



# TC-857 A/B

## RIGID 84 SHORE D POLYURETHANE CASTING SYSTEM

**PRODUCT DESCRIPTION:**

TC-857 A/B is a rigid 84 Shore D polyurethane system that exhibits exceptional physical properties. It is a high performance material that features high heat deflection capability and low shrinkage. TC-857 is a clear casting material that allows for unrestricted tinting and precise color matching. This product is ideal for producing intrinsically colored parts requiring a non-painted finish. This system can be easily processed by hand or with meter-mix-dispense, pressure or vacuum cast equipment.

**PRODUCT HIGHLIGHTS:**

- Exhibits high heat distortion temperature
- Excellent impact resistance
- Odorless, clear; easy to tint or color
- Excellent for hand, vacuum or pressure casting
- Exceptional clarity

**PHYSICAL PROPERTIES:**

|   |                        |
|---|------------------------|
| Hardness, Shore D ASTM D2240 .....                  | 84 ± 2                 |
| Density, (g/cc) ASTM D792 .....                     | 1.12                   |
| Cubic Inches per Pound .....                        | 25.9                   |
| Color/Appearance.....                               | Pale yellow/Clear      |
| Tensile Strength, (psi) ASTM D638.....              | 9,100                  |
| Tensile Modulus, (psi) ASTM D638.....               | 2.9 x 10 <sup>5</sup>  |
| Elongation, (%) ASTM D638.....                      | 11                     |
| Flexural Strength, (psi) ASTM D790 .....            | 12,200                 |
| Flexural Modulus, (psi) ASTM D790.....              | 3 x 10 <sup>5</sup>    |
| Shrinkage, (in/in) linear (12" x 1/2" x 1/2") ..... | 0.004                  |
| Izod Impact, (ft-lb/in) ASTM D256 .....             | 0.93                   |
| Heat Deflection Temperature ASTM D648:              |                        |
| @ 66 psi.....                                       | 215° ± 5°F (102°± 3°C) |
| @ 264 psi.....                                      | 210° ± 5°F (99°± 3°C)  |

**Note:** Reported physical properties based on elevated temperature cured test specimens.

**HANDLING PROPERTIES:**

|                        |                     |
|------------------------|---------------------|
| Mix Ratio (by weight): |                     |
| Part A .....           | 100 parts by weight |
| Part B .....           | 55 parts by weight  |
| Mix Ratio (by volume): |                     |
| Part A .....           | 100 parts by volume |
| Part B .....           | 56 parts by volume  |
| Specific Gravity:      |                     |
| Part A .....           | 1.08                |
| Part B .....           | 1.06                |

**HANDLING PROPERTIES (continued):**

|  |                 |
|--|-----------------|
| Viscosity, (cps) Brookfield:             |                 |
| Part A @ 77°F (25°C) .....               | 600             |
| Part B @ 77°F (25°C) / 90°F (32°C) ..... | 2,800/750       |
| Mixed .....                              | 1,200           |
| Color:                                   |                 |
| Part A .....                             | Colorless       |
| Part B .....                             | Pale yellow     |
| Work Time, 100g mass @ 77°F (25°C) ..... | 5-7 minutes     |
| Gel Time .....                           | 5.5-7.5 minutes |
| Demold Time @ 77°F (25°C) .....          | 3-4 hours       |

**CURE SCHEDULE/HEAT CURING:**

Most of the physical properties can be achieved in 5-7 days at ambient temperature, 77°F (25°C). In order to achieve maximum physical properties, a post cure with heat is required. BJB recommends 24 hours at ambient temperature, 77°F (25°C), followed by 16 hours at 180° (82°C). Support of the part may be required to prevent part deformation during heat cure.

**PROCESSING NOTES:**

For best results precondition both “A” component 77°F (25°C) and the “B” component to 90°F (32°C) prior to mixing. Preconditioning of the “B” will lower the viscosity with slight work time lost. Warming the mold to 90 - 100°F (32-38°C) will help with faster demold times. TC-857 “A” and “B” component may require vacuum de-airing prior to combining. Evacuation of the mixed components is mandatory in order to achieve best results. If further information is required, please contact BJB’s technical staff for assistance.

**STORAGE:**

Store in a cool dry place. Unopened containers will have a shelf life of 6 months from date of shipment when properly stored at room temperatures. Purge opened containers with dry nitrogen before re-sealing.

**PACKAGING:**

|                          |                        |
|--------------------------|------------------------|
| Gallon Kits.....         | 8 lbs. A, 4.4 lbs. B   |
| 5 Gallon Kits.....       | 40 lbs. A, 22 lbs. B   |
| 55-Gallon Drum Kits..... | 400 lbs. A, 220 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."