will depend upon the part thickness, mold type and construction, and curing temperature. The oven cure cycle used to derive the cured properties listed in this bulletin involved an overnight cure at room temperature followed by an oven cure of 6 hours at 150°F. If the post curing temperature is lower, the cure time will take longer to achieve these properties, and test cures should be run to determine the cure time required for the specific part configuration.

TYPICAL MECHANICAL PROPERTIES

	PT8976 A With Part B or Part B1		ASTM Method
Mix Ratio, By Weight	100 Part A to 100 Part B or B1 By Weight or Volume		PTM&W
Color	Black		Visual
Mixed Viscosity, centipoise	1,525 cps		D2393
Working Time, 4 fl. Oz. Mass, @77°F	Part B: 10 - 12 minutes; Part B1: 4 minutes		D2471
Cured Hardness, Shore D	80 Shore D		D2240
Specific Gravity, grams, cc	1.127		D1475
Density, lb./cu. Inch	.0407		D792
Specific Volume, cu. in./lb.	24.6		
	Cured Overnight @ RT + 6 Hr. @ 150°F	Cured 7 Days @ Room Temperature	
Tensile Strength, psi	7,595 psi	7,170 psi	D638
Elongation at Break, %	44.2 %	55.9 %	
Tensile modulus, psi	222,197 psi	221,156 psi	
Flexural Strength, psi	9,337 psi	9,509 psi	D790
Flexural Modulus, psi	207,408 psi	236,132 psi	
Compressive Strength, psi	8,608 psi	8,084 psi	D695
Compressive Modulus, psi	221,499 psi	251,484 psi	
Izod Impact Strength, ft.lbs./inch of Notch, Method A, Notched	3.17	2.64	D256
Glass Transition Temp., Tg, DMA, Peak	232°F		D4065
Water Absorption, 24 Hours Immersion	0.11 %		D570

PACKAGING WEIGHTS

	Gallon Kit	Pail Kit	Drum Kit
PT8976 Part A	8 lb.	40 lb.	400 lb.
PT8976 Part B or B1	8 lb.	40 lb.	400 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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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

Send Questions To: info@ptm-w.com