



TC-1651 A/B

HI TEMP ALUMINUM FILLED CASTING RESIN SYSTEM

PRODUCT DESCRIPTION:

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 A/B is most commonly used for the construction of molds that require good heat conductivity, outstanding durability, and that provide production run capability. The majority of applications for TC-1651 A/B are used in conjunction with other materials in developing composite mold structures.

PRODUCT HIGHLIGHTS:

- Slower reacting, low exotherm system designed for thicker casts
- Reduced viscosity for easier pouring
- Does not contain VCHD or MDA

TYPICAL PRODUCT USES:

- ◆ 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-1651 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 TC-1611 A/B or TC-1618 A/B surface coat provides exceptional durability, and the aluminum granule addition to the TC-1651 A/B 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 A/B without the addition of aluminum granules, the thickness of the cast should generally be limited to 3" to control shrinkage or excess exotherm.

PHYSICAL PROPERTIES:

Hardness, Shore D ASTM D-2240.....	90
Density, (g/cc) ASTM D-792.....	1.7
Cubic Inches Per Pound	16.6
Tensile Strength, (psi) ASTM D-638.....	8,100
Flexural Strength, (psi) ASTM D-790.....	10,600
Flexural Modulus, (psi) ASTM D-790	1.06 x 10 ⁶
Shrinkage, (in./in.) linear ASTM D-2566.....	0.002
Coefficient of Thermal Expansion, (in./in./°F) ASTM D-3386.....	2.02 x 10 ⁻⁵
Heat Deflection Temperature, (@ 264 psi) ASTM D-648.....	235°F (113°C)
Compressive Strength, (psi) ASTM D-695	27,600

HANDLING PROPERTIES:

Mix Ratio (by weight):

Part A	100 parts by weight
Part B	9 parts by weight
Mixed Viscosity, (cps) @ 77°F (25°C) ASTM D-2393.....	12,800
Work Time, 1 lb. mass @ 77°F (25°C)	2 hours
Gel Time, ASTM D 2471.....	3 hours
Demold Time @ 75° - 80°F (24° - 27°C).....	16 - 24 hours

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 55° - 90°F (13° - 32°C) in a dry location. Unopened containers will have a shelf life of 12 months from date of shipment when properly stored at room temperature. Keep containers tightly sealed after use.

PACKAGING:

Gallon Kit	10 lbs. A, 14.4 oz. B
5 Gallon Kit	50 lbs. A, 4.5 lbs. B

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.

NON-WARRANTY "Except for a warranty that materials substantially comply with the data presented in Manufacturer's latest bulletin describing the product (the basis for this substantial compliance is to be determined by the standard quality control tests generally performed by Manufacturer), all materials are sold "AS IS" and without any warranty express or implied as to merchantability, fitness for a particular purpose, patent, trademark or copyright infringement, or as to any other matter. In no event shall Manufacturer's liability for damages exceed Manufacturer's sale price of the particular quantity with respect to which damages are claimed."