

# high temperature applications

## > IDI vs. the competition top performance in high heat

Meeting the demands of high-performance, high-temperature applications presents design engineers with new and growing challenges daily. Not only do all materials in a given product need to meet strict safety standards, designers are also under pressure to continually lower costs. To meet these requirements, many design engineers are switching to thermoset composite materials as a solution to their high-temperature product performance requirements. Thermoset composites, such as bulk molding compound (BMC) and sheet molding compound (SMC), consist of glass fiber reinforcement in a polymer resin, and are available with a variety of standard and custom high-temperature properties.

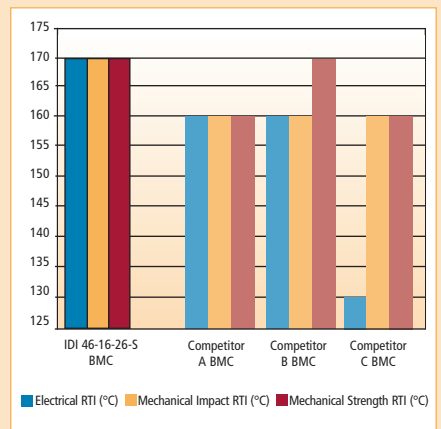
IDI Composites International, the premier global formulator and manufacturer of thermoset molding compounds, has recently received the highest UL temperature rating in the thermoset polyester composites industry for its 46-16-26-S grade BMC. This rating guarantees that the IDI material meets the properties required in high heat environments, such as those common in the power generation and automotive markets, and reduces lengthy component temperature testing, saving customers time and cost.

The BMC material received a Relative Thermal Index (RTI) rating of 170 °C for both electrical and mechanical properties. Prior high-temperature ratings in the thermoset polyester composites industry were maximized at 160 °C.

IDI 46-16-26-S BMC withstands extreme high heat while maintaining its strength and excellent insulative properties. Common applications for 46-16-26-S BMC include transformers, power distribution switchgear and circuit breakers, and motor and generator insulation components, such as supports and outer casings.

### UL Relative Thermal Index (RTI)

**IDI Composites is at the forefront of the thermoset polyester composites industry with its electrical and mechanical RTI ratings, leading many design engineers to turn to its 46-16-26-S BMC material for their high-temperature applications.**



# engineered for performance

Property	Unit	Typical Properties	Test Method
<b>Physical and Mechanical Properties</b>			
Impact Strength	FT-LBS/IN	14	ASTM D 256
Flexural Strength	PSI	20,000	ASTM D 790
Flexural Modulus	10 <sup>6</sup> PSI	1.8	ASTM D 790
Tensile Strength	PSI	10,000	ASTM D 638
Compressive Strength	PSI	26,000	ASTM D 695
Water Absorption	%	0.15	ASTM D 570
Specific Gravity	G/CM <sup>3</sup>	1.75	ASTM D 792
Shrinkage	IN/IN	0.002	ASTM D 955
Hardness	Barcol	40	ASTM D 2583
Bulk Factor App.	--	1	ASTM D 1895
<b>Electrical Properties</b>			
Dielectric Strength	KV/IN	400	ASTM D 149
Arc Resistance	Seconds	180	ASTM D 495
<b>Thermal and Flame Retardant Properties</b>			
Heat Deflection Temperature @264PSI	°F	>500	ASTM D 648
Flame Resistance			UL 94
	@1/16"	V-0	
	@1/8"	V-0	
	@1/4"	V-0	
<b>UL Relative Thermal Index (RTI)</b>			
Electrical RTI	°C	170	UL746B
Mechanical Impact RTI		170	UL746B
Mechanical Strength RTI		170	UL746B

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, electrical, appliance, food service, and energy.

Headquartered in a 200,000 square foot manufacturing facility and research center 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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