

power generation market



power generation



Pad-mounted or portable, power generators provide backup and primary power for homes, offices, farms, construction sites, and oil fields. But there's more to the job than just providing power. Operating in the field, generators must often withstand the effect of harsh operating environments, such as extreme temperatures, corrosive liquids, and UV rays.

While metal has long been a common choice for a number of generator components, many manufacturers have switched to thermoset composite materials. Consisting of fiber reinforcement in a polymer resin, thermoset bulk molding compound (BMC) and sheet molding compound (SMC) cost less than metal alternatives and won't rust or corrode when used in harsh environments.

In addition, BMC and SMC offer these key advantages to generator manufacturers:

- **Dimensional stability:** Metal parts must be machined to close tolerances, but dimensionally stable thermoset composites eliminate this need for machining. Thermosets can be molded to create net-shape parts with precise dimensions that are maintained when the parts leave the mold.
- **Extreme temperature resistance:** BMC and SMC provide excellent electrical insulation and structural rigidity even after prolonged exposure to high temperatures. Thermosets also hold up well in very cold environments that can lead to cracking in metals and thermoplastics.
- **High strength-to-weight ratio:** Thermoset parts are up to 35 percent lighter than steel parts of equal strength, allowing generator manufacturers to remove some of the weight in their portable units by redesigning them using thermoset composites.

engineered for performance

| Property | Unit | Test Method | 48-50 | 46-16 | E-206 | M-206 |
|---|---------------------|-------------|-------------|--------|--------|--------|
| Physical and Mechanical Properties | | | | | | |
| Impact Strength | FT-LBS/IN | ASTM D 256 | 4-5 | 14 | 16 | 16 |
| Flexural Strength | PSI | ASTM D 790 | 14-16,000 | 18,000 | 30,000 | 32,000 |
| Flexural Modulus | 10 ⁶ PSI | ASTM D 790 | 2.0 | -- | 2.0 | 1.9 |
| Tensile Strength | PSI | ASTM D 638 | 6,000 | 8,000 | 16,000 | 15,000 |
| Compressive Strength | PSI | ASTM D 695 | 24,000 | 26,000 | 32,000 | 31,000 |
| Water Absorption | % | ASTM D 570 | 0.11 | 0.15 | 0.13 | 0.11 |
| Specific Gravity | G/CM ³ | ASTM D 792 | 1.93 | 1.80 | 1.72 | 1.74 |
| Shrinkage | IN/IN | ASTM D 955 | 0.001-0.003 | -- | 0.001 | 0.001 |
| Hardness | Barcol | ASTM D 2583 | 40-50 | 45-55 | 40-45 | -- |
| Bulk Factor App. | -- | ASTM D 1895 | 1 | 1 | 1 | 1 |
| Electrical Properties | | | | | | |
| Dielectric Strength | KV/IN | ASTM D 149 | 320 | 290 | 340 | 300 |
| Arc Resistance | Seconds | ASTM D 495 | 190 | 187 | 180+ | -- |
| Thermal and Flame Retardant Properties | | | | | | |
| Heat Deflection Temperature @264PSI | °F | ASTM D 648 | >500 | >500 | >500 | >500 |
| Flame Resistance | -- | UL 94 | -- | -- | -- | -- |
| | @1/16" | -- | 94V-0 | -- | 94V-0 | 94-HB |
| | @1/8" | -- | 94V-0 | -- | 94V-0 | 94-HB |
| | @1/4" | -- | 94V-0 | -- | 94V-0 | 94V-0 |

IDI Composites International is the premier global formulator and manufacturer of thermoset molding compounds for custom molders and OEMs. The company provides customized polyester/vinylester-based bulk molding compounds (BMC) and sheet molding compounds (SMC) for the world's most demanding markets, including automotive/truck, electrical, food service, alternate energy, and appliance.

Headquartered in a 200,000 square foot facility in Noblesville, IN (USA), IDI has a strong presence in the international thermoset composites market. To support a growing customer base world-wide, the company operates multiple wholly-owned manufacturing facilities in Europe, Asia, and The Americas.

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