

## TECHNICAL DATA SHEET

### Lytex® 9063 BK-E Engineered Structural Composite® (ESC®) Molding Compound

LYTEX® 9063 BK-E is an epoxy high performance, fiberglass reinforced ESC® molding compound designed for military and aerospace structural applications requiring excellent mechanical properties, retention of properties at elevated temperatures, good chemical resistance and excellent electrical properties. It meets the requirements of MIL-M-46069 and MIL-M-46892.

#### TYPICAL PROPERTIES | UNCURED

Form and Color . . . . .	Sheet, Black or Natural	Fiber Length . . . . .	Nominal 0.5-inch
Glass Fiber Content . . . . .	Nominal-63% w/w	Shelf Life: @ 0°F . . . . .	6 months
Resin Content . . . . .	Nominal-37% w/w		

#### TYPICAL PROPERTIES | CURED | "Net Shape" Specimen

<u>Test</u>	<u>Procedure</u>	<u>Value</u>
Specific Gravity, g/cc	ASTM D-792	1.82
Molding Shrinkage, inch/inch (mm/mm)	ASTM D-955	<0.001 (<0.001)
Flexural Strength, psi (MPa) <sup>1</sup>	ASTM D-790	66,000 (455)
Flexural Modulus, psi (GPa) <sup>1</sup>	ASTM D-790	2.6x10 <sup>6</sup> (18)
Tensile Strength, psi (MPa) <sup>1</sup>	ASTM D-638	35,000 (241)
Tensile Modulus, psi (GPa) <sup>1</sup>	ASTM D-638	3.3 x10 <sup>6</sup> (22.8)
Izod Impact (notched) ft.lb./in. (J/M)	ASTM D-256	35 (1869)

<sup>1</sup> Tensile and Flexural Properties are determined using net shape molded specimens.

#### TYPICAL PROPERTIES | CURED | "Machined" Specimen

<u>Test</u>	<u>Procedure</u>	<u>Value</u>
Dielectric Strength, vpm	ASTM D-149	450
Volume Resistivity, ohm-cm	ASTM D-257	1.1x10 <sup>16</sup>
Dissipation Factor, 100 Hz	ASTM D-150	0.0049
Dielectric Constant, 100 Hz	ASTM D-150	5.0
Heat Deflection Temperature	ASTM D-648	>575°F (>300°C)
Flexural Strength, psi (MPa) <sup>2</sup>	ASTM D-790	59,000 (407)
Flexural Modulus, psi (GPa) <sup>2</sup>	ASTM D-790	2.6x10 <sup>6</sup> (18)
Tensile Strength, psi (MPa) <sup>2</sup>	ASTM D-3039	28,000 (193)
Tensile Modulus, psi (GPa) <sup>2</sup>	ASTM D-3039	2.6x10 <sup>6</sup> (18)
Glass Transition Temp. °F (°C) Tan Delta	ASTM D-7028	329 (165)
Coefficient of Thermal Expansion	TMA	17 µm/m°C

<sup>2</sup> Machined Properties are determined using specimen machined from molded 12"x12" panels with 80% mold coverage.

– continued –

## Data Sheet Continued

### Technical Data Sheet Lytex® 9063 BK-E

Note: The above cured properties are for both “Net Shape” and “Machined” specimens to respective test methods. Net shape specimens produce higher mechanical properties than machined specimens due to favorable fiber orientation in net shape molding. Established engineering practices use machined specimen data for structural analysis. Net shape specimen data represent best case, pristine properties.

**Molding Suggestions** – Lytex® 9063 BK-E can be molded at temperatures in the range of 280-330°F, with 310°F suggested as a starting point. Cure times will be dependent on molding temperature and part thickness and will typically be 10-15 minutes. Detailed molding suggestions are available on request. Cool molded parts at ambient temperature. A cooling fixture may be needed depending on part thickness and geometry.

**Precautions** – Lytex® 9063 BK-E contains glass fibers and should be handled carefully in order to minimize skin contact. Molding areas should be well ventilated to minimize exposure to fumes. Presses must be provided with local exhaust to remove vapors from work areas. If adequate ventilation is not available, a respirator approved for removing organic vapor must be used.

**Typical Uncured and Cured Properties tested each lot of** – Lytex® 9063 BK-E:

- Fiber Content/Resin Content
- Specific Gravity
- Molding Shrinkage
- Mat Weight, (Areal Density)

Additional technical information and data on this material is available from Quantum Composites, Inc. Please contact us via phone, local representative, web site [www.quantumcomposites.com](http://www.quantumcomposites.com) or email [info@quantumcomposites.com](mailto:info@quantumcomposites.com)

NO WARRANTY – The above information is offered for your consideration, investigation, and verification. No warranty, expressed or implied, is given as to the materials described on this Technical Data Sheet. Quantum Composites, Inc. specifically disclaims any warranty of merchantability or fitness for any particular purpose. Final determination of the suitability of this material is the sole responsibility of the buyer. Contact our sales representative for assistance in developing procedures to fit individual requirements.

This ESC® product is generally intended to be compression molded in matched-metal die molds. Strength values may be affected by the molding process. **The values presented in this data sheet are typical values and are not to be interpreted as product specifications.**