



PT4045

Medium Viscosity Unfilled Epoxy Resin

DESCRIPTION

PT4045 is an amber, unfilled, general purpose epoxy resin that is suitable for a wide variety of adhesive, tooling and encapsulating applications. It is an undiluted resin, so it cures with less shrinkage than diluted materials. The medium viscosity is thinned very well by hardeners, for easy handling. Bulk fillers can be added to the resin/hardener mixture to provide a broad range of cured properties for different applications.

HARDENER SELECTION

Three hardeners are listed here for use with PT4045, depending upon the handling and cured properties required. Others are available, with information on their use available upon request.

HARDENER	MIX RATIO	POT LIFE	DESCRIPTION
PT4045 Part B (Formerly PH3210)	100 : 30	35-40 min.	A very low viscosity hardener that thins the resin quite well for good detail reproduction. Imparts outstanding toughness and impact strength to the cured material. Very aggressive adhesive properties with this hardener, therefore good release techniques are important.
PT4045 Part B1 (Formerly PH3225)	100 : 50	2 hours	General purpose casting hardener with longer pot life for larger castings. Mix ratio can be increased for more flexible cure.
PT4045 Part B2 (Formerly PH3633)	100 : 20	3-4 hours	Longer pot life hardener for high temperature applications.

PRODUCT SPECIFICATIONS

	PT4045 Part A	PT4045 Part B	PT4045 Part B1	PT4045 Part B2	ASTM Method
Color	Amber	Light Amber	Dark Amber	Amber	Visual
Viscosity, @77°F, centipoise	10-12,000 cps	20 cps	1000 cps	1,200 cps	D2392
Specific Gravity, gms./cc	1.15	1.01	.99	.98	D1475

HANDLING and CURING

All three of the hardeners listed here will gel at room temperature. With hardeners PT4045 Part B and PT4045 Part B1, no additional oven cure is required for room temperature service applications. Castings with these two hardeners can be put into service after 24 hours at room temperature, typically 77°F. If a faster cure is desired, let the casting gel at room temperature, then oven cure for 2 to 3 hours at 140°F to 165°F.

When using PT4045 Part B2, under normal conditions the system will gel to a hard demoldable state in 24 to 36 hours at 77°F. In colder shop environments, or unusual conditions, the user should check closely to insure that the resin has fully gelled before the casting is post cured. For the best high temperature properties, castings made with hardener PT4045 Part B2 should be given an oven post cure. A typical minimum cure schedule would be:

Hardener	Initial R.T. Cure	Post Cure Schedule
PT4045 Part B2	Gel at least 24 hr. @ 77°F	Post Cure for 3 hours ea. @ 150°F, 200°F, 275°F, and 325°F

TYPICAL MECHANICAL PROPERTIES

	PT4045 Resin with:			ASTM Method
	PT4045 Part B	PT4045 Part B1	PT4045 Part B2	
Mixed Viscosity, @77°F, centipoise	600 cps	2000 cps	7,800 cps	D2393
Cured Hardness, Shore D	80 Shore D	84 Shore D	84 Shore D	D2240
Shrinkage, inch/inch, Mold Number 2, Volume .344 Gal.	.001	.001	< .001	D2566
Specific Gravity, grams, cc	1.12	1.10	1.12	D1475
Density, lb./cu. Inch	.0404	.0397	.0404	D792
Specific Volume, cu. in./lb.	24.8	25.2	24.7	
Tensile Strength, psi	8,400 psi	7,860 psi	7,916 psi	D638
Flexural Strength, psi	13,800 psi	12,200 psi	17,329 psi	D790
Compressive Strength, psi	29,000 psi	24,000 psi	21,113 psi	D695
Glass Transition Temperature, DMA: T _g , E' (Onset) T _g , Peak	Intended for Room Temperature Service		307°F 333°F	D7028

PACKAGING WEIGHTS

	Quart Kit	Gallon Kit	Pail	Drum Kit
PT4045	2.25 lb.	9 lb.	45 lb.	500 lb.
PT4045 Part B	.7 lb.	2.7 lb.	13.5 lb.	---
PT4045 Part B1	---	4.5 lb.	22.5 lb.	250 lb.
PT4045 Part B2	---	1.8 lb.	9 lb.	100 lb.

SAFETY and HANDLING

PTM&W epoxy 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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