

alternate energy market



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Wind turbines. Solar panels. Fuel cells. The demand for these applications has swelled amid environmental and geopolitical concerns. Selecting the proper material for these devices can be challenging, as they must be able to withstand prolonged exposure to harsh environments without breaking down or distorting their shape.

- **Wind turbines** are a renewable means of generating electricity, and they are being widely deployed, even offshore. Wind turbines convert kinetic energy into mechanical energy. The wind turns the blades, which spin a shaft, which connects to a generator.
- **Solar photovoltaic panels** are a collection of solar cells that convert photons into electricity. Solar panels are widely utilized, either en masse for large scale energy production or to power a single household.
- **Fuel cells** generate "clean" electric power and heat without combustion. A fuel cell is an electrochemical device that combines hydrogen fuel with oxygen to produce electric power, heat, and water. Rather than requiring a periodic recharge, the fuel cell receives a continuous supply of oxygen and hydrogen. Fuel cells are increasing in popularity, powering homes, offices, and even automobiles.

Bulk molding compound (BMC) is proving to be the material of choice for these critical applications. While traditional materials may rust, creep, or fade, BMC is appealing to molders and OEMs in the alternate energy market for the following reasons:

- Enhanced structural rigidity
- Superior strength-to-weight ratio
- Resistance to UV deterioration
- Resistance to corrosion
- Resistance to natural elements
- Fire code compliant

engineered for performance

Property	Unit	Test Method	44-1	44-10	M-205	C-204
Physical and Mechanical Properties						
Impact Strength	FT-LBS/IN	ASTM D 256	3-4	4-5	13	12
Flexural Strength	PSI	ASTM D 790	15-18,000	15-17,000	28,000	26,000
Flexural Modulus	10 ⁶ PSI	ASTM D 790	1.9	--	1.8	1.8
Tensile Strength	PSI	ASTM D 638	5-7,000	6,000	13,000	10,000
Compressive Strength	PSI	ASTM D 695	22,000	21,000	28,000	27,000
Water Absorption	%	ASTM D 570	0.15	0.15	0.10	0.08
Specific Gravity	G/CM ³	ASTM D 792	1.95	1.96	1.78	1.80
Shrinkage	IN/IN	ASTM D 955	0.001-0.003	0.001-0.003	0.001	0.001
Hardness	Barcol	ASTM D 2583	30-40	40-50	40-50	40-50
Bulk Factor App.	--	ASTM D 1895	1	1	1	1
Electrical Properties						
Dielectric Strength	KV/IN	ASTM D 149	270	--	380	430
Arc Resistance	Seconds	ASTM D 495	180+	180+	--	--
Thermal and Flame Retardant Properties						
Heat Deflection Temperature @264PSI	°F	ASTM D 648	>500	>500	>500	>500
Flame Resistance	--	UL 94	--	--	--	--
	@ 1/16"	--	94-HB	94-HB	94-HB	94-HB
	@ 1/8"	--	94-HB	94-5V	94-HB	94-HB
	@ 1/4"	--	94V-0	94-5V	94V-0	94-HB

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

The Americas

IDI Composites International
407 S. 7th Street
Noblesville, IN 46060 U.S.A.
317-773-1766
Fax: 317-773-3877
info@idicomposites.com

IDI Composites International
P.O. Box 400
Road #3, KM 151.8
Aguirre, Puerto Rico 00704
787-853-2186
Fax: 787-853-2187
idicomposites@coqui.net

Asia/Pacific

IDI Composites International
No. 8, Lane 275, QianPu Road
New Eastern Section of
Sonjiang Industrial Park
Shanghai, 201611 China
86-21-51096910
Fax: 86-21-67601689
rrodriguez@idicomposites.com

IDI Composites International
Shenzhen Company, LTD.
P.O. Box 107
Fucheng Industrial Park
Hongtian, Xinqiao, Sajing Town
Bao An, Shenzhen, 518125 China
86-755-27229550
Fax: 86-755-27229554
rrodriguez@idicomposites.com

Europe

IDI Composites International
Unit One, Oldbury Park
Popes Lane
Oldbury, West Midlands
B69 4RG U.K.
44-121-552-0038
Fax: 44-121-543-5377
pgarland@idicomposites.co.uk