



Tooling Boards and Adhesive

Master™ TB-800 Plastic Tooling

MASTER TB-800 is a tough, abrasion-resistant polyurethane that can replace metal components in many foundry tooling applications. TB-800 gives you greater flexibility and lower costs because you can produce tools directly from electronic data, eliminating costly wood patterns and aluminum castings. TB-800 is easily machined with standard tool steel cutters.



Applications

- Dies
- Fixtures
- Foundry Patterns
- Core Boxes
- Runners
- Risers
- Gates

Physical Properties

Density (ASTM 972)1.17 g/cc
 Hardness (Shore D) (ASTM D-2240) 85
 Tensile Strength (ASTM D-638 @ 20"/min.) 10,500 psi
 Elongation at Break (ASTM D-638 @ 20"/min.) 5.3%
 Flexural Modulus (ASTM D-790) 336,856 psi
 Flexural Strength (ASTM D-790)15,700 psi
 Compressive Strength (ASTM D-695)12,800 psi
 Compressive Modulus (ASTM D-695) 440,000 psi
 Coefficient of Thermal Expansion
 (ASTM D-696-91) 3.8 x 10⁻⁵ in./in./°F
 Dimensions 24" square x 2", 3" or 4" thick (standard)
 ColorRed

| Catalog Number | Finished Size | Board Feet |
|----------------|---------------|------------|
| 966FB80006 | 24"x24"x1" | 4 |
| 966FB80001 | 24"x24"x2" | 8 |
| 966FB80002 | 24"x24"x3" | 12 |
| 966FB80003 | 24"x24"x4" | 16 |
| 966FB80004 | 12"x60"x2" | 10 |
| 966FB80007 | 24"x30"x6" | 30 |

Other sizes available.

To order please specify size and quantity desired.

This heavy duty all purpose adhesive is a favorite among patternmakers for use with tooling boards, such as the MASTER TB-800 polyurethane tooling boards

Mix Ratio (By weight)

Resin 100 Parts
 Hardener17 Parts

Master™ TB-800 Adhesive

Typical Physical Properties

Pot Life (100 gram mass @ 75°F) 5 minutes
 Mixed Specific Gravity 1.06
 Mixed Viscosity 4,400 cps
 Mixed Color Amber
 Peak Operating Temperature 200°F
 Hardness @ 75°F 75-80 Shore D
 Cure @ 75°F 12-24 hours
 Machinability Good

| Size | Catalog Number |
|-------|----------------|
| Quart | 966TB800A1Q |



Tooling Boards

Pattern Making Plastics

TB-640 Tooling Board

TB-640 is a tough urethane board which can be used as an alternative to wood or metal in many instances. Its properties include high abrasion resistance, chemical resistance, easy machinability and superior dimensional stability. It is designed for CNC-machined foundry patterns, core boxes, fixtures, models and prototypes.

Physical Properties

Density, g/cm³, (lbs/ft³) (Pycnometer Method) . . .70 (44.0)
 Shore D Hardness (ASTM D-2240) 65-70
 Flexural Strength (ASTM D-790) 4,300 psi
 Flexural Modulus (ASTM D-790) 247,000 psi
 Compressive Strength (ASTM D-695) 4,100 psi
 Tensile Strength (ASTM D-638) 3,600 psi
 Tg, (DMA Method) 110°C
 Heat Distortion Temp. (ASTM D-648) 180°F
 CTE, in./in./°F (TMA Method) 3.10 x 10⁻⁵
 Color Brown

| Catalog Number | Finished Size | Board Feet |
|----------------|---------------|------------|
| 966TB64001 | 2 x 16 x 60 | 13.33 |
| 966TB64002 | 2 x 24 x 60 | 20.00 |
| 966TB64006 | 3 x 24 x 60 | 30.00 |
| 966TB64003 | 4 x 16 x 60 | 26.67 |
| 966TB64004 | 4 x 24 x 60 | 40.00 |
| 966TB64005 | 6 x 24 x 60 | 60.00 |

Master TB-650

High Temperature Adhesive

Master TB-650 is a high performance, high temperature-resistant adhesive especially suited for gluing tooling boards such as the Master TB-650 board. TB-650 adhesive exhibits excellent wetting characteristics and high dimensional stability, and also possesses excellent high temperature bonding properties.

Mix Ratio (By weight)

Resin 100 Parts
 Hardener 10 Parts
 Post Cure Schedule:
 First 4 hours 150°F
 Next 1 hour 25°F over In-use temp.

To order TB640 and TB-650 Tooling Boards, please specify catalog number and quantity desired.

TB-650 Tooling Board

Intermediate Temperature Epoxy Tooling Board

TB-650 is an epoxy intermediate temperature tooling board having excellent abrasion resistance, low coefficient of thermal expansion and easy machinability. It is designed for models, prototypes, vacuum form tools and high temperature lay-up tools.

Physical Properties

Specific Gravity, g/cm³, (lbs/ft³)
 (Pycnometer Method)76 (44.3)
 Shore D Hardness (ASTM D-2240) 72
 Flexural Strength (ASTM D-790) 4,000 psi
 Flexural Modulus (ASTM D-790) 344,000 psi
 Compressive Strength (ASTM D-695) 4,600 psi
 Compressive Strength @ 300°F (ASTM D-695) . . 4,500 psi
 Compressive Strength @ 400°F (ASTM D-695) . . 3,500 psi
 Compressive Modulus (ASTM D-695)251,000 psi
 Tensile Strength (ASTM D-638) 4,150 psi
 Tg, (ASTM D-3418) Exceeds 350°F
 CTE (77-160°F), °F (TMA Method) 21 x 10⁻⁶
 Color Light Brown

| Catalog Number | Finished Size | Board Feet |
|----------------|---------------|------------|
| 966TB65003 | 2 x 24 x 60 | 20.00 |
| 966TB65001 | 4 x 24 x 60 | 40.00 |
| 966TB65002 | 6 x 24 x 60 | 60.00 |

Typical Physical Properties

Pot Life @ 77°F 30 minutes
 Mixed Specific Gravity 1.094
 Mixed Viscosity 3,400 cps
 Mixed Color brown
 Peak Operating Temperature 200°F
 Hardness @ 75°F 64 Shore D
 Thin Film Gel @ 77°F 3.5 hours

| Size | Catalog Number |
|-------------|----------------|
| quarts only | xxxxx |

Most tooling boards can be glued with fast cast urethanes such as Dyna-Cast and Master Cast (see Pages 6-9). Epoxy adhesives and laminates may also be used (see Pages 14 and 16). For small pieces and very fast gluing use Sicomet adhesive (see Page 80).