



# PT4925

## Aluminum Filled High Temperature Epoxy Casting Resin

### DESCRIPTION

PT4925 is an aluminum filled high temperature epoxy resin for use in making cast tools and parts requiring heat resistance and good thermal conductivity. PT4925 has a high aluminum content which insures these properties and allows easy machining of the finished castings. It handles easily, filling mold cavities well, and it reproduces fine details in the pattern surface with ease. Service temperature in the 400°F range is routine with PT4925 and, with the proper hardener selection, it will perform very well in cyclic 500°F temperature applications. PT4925 does not contain vinyl cyclohexane diepoxide (VCHD) or other regulated ingredients. Typical uses for PT4925 include foundry patterns, vacuum form molds, matched dies, compression mold dies, autoclave fixtures and spacers and other applications where good stability and thermal conductivity are required.

### HARDENER SELECTION

Three hardeners are listed here for use with PT4925. They provide a range of working times for castings of various thickness. These hardeners are low in viscosity, so they aid in thinning the mixture for best detail reproduction. These hardeners give exceptional high temperature properties, and they are low potential toxicity products. They do not contain methylene dianiline (MDA), or other aniline derivatives. They are non-staining materials, and will not crystallize in normal shipping and storage conditions.

Hardener	Gel Time	Description
PT4925-B	40-50 min.	Shorter pot life hardener with good gel at room temperature. For smaller castings with good heat resistance after a post cure.
PT4925-B1	3-4 hr.	Longer working time than PT4925-B, for larger castings.
PT4925-B2	8-12 hr.	Very long pot life hardener for large mass castings. Must be heat cured on the pattern. Low viscosity thins the resin well for better pouring characteristics.

### PRODUCT SPECIFICATIONS

	PT4925-A	PT4925-B	PT4925-B1	PT4925-B2	ASTM Method
Color	Gray	Amber	Amber	Amber	Visual
Viscosity, @77°F, centipoise	497,000 cps*	1,700 cps	150 cps	200 cps	D2392
Specific Gravity, gms./cc	1.77	1.08	0.99	1.01	D1475
Mix Ratio		100 : 8	100 : 10	100 : 10	PTM&W
Pot Life, 4 fl.oz. Mass @ 77°F		40-50 min.	3 - 4 hr.	8 - 12 hr.	D2471

\* PT4925 resin is a high viscosity liquid at room temperature. Some users prefer to warm the resin to lower the viscosity for easier pouring. This is especially useful where highly detailed castings, or difficult filling problems are involved. Since heating shortens the pot life, it is recommended that PT4925 Part B2 hardener be used to give longer working time for pouring.

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### HANDLING and CURING

PT4925 has a high aluminum filler content which may settle in long-term storage. Stir the resin before each use to redisperse any filler that may have settled. Castings made with Part B and Part B1 hardeners will gel at room temperature, and, after a good hard gel, the castings can be demolded for the final heat curing cycle. Care should be taken if the castings are to be demolded before post curing, as high temperatures service hardeners typically give somewhat brittle cures at room temperature only. This is not as much a concern with the Part B hardener, but a definite consideration with the Part B1 hardener. The Part B2 is a very slow curing hardener, and castings made with it should be cured entirely on the master pattern. Castings made with PT4925 Part B should be allowed to cure at room temperature on the pattern for a minimum of 18 hours before post curing. Part B1 hardener will require a 24 hour minimum room temperature cure on the pattern before post curing. Hardener PT4925 Part B2 will require longer than 24 hours before post curing, the exact time being determined by the size of the casting and the amount of any bulk filler content. An oven post cure is recommended for all castings for the maximum stability in service. A typical cure cycle would be: Gel for the required time at room temperature, plus 3 to 4 hours at 150°F, 250°F and 350°F. This schedule represents the minimum recommended cure schedule. Longer time at room temperature followed by longer times at smaller incremental increases will usually result in lower shrinkage and less stress buildup in the finished castings

### TYPICAL MECHANICAL PROPERTIES

	PT4925 A/B	PT4925 A/B1	PT4925 A/B2	ASTM Method
Color	Gray	Gray	Gray	Visual
Mixed Viscosity, @77°F, centipoise	1178,000 cps	54,000 cps	74,000 cps	D2393
Pot Life, 4 fl. Oz. Mass, @77°F	40 - 50 min.	3 - 4 hr.	8 - 12 hr.	D2471
Cured Hardness, Shore D	91 Shore D	91 Shore D	91 Shore D	D2240
Shrinkage, inch/inch, Mold Number, Volume	0.0007 Mold #1, 0.53 gal	0.0006 Mold #3, 1.23 gal.	0.0007 Mold #3, 1.23 gal.	D2566
Specific Gravity, grams, cc	1.69	1.65	1.65	D1475
Density, lb./cu. Inch lb. / gallon	.0612 14.1	.0598 13.8	.0599 13.8	D792
Specific Volume, cu. in./lb.	16.4	16.75	16.7	
Tensile Strength, psi	8,100 psi	8,380 psi	9,700 psi	D638
Elongation at Break, %	1.32 %	1.32 %	1.86 %	
Tensile modulus, psi	1,056,500 psi	936,020 psi	911,240 psi	
Flexural Strength, psi	17,239 psi	15,283 psi	15,526 psi	D790
Flexural Modulus, psi	911,106 psi	858,633 psi	881,926 psi	
Compressive Strength, psi	20,760 psi	21,120 psi	21,840 psi	D695
Glass Transition Temp, DMA: Tg	309°F	365°F	350°F	D4065
Coefficient of Thermal Expansion, Range 50°C to 100°C	2.91 x 10 <sup>-5</sup> in./in./ °F	3.12 x 10 <sup>-5</sup> in./in./ °F	3.15 x 10 <sup>-5</sup> in./in./ °F	D696

### PACKAGING WEIGHTS

	Gallon Kit	Pail Kit
PT4925 Part A	14 lb.	55 lb.
PT4925 Part B	1.15 lb.	4.5 lb.
PT4925 Part B1	1.4 lb.	5.5 lb.
PT4925 Part B2	1.4 lb.	5.5 lb.

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