



PT7290 & PT7295 Hard Flexible Urethane Elastomers

DESCRIPTION

The Shore A-90 and Shore A-95 urethane systems described here are harder flexible elastomers with very tough cured properties that make excellent metal forming tooling and are useful in many other demanding industrial applications. Forming dies, die springs, stripper pads, patterns, gears and tough parts are all applications in which these two elastomers excel.

PT7290 has a low mixed viscosity and a long pot life, so it is very well suited to pouring into closed molds, where it easily fills thin cross sections, and flows through thin pouring spouts readily. It is low in color and accepts dyes or pigments easily when tinted castings are required.

PT7295 is black in color, has a slightly higher mixed viscosity and a long pot life. This system is ideal for pouring patterns, dies and pads, where a very tough, slightly flexible material is required. PT7295 will need slightly larger pouring spouts and vents, due to its thicker consistency.

PT7290 and PT7295 can be considered very low hazard potential products, as they do not contain any toxic or regulated raw materials in their makeup. They do not contain methylene dianiline (MDA), or other potentially harmful aniline derivatives, nor do they contain MBOCA or TDI, and they do not include any hazardous or potentially regulated diluents.

PRODUCT SPECIFICATIONS

	Shore A-90 System		Shore A-95 System		ASTM Method
	PT7290 A	PT7290 B	PT7295 A	PT7295 B	
Color	Amber	Amber	Amber	Black	Visual
Viscosity, @ 77°F, centipoise	2500 cps	100 cps	7000 cps	Thin Paste	D23932
Specific Gravity, gms./cc	1.03	1.09	1.08	1.11	D1475
Mix Ratio, By Wt.	100 : 64		100 : 50		PTM&W
Pot Life, 4 fl. Oz. Mass @ 77°F	40 - 45 minutes		40 - 50 minutes		D2471

HANDLING and CURING

Generally, 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.

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TYPICAL MECHANICAL PROPERTIES

	PT7290 A / B	PT7295 A / B	ASTM Method
Mix Ratio, By Weight	100 : 64	100 : 50	PTM&W
Color	Amber	Black	Visual
Mixed Viscosity, @ 77°F, centipoise	1800 cps	5250 cps	D2393
Working Time, 4 fl. Oz. Mass, @77°F	40 - 45 minutes	45 - 50 minutes	D2471
Cured Hardness, Shore D	90 A ± 5	95 A ± 5	D2240
Shrinkage, inch/inch, Mold Number 1, Volume: .053 Gallon	.0003 in./in.	.0016 in./in.	D2566
Specific Gravity, grams, cc	1.055	1.10	D1475
Density, lb./cu. Inch	.0381	.0397	D792
Specific Volume, cu. in./lb.	26.3	25.2	D792
Tensile Strength, psi	3,581 psi	4,000 psi	D638
Elongation at Break, %	920 %	225 %	
Tensile modulus @ 100% Elongation	1,086 psi	1,620 psi	
Tensile modulus @ 200% Elongation	1,393 psi	2,075 psi	D412
Tensile modulus @ 400% Elongation	2,110 psi	2,740 psi	
Tear Strength, Die C, pli	430 pli	525 pli	D624
Compression Set, Method B	90 %	43 %	D395
Bashore Rebound	42 %	48 %	D2632
Taber Abrasion, H18 Wheel, 1000, grams, 1000 cycles, mg loss	18.7 milligrams	21 milligrams	D1044

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.

PACKAGING WEIGHTS

	Gallon Kit	Pail Kit
PT7290 A	8 lb.	40 lb.
PT7290 B	5.25 lb.	26 lb.
Kit	13.25 lb.	66 lb.
PT7295 A	8 lb.	40 lb.
PT7295 B	4 lb.	20 lb.
Kit	12 lb.	60 lb.

PT7290 & PT7295 Bulletin / ZW-38 / 100603-C1



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