

# construction



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Construction components must be durable and maintain an attractive appearance over time. For example, roofing tiles must stay strong and aesthetically pleasing during years of exposure to the worst outdoor conditions.

To meet these demanding requirements at a reasonable price, many manufacturers in the construction industry are turning to thermoset composite materials. Consisting of fiber reinforcement in a polymer resin, thermoset bulk molding compound (BMC) and sheet molding compound (SMC) provide properties such as high strength, dimensional stability, and stain and corrosion resistance at a lower cost than competing construction materials, such as metal and wood, which have experienced sharp price increases in recent years. Thermosets feature cross-linked molecules that help the materials maintain their properties during long periods of exposure to extreme temperatures.

In addition to roofing tiles, construction components now made of BMC and SMC include:

- **Door skins.** Wood door styling can be expensive, and metal panels limit styling options. By contrast, thermosets allow users to mold in any door style or configuration at a reasonable cost. In addition, thermosets offer better corrosion and water resistance than wood or metal, as well as high strength, excellent flame resistance, low smoke emissions, and molded-in color.
- **Electrical.** In residential and commercial construction, BMC and SMC are used to make a wide variety of electrical components, including switches, contactors, outlet boxes, transformers, motor starters, and heavy-duty switchgear.
- **Lighting.** Thermosets are replacing metals in residential and commercial outdoor lighting for parking lots that are exposed to moisture. Important properties are superior corrosion resistance and molded-in color.
- **Kitchen and bath.** BMC and SMC are now replacing stainless steel, porcelain, and other cast products in the production of sinks, shower stalls, and kitchen countertops. In kitchen and bath applications, thermosets offer high strength, light weight, and relatively low costs. In addition, manufacturers can easily mold in a wide variety of special looks and colors.

# engineered for performance

Property	Unit	Test Method	46-16	44-10TR	E5V-204	46-16-60
<b>Physical and Mechanical Properties</b>						
Impact Strength	FT-LBS/IN	ASTM D 256	14	4-5	12	25
Flexural Strength	PSI	ASTM D 790	18,000	15-17,000	23,000	30,000
Flexural Modulus	10 <sup>6</sup> PSI	ASTM D 790	--	--	1.6	1.8
Tensile Strength	PSI	ASTM D 638	8,000	6,000	11,000	19,000
Compressive Strength	PSI	ASTM D 695	26,000	21,000	27,000	34,000
Water Absorption	%	ASTM D 570	0.15	0.15	0.10	0.15
Specific Gravity	G/CM <sup>3</sup>	ASTM D 792	1.80	1.96	1.78	1.70
Shrinkage	IN/IN	ASTM D 955	--	0.001-0.003	0.001	0.001
Hardness	Barcol	ASTM D 2583	45-55	40-50	--	50-55
Bulk Factor App.	--	ASTM D 1895	1	1	1	1
<b>Electrical Properties</b>						
Dielectric Strength	KV/IN	ASTM D 149	290	--	380	220
Arc Resistance	Seconds	ASTM D 495	187	180+	180	185
<b>Thermal and Flame Retardant Properties</b>						
Heat Deflection Temperature @264PSI	°F	ASTM D 648	>500	>500	>500	>500
Flame Resistance	--	UL 94	--	--	@2.0mm: V-0,5VA	
	@1/16"	--	--	94-HB	--	V-0
	@1/8"	--	--	94-5V	--	V-0
	@1/4"	--	--	94-5V	--	V-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.

[www.idicomposites.com](http://www.idicomposites.com)

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