



PT8948 & PT8949

Tough Urethanes for Part Production by Hand Pouring or Machine Casting

DESCRIPTION

PT8948 and PT8949 are hard rigid urethanes designed specifically for hand pouring or mechanized casting of larger parts. These products have volumetric mix ratios of 1 to 1 and 2 to 1, which will also allow convenient dispensing through twin-tube mixers. Their very low mixed viscosities allow easy vacuum degassing, and make them readily pourable into complicated molds, where they give good reproduction of fine details. PT8948 cures to a translucent solid, and PT8949 cures to a brilliant opaque white, but since no pigments are incorporated into them, both systems can be easily colored. A significant benefit of these systems is that they have quick demolding times in relation to their working times. These materials reach full properties with a room temperature cure. PT8949 cures to a hardness of 70-75 Shore D, and PT8948's hardness is 80-82 Shore D. Proper selection between the two systems allows the simulation of a wide range of thermoplastic shapes and parts. PT8948 and PT8949 are ideal for casting prototypes to simulate molded parts, proof testing of injection molding cavities, industrial models, holding fixtures and high performance production parts.

FEATURES and BENEFITS

- **Versatile Processing Parameters: Hand Pour, Vacuum Casting Machine or Cartridges**
- **Very Low Viscosities Fill Molds & Pick Up Details Easily**
- **Easy-To-Use Volumetric Mix Ratios - Ideal for Dispenser or Cartridges**
- **Easily Colored With Tints or Pigments**
- **Rapid Demold & Full Properties - All At Room Temperature!**

PRODUCT SPECIFICATIONS

	PT8948 Part A	PT8948 Parts B & B1	PT8949 Part A	PT8949 Parts B & B1	Test Method
Color	Lt. Amber	Translucent	Light Amber	Clear	Visual
Viscosity, @77°F, centipoise	80 cps	900 cps	100 cps	1300 cps	ASTM D2393
Specific Gravity, gms./cc	1.18	1.05	1.10	1.06	ASTM D1475
Mix Ratio	100 : 88 By Weight 100 : 100 By Volume		100 : 50 By Weight or Volume		PTM&W
Pot Life, 4 fl. Oz. Mass @ 77°F	Part B: 6 min. Part B1: 12 min.		Part B: 5 - 5 ½ min. Part B1: 11-12 min.		ASTM D2471

HANDLING and CURING

PT8948 and PT8949 will cure completely at room temperature. Two hardeners are available for each system that provide two different working times for each, and thereby allow the versatility to complete more types of applications. The Parts B of these systems have working times of 5 to 6 minutes. Demold time for castings with the Part B hardeners, in typical prototype part cross sections, is usually one hour or less. When using the Parts B1 for these systems, a working time of 12 to 13 minutes is available. This longer gel time allows the material to be used in mechanical casting machines where more time is needed for mixing, deairing and casting. The Parts B1 are also helpful for larger parts, where the slower cure and lower shrinkage are big advantages. Demold time for castings with the Part B1 hardeners, in typical prototype part cross sections, is usually one to two hours. With all hardeners, PT8948 and PT8949 castings will develop strength sufficient for most applications in 18 to 24 hours at 77°F, and ultimate properties are reached in 4 to 7 days at room temperature. Oven curing can accelerate full cured properties, but some fixturing may be required. The time of an oven cure will depend upon the curing temperature; for example: 4 to 6 hours at 120°F, or 2 to 3 hours at 150°F. Precise minimum oven curing times should be determined in the field, as it is influenced by many variables, such as: part size and configuration, mold material and construction, casting method, heat source and type and others. Heat curing will induce a slight increase in the heat stability of the material.

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TYPICAL MECHANICAL PROPERTIES

	PT8948A With B or B1		PT8949A With B or B1		Test Method
	RT Cure	150°F Cure	RT Cure	150°F Cure	
Mix Ratio	100 : 88 By Weight 100 : 100 By Volume		100 : 50 By Wt. or Volume		PTM&W
Color	Natural Translucent		White		Visual
Mixed Viscosity, @77°F, centipoise	250 cps		200 cps		ASTM D2393
Working Time, 4 fl. Oz. Mass, @77°F	B: 6 min. B1: 12 min.		B: 5 - 5 ½ min. B1: 11 - 12 min.		ASTM D2471
Demold Time, 1/8" Sample @ 77°F @ 150°F	B: 1 hour < 1 hour	B1: 2 hours < 2 hours	B: 1 hour < 1 hour	B1: 2 hours < 2 hours	PTM&W
Peak Exotherm, 200 gram mass	B: 240°F / B1: 211°F		B: 220°F / B1: 203°F		ASTM D2471
Cured Hardness, Shore D	80 - 82D		70 - 75 D		ASTM D2240
Shrinkage, inch/inch Mold #, Volume	B: 0.002 / B1: 0.001 (Mold #0; 0.017 Gallon)		B: 0.0015 / B1: 0.0009 (Mold #0; 0.017 Gallon)		ASTM D2566
Specific Gravity, grams, cc	1.11		1.08		ASTM D1475
Density, lb./cu. Inch	.0402		.0392		ASTM D792
Specific Volume, cu. in./lb.	24.9		25.5		ASTM D792
Ultimate Tensile Strength, psi	10,514 psi	10,262 psi	6,555 psi	7,263 psi	ASTM D638
Elongation at Break, %	7.2 %	7.5 %	6.6 %	7.6 %	
Tensile Modulus, psi	381,615 psi	357,765 psi	267,600 psi	238,110 psi	ASTM D790
Ultimate Flexural Strength, psi	14,438 psi	14,800 psi	9,428 psi	10,253 psi	
Flexural Modulus, psi	390,911 psi	369,110 psi	274,424 psi	244,498 psi	ASTM D695
Compressive Strength, psi	14,770 psi	14,457 psi	9,017 psi	9,273 psi	
Compressive Modulus, psi	418,977 psi	393,170 psi	288,613 psi	276,097 psi	TMA
Glass Transition Temperature, Tg	195°F	207°F	212°F	216°F	ASTM D696
Thermal Coefficient of Expansion Range: 50°C to 100°C	5.26 x 10 ⁻⁵ in./in./ °F	6.11 x 10 ⁻⁵ in./in./ °F	9.97 x 10 ⁻⁵ in./in./ °F	7.4 x 10 ⁻⁵ in./in./ °F	
Heat Deflection Temp., 66 psi 264 psi	130°F 126°F	166°F 151°F	134°F 129°F	175°F 166°F	ASTM D648
Izod Impact Strength, Notched (ft-lb. per inch of notch) Unnotched	0.36 2.4	0.46 3.5	0.39 2.6	0.42 3.2	ASTM D256

PACKAGING WEIGHTS

	Gallon Kit	Pail Kit	Drum Kit
PT8948 Part A	9 lb.	45 lb.	450 lb.
PT8948 Part B or B1	8 lb.	40 lb.	400 lb.
Kit	17 lb.	85 lb.	850 lb.
PT8949 Part A	9 lb.	2 @ 40 lb.	480 lb.
PT8949 Part B or B1	4.5 lb.	40 lb.	240 lb.
Kit	13.5 lb.	120 lb.	720 lb.

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