



PT4431

Aluminum Filled Room Temperature Epoxy Casting Resin

DESCRIPTION

PT4431 is a gray, aluminum filled epoxy casting material that has excellent handling characteristics, and is useful for a wide range of applications. Three standard Part B hardeners are available for use with the PT4431 resin, and each hardener provides specific properties for different tasks. PT4431 is quite versatile, and can be cast from very thin sections to mass castings of more than 12 inches thick with the proper hardener. Cured castings made with PT4431 can be machined quite readily with standard cutting tools. PT4431 also provides an improved degree of thermal conductivity, due to its high aluminum content. PT4431 resin has been designed to exhibit an absolute minimum of filler settling in storage. The fillers do not “hard pack” with this system. PT4431’s thin pouring viscosity, easy machinability, cured toughness and dimensional stability provide good service in uses such as:

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| <p>Form Blocks</p> <p>Molds</p> <p>Draw Dies</p> | <p>Close Tolerance Parts</p> <p>Hammer forms</p> <p>Facing Metal Cores</p> <p>Holding and Nesting Fixtures</p> | <p>Drop Hammer Does</p> <p>Cast Duplicator Models</p> <p>Foundry Patterns</p> |
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PRODUCT SPECIFICATIONS

	PT4431-A	PT4431-B	PT4431-B1	PT4431-B2	ASTM Method
Color	Gray	Amber	Amber	Amber	Visual
Viscosity, @77°F, centipoise	35,000 cps	50 cps	850 cps	700 cps	D2392
Specific Gravity, gms./cc	1.58	1.05	0.99	0.94	D1475
Mix Ratio		100 : 11	100 : 23	100 : 25	PTM&W
Pot Life, 4 fl.oz. Mass @ 77°F		40-60 min.	2 hours	5-6 hours	D2471

HANDLING and CURING

When using PT4431 with any of the three Part B hardeners, the material will cure completely at room temperature. The amount of time to cure will depend upon shop temperature, thickness of the casting and the insulating properties of the pattern/mold material. PT4431 Part B is designed for thinner cross section castings or when a fast turnaround time is necessary. PT4431 Part B1 is a good general purpose hardener that works well in thin section casts when fast cure time is not required, as well as thicker castings up to 6 to 8 inches thick. PT4431 Part B2 is for special use in casting large solid mass castings with cross sections up to 12 inches thick, or larger castings with the addition of bulk fillers. Castings made with Part B may be demolded after 18 to 24 hours cure at 77°F. Part B1 castings usually require a full 24 hours cure, and Part B2 castings a minimum of 48 hours at 77°F.

TYPICAL MECHANICAL PROPERTIES

	PT4431 A/B	PT4431 A/B1	PT4431 A/B2	ASTM Method
Mix Ratio, By Weight	100 : 11	100 : 23	100 : 25	PTM&W
Color	Gray	Gray	Gray	Visual
Mixed Viscosity, @77°F, centipoise	5,400 cps	4,700 cps	3,560 cps	D2393
Pot Life, 4 fl. Oz. Mass, @77°F	40-60 min.	2 hours	5-6 hours	D2471
Cured Hardness, Shore D	90 Shore D	88 Shore D	88 Shore D	D2240
Shrinkage, inch/inch, Mold #2, Vol: .34 gal.	.0006	.0002	.0007 (Mold #3)	D2566
Specific Gravity, grams, cc	1.49	1.47	1.44	D1475
Density, lb./cu. Inch	.0538	.0531	.0502	D792
lb. / gallon	12.4	12.3	12.0	
Specific Volume, cu. in./lb.	18.6	18.8	19.2	
Tensile Strength, psi	9,100 psi	8,750 psi	8,800 psi	D638
Flexural Strength, psi	12,800 psi	11,700 psi	11,800 psi	D790
Compressive Strength, psi	16,400 psi	15,800 psi	15,900 psi	D695

PACKAGING WEIGHTS

	PT4431 A/B		PT4431 A/B1		PT4431 A/B2	
	Part A	Part B	Part A	Part B1	Part A	Part B2
Quart Kit	3 lb.	.33 lb.				
Gallon Kit	12 lb.	1.33 lb.	12 lb.	2.8 lb.	12 lb.	3 lb.
Pail Kit	40 lb.	4.4 lb.	40 lb.	2 @ 4.75 lb.	40 lb.	2 @ 5 lb.
Drum Kit			500 lb.	115 lb.	500 lb.	125 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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