

TC-1651 A/B

HI TEMP ALUMINUM FILLED CASTING RESIN SYSTEM

TC-1651 A/B is an aluminum powder filled epoxy casting resin system that provides service temperatures in the range of 340°F (171°C). TC-1651 is most commonly used for the construction of molds that require good heat conductivity, outstanding durability, and that provide production run capability.

PHYSICAL PROPERTIES	TEST METHOD	TEST RESULTS
Hardness, Shore D	ASTM D2240	90
Density (g/cc)	ASTM D792	1.7
Cubic Inches per Pound	N/A	16.6
Tensile Strength (psi)	ASTM D638	8,100
Flexural Strength (psi)	ASTM D790	10,600
Flexural Modulus (psi)	ASTM D790	1.06 x 10 ⁶
Shrinkage (in/in) linear	ASTM D2566	0.002
Coefficient of Thermal Expansion (in/in/°F)	ASTM D3386	2.02 x 10 ⁻⁵
Heat Deflection Temperature @ 264 psi	ASTM D648	235°F (113°C)
Compressive Strength (psi)	ASTM D695	27,600

HANDLING PROPERTIES	Part A	Part B
Mix Ratio by weight	100	9
Mix Ratio by volume	100	16
Specific Gravity @ 77°F (25°C)	1.80	0.99
Color	Gray	Amber
Mixed Viscosity (cps) @ 77°F (25°C) Brookfield	12,800	
Work Time, 1 lb. mass @ 77°F (25°C)	2 hours	
Gel Time	3 hours	
Demold Time @ 77°F (25°C)	16 – 24 hours	

Properties above are typical and not for specifications.

MOLD CONSTRUCTION:

The composites approach to mold construction uses TC-1651 as a binder for SC-125 Aluminum Granules. This mixture is cast behind a high temperature surface coat, TC-1611 or TC-1618. This combination provides several benefits. The TC-1611 or TC-1618 surface coat provides exceptional durability, and the aluminum granule addition to the TC-1651 provides increased heat conductivity and allows pouring of large masses. In addition, this method reduces 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. When casting TC-1651 without the addition of aluminum granules, the thickness of the cast should generally be limited to 3" to control shrinkage or excess exotherm.

NOTE:

All physical property results are based upon post-curing this system. The following procedure provides the best results:

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

Allow it 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 Kit	10 lbs.	14.4 oz.
5-Gallon Kits	50 lbs.	4.5 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-1651 Part A SDS



TC-1651 Part B SDS