UniTool 218 Type 5 - is a one component, heat activated, high cross-link density, light weight syntactic epoxy tooling compound with exceptional service temperature and stable coefficient of thermal expansion. UniTool can be applied as a seamless surface layer over honeycomb or composite support structures. UniTool is heat cured in place and later CNC machined to form a continuous and dimensionally stable tooling surface suitable for epoxy, bismaleimide and polyimide composite part fabrication. Offering a minimum of 96 hours of work time under ambient conditions, UniTool can be applied and cured to a schedule offering optimum HDT for the application. A short set temperature- i.e., 1 hour at 350F, will achieve a 55 Shore D Hardness allowing for machining in a typical cross-section of ½ to ¾ inch. The end user should evaluate typical cure schedules for the intended application.

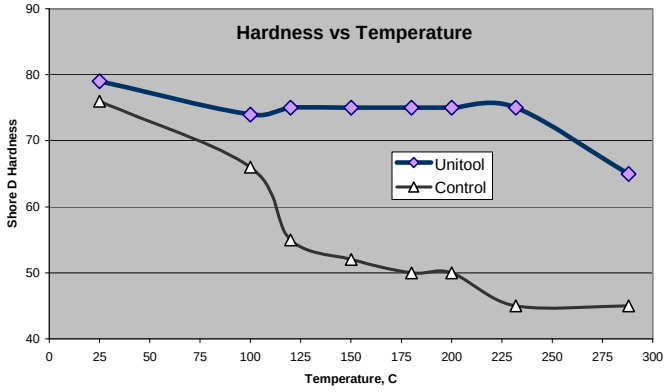
Typical Properties

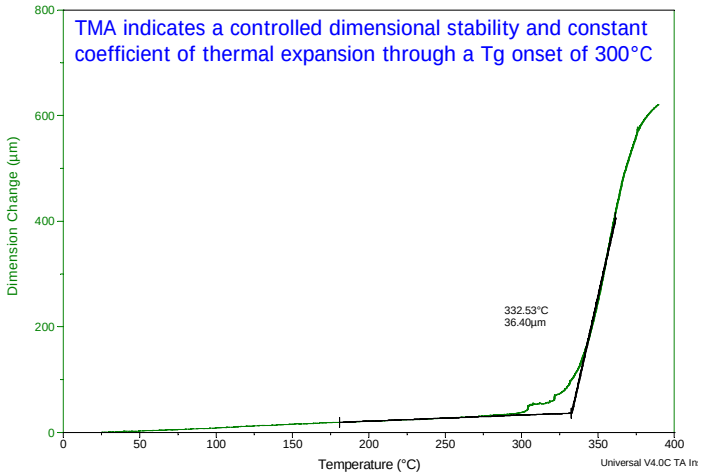
Color, Visual	Grey
Specific Gravity at 25°C	0.59
Shore D Hardness at 25°C	80
Shore D Hardness at 232°C	75
Flexural Strength at 25°C	~ 5,000 psi
Tensile Strength at 25°C	~ 4,000 psi
Compressive Strength at 25°C	~ 8,000 psi
Glass Transition Temperature, TMA	333°C
Glass Transition Onset, TMA	300°C

Coefficient of Thermal Expansion, TMA

25°C to 120°C	32 ppm/°C
120°C to 177°C	30 ppm/°C
177°C to 240°C	28 ppm/°C

UniTool is compared to another elevated service temperature tooling dough to indicate superior hardness retention





Property Cure Schedule:

General: Ramp up methodically to sustain a prolonged cure exposure at 180°C. Cool by progressively stepping down the cure temperature.

Specific: Cured properties reported here used the following cure schedule.

Ramp up: 90 minutes at 120°C plus 2 hours at 150°C plus 21 hours at 180°C

Step down: 1 hour at 150°C then 1 hour at 120°C then 1 hour at 100°C then ambient recovery.

Additional Data: Other technical information is available. Please inquire from your supplier.

Storage & Handling

UniTool is sensitive to heat and moisture. The product is shipped refrigerated. UniTool has a modest out time at ambient temperature of approximately 5 days during which time viscosity will build. Store product in sealed moisture barrier containers in freezer when not in use. Upon thawing, permit product to warm above the dew point to prevent condensation when package is opened. UniTool presents no significant health hazard. Read MSDS before use.