

TC460



# Ultra high temperature epoxy tooling board

**Trelleborg TC460 is an ultra high temperature, low density syntactic epoxy tooling board** designed to produce a high-strength, dimensionally stable tooling board for building precise models and patterns, tooling jigs, checking fixtures and prepreg lay-up molds.

### Features & Benefits

TC460 is designed to meet the specific needs of mold makers for a lightweight, CNC machinable board that produces close-tolerance, durable tools.

- **Smooth, non-porous surface finish**

Can be machined to a high-quality surface that requires virtually no secondary finishing or polishing before use

- **Excellent dimensional stability and temperature resistance**

Maintains precise geometries and dimensional accuracy when exposed to temperature and humidity extremes

- **Lightweight**

TC460 is a low-density material to facilitate handling of large tools

- **Low coefficient of thermal expansion**

Ensures good compatibility with intermediate temperature curing prepreps

- **Consistent, reliable performance**

Tools are durable and tough enough to withstand fabrication of multiple parts



### Applications

TC460 offers many benefits and it can be used for the following:

- Master models
- Lay-up tools for low and medium temperature curing epoxy prepreps
- Light weight coring materials

### Product Sizes

TC460 is available in standard board sizes of 24" x 60" at the following thicknesses: 2, 4 and 6".

### Storage

The board should be stored in a dry warehouse.

### Health & Safety

Eye protection and a face mask should be worn when working with Trelleborg TC460.

Please refer to the Trelleborg MSDS.

	TYPICAL PROPERTIES	
Color	Purple	
Density	740 kg/m <sup>3</sup>	
Heat Distortion Temperature	232 °C	BS 2782
Coefficient of Thermal Expansion	31 x 10 <sup>-6</sup> / °C	BS EN ISO 11359-2
Compressive Strength	51 MPa	BS EN ISO 604
Shore Hardness	78 D	

## Processing Guidelines

### Cutting

TC460 can be sawn using carbide or diamond coated saw blades or cutting wheels.

### Bonding

Large patterns can be constructed from boards using the appropriately selected epoxy adhesive system. Trelleborg adhesive system 661A/B is recommended. The adhesive system must offer adequate pot life and be capable of meeting the mechanical and thermal properties of the tooling board.

To ensure good bonding:

- The adhesive should be applied to both surfaces (dust free) using a notched spatula
- The surfaces should be brought together and a uniform clamping pressure applied by either mechanical or vacuum means
- Surplus adhesive should be witnessed extruding from all bond lines which after curing can be machined off without detriment
- Bonded joints should be left to cure for 24 hours at ambient temperature for best results

When utilizing the recommended adhesive no cupping should occur as the adhesive characteristics are matched to the TC460 material.

### Machining

In order to avoid board distortion it is recommended that stock removal should be taken equally from opposing faces. Where this is not possible, then the board should be supported by and bonded to additional layers.

To minimize distortion when machining large flat boards, it is advisable to rough cut one face, invert the board and machine the rear face, re-invert and complete the machining. The board can be finished by the use of successively finer grades of wet and dry abrasive paper.

## Machining Guidelines

The machining information provided is for guidance purposes only. It is advised that individual users should determine the appropriate speeds, feed, cutters and depths for their own specific application.

MACHINING INFORMATION	
Roughing Speed	3,000 - 3,500 rpm
Roughing Feed	380 - 510 mm / min
Cut Depth	6 mm maximum
Cutter Type	Carbide or high speed steel. Maintain sharp edge with slight chip breaker
Flutes	2 - 3 for optimum performance

### Gaps & Repair

It is recommended that Trelleborg EP patch and repair systems are used to fill gaps and repair rebuild areas if required.

### Curing

TC460 should be heated up and cooled down to the desired cure temperature at a rate not exceeding 0.15 °C /min.

### Contact Us

Trelleborg's Applied Technologies division is an industry expert in delivering innovative and reliable solutions that maximize performance for our customers. Our vast range of specialized, customizable materials ensure peace of mind at every stage of your project. With reliable and efficient project management and manufacturing we endeavor to take performance to new levels by achieving your goals safely, on time and within scope.

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