

The Creative Adhesives Company

**BEACON** TECHNICAL DATA SHEET**Magna-Tac® M677 A/B**Beacon Adhesives Co. Inc.  
125 MacQuesten Parkway South  
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**PRODUCT SUMMARY**

Magna-Tac® M677 is a UL94V-0 compliant, flame retardant, self leveling, high strength, 100% reactive, room temperature curing formulated epoxy adhesive for:

- ▶ Encapsulating/potting electronic/electrical devices; bonding rigid expanded plastic foams to themselves or to metal, plywood, or other rigid materials.
- ▶ Bonding a wide variety of skins to cores (expanded polystyrene foam, foamed glass, honeycomb, etc.) in the fabrication of sandwich panels.
- ▶ Bonding all metals and other rigid materials (such as glass, ceramics, most plastics, plastic foams, structural laminates) to themselves and to each other.

Fully cured bonds attain lap shear strengths in the neighborhood of 3,000 psi when tested at room temperature using ASTM D1002 procedure. Fully cured bonds exhibit minimal shrinkage, are electrical insulators and provide excellent resistance to weather, galvanic action and most chemical, acids and alkalis.

**Product Data****UL94 V-0 Compliant, Flame Retardant, Self Leveling, Equal Mix Epoxy Adhesive**

	Viscosity (cps) at 77°F	Color	Base	Wgt/Gal	Solids	Diluant	Shelf Life
<b>Part A</b>	50,000	Black	Modified	11 lbs	100%	Do Not Dilute	1 year
<b>Part B</b>	50,000	Amber	Epoxy	11 lbs	100%		1 year

**Characteristics**

When mixed, Magna-Tac M677 is a high viscous self-leveling liquid, making it extremely easy to spread smoothly and evenly. Once it is applied it has about 20-30 minutes open time to mate parts. It is good for bonding dissimilar substrates and void-filling applications.

	Mixing Ratio (by weight)	Properties	Pot Life at 77° F	Average Lap Shear Strength
<b>Part A</b>	100 parts	Flame Retardant, HighTensile, Self Leveling	45 minutes (60 gms)	2200 psi
<b>Part B</b>	100 parts			

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**Surface Preparation**

All bonding surfaces must be thoroughly cleaned, degreased and dried. For plastic surfaces, remove mold release if any.

**Preparation of Adhesive**

Always stir each part thoroughly first. Proportion accurately and mix slowly to avoid entrapping air.

Magna-Tac® M677 Part A is colored black; Part B has a natural amber color. Mix equal amounts (by weight or volume) and stir until the color of the mixture is uniform black.

*Note: Pot life can be lengthened substantially if shallow mixing vessels are used or smaller batches are mixed. Cover mixed material to prevent water absorption.*

Mixed adhesive may be applied with paint roller, brush, etc. Apply enough mixed adhesive to leave about 4-6 mils in the final glue line. This may be accomplished by coating 4-6 mils on one surface only or by coating 2-3 mils on each surface.

If one surface is porous, more adhesive must be applied to fill the voids and yet produce a final glue line thickness of 4-6 mils.

** Cure Time**

- ▶ **Room Temperature** At room temperature, assemblies can be handled in approximately 2-4 hours. Magna-Tac® M677 develops 85% of its maximum strength in 24 hours.
- ▶ **Fast Cure** If a faster cure is required, the following cycles may be used:

Temperature	Cure Time
150°F	120 min
200°F	45 min
250°F	30 min
300°F	10 min

Bonds will continue to improve in strength at room temperature until optimum is reached, usually within 3-4 days.

**Properties**

<b>Hardness</b>	Shore D 85 ± 0.02
<b>Volume Resistivity at 25°C ± 3°C</b>	Min. 100 x 10 <sup>14</sup> ohm-cm
<b>Dielectric Constant at 105 cps</b>	2.98 ± 0.1
<b>Shrinkage Linear / Percent</b>	0.7 % Max.

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Typical lap shear values obtained when Magna-Tac® 677 is used to bond 0.064" etched 2024T3 aluminum alloy to itself in a 1/2 overlap are as follows:

Test Temperature	Tensile Shear (psi)
-67°F	2000
77°F	2200
120°F	1200
180°F	400
200°F	200

**Container Sizes**

- 50cc dual barrel syringes
- 400cc dual barrel syringes
- 1 quart cans
- 1 gallon cans
- 5 gallon pails
- 55 gallon drums