

TC-1650 A/B

HI-TEMP ALUMINUM FILLED CASTING RESIN SYSTEM

TC-1650 A/B is an aluminum powder filled epoxy casting resin system that provides service temperatures to 350°F (177°C). TC-1650 A/B is most commonly used for the construction of molds that require good heat conductivity, outstanding durability and provide production run capability. The majority of applications for TC-1650 A/B are used in conjunction with other materials in developing composite mold structures; however, the TC-1650 A/B is frequently used by itself.

- Molds for casting polyurethane, epoxy, polyester, and other materials
- Vacuum form molds
- Wax casting molds
- Compression molds

MOLD CONSTRUCTION:

The composites approach to mold construction uses TC-1650 A/B as a binder for SC-125 Aluminum Granules. This mixture is cast behind a high temperature surface coat, TC-1611 A/B or TC-1618 A/B. This combination provides several benefits. The high temperature surface coat provides exceptional durability while the aluminum granule addition to the TC-1650 A/B vastly increases heat conductivity and reduces shrinkage. Using this method will also decrease cost. Generally, the SC-125 Aluminum Granule is added at the rate of 60-80 parts by weight to 100 parts by weight mixed resin and hardener. Larger amounts of aluminum granules are added when making vacuum form molds, casting molds, foam molds and other low pressure compression type molds.

CAUTION: If casting TC-1650 A/B requires sections to be thicker than 1", use TC-1651 A/B for thicknesses up to 3". Request BJB technical advice for additional assistance.

PHYSICAL PROPERTIES	TEST METHOD	TEST RESULTS
Hardness, Shore D	ASTM D2240	90 ± 2
Density (g/cc)	ASTM D792	1.76
Cubic Inches per Pound	N/A	17
Color/Appearance	Visual	Gray
Tensile Strength (psi)	ASTM D638	8,150
Flexural Strength (psi)	ASTM D790	11,100
Flexural Modulus (psi)	ASTM D790	1.06 x 10 ⁶
Shrinkage (in/in) linear	ASTM D2566	0.002
Heat Deflection Temperature @ 264psi	ASTM D648	283°F (139.4°C)
Compressive Strength (psi)	ASTM D695	27,800
Coefficient of Thermal Expansion (in/in/F°)	ASTM D3386	1.9 x 10 ⁻⁵

HANDLING PROPERTIES	Part A	Part B
Mix Ratio by weight	100	7
Mix Ratio by volume	100	13
Specific Gravity @ 77°F (25°C)	1.8	0.98
Color	Gray	Amber
Mixed Viscosity (cps) @ 77°F (25°C) Brookfield	15,500	
Work Time, 1 lb. mass @ 77°F (25°C)	60 minutes	
Gel Time	90 minutes	
Demold Time @ 77°F (25°C)	16 – 24 hours	

Properties above are typical and not for specifications.

POST CURING:

All physical property results are based upon post-curing this system. The following procedure provides the best results. Allow the casting to cure at ambient temperature for 8-12 hours. Then cure as follows:

75°F (24°C) for 12 to 20 Hours
150°F (66°C) for 1.5 to 2 Hours
250°F (121°C) for 2 Hours
350°F (177°C) for 1 Hour

Turn off oven and allow to cool in the oven. This procedure provides further stabilization and eliminates possible thermal shocks for cavity tools that are temporarily clamped together for curing purposes.

STORAGE:

Store at ambient temperatures, 65-80°F (18-27°C). Unopened containers will have a shelf life of 12 months from date of shipment when properly stored at recommended temperatures. Purge opened containers with dry nitrogen before re-sealing.

PACKAGING	Part A	Part B
Gallon Kits	10 lbs.	12 oz.
5-Gallon Kits	50 lbs.	3.5 lbs.

SAFETY PRECAUTIONS:

Use in a well-ventilated area. Avoid contact with skin using protective gloves and protective clothing. Repeated or prolonged contact on the skin may cause an allergic reaction. Eye protection is extremely important. Always use approved safety glasses or goggles when handling this product.

IF CONTACT OCCURS:

Skin: Immediately wash with soap and water. Remove contaminated clothing and launder before reuse. It is *not* recommended to remove resin from skin with solvents. Solvents only increase contact and dry skin. Seek qualified medical attention if allergic reactions occur.

Eyes: Immediately flush with water for at least 15 minutes. Call a physician.

Ingestion: If swallowed, call a physician immediately. Remove stomach contents by gastric suction or induce vomiting only as directed by medical personnel. Never give anything by mouth to an unconscious person.

Refer to the Material Safety Data Sheet before using this product.



TC-1650 Part A SDS



TC-1650 Part B SDS