

SHEET MOLDING COMPOUND (SMC)

DESCRIPTION

Carbon fiber SMCs are ideal for semistructural applications. It uses a proprietary Vinyl Ester resin system with chopped carbon fiber reinforcements at a nominal of 25 mm length. It is designed to mold and flow in a traditional SMC compression process, and provides parts with low weight, high mechanical properties, and high heat resistance. The carbon fiber is our standard ZOLTEK™ PX35 50K tow. The cured part has excellent bond adhesion.

Suitable applications include: under body, under hood, structural reinforcements, and interior structures.

Typical Uncured Description as

Received: Rolls with removable carrier film at 600 mm wide and weight as required.

Color: Black Only

Fiber Length: Nominal 25 mm

Fiber/Resin Content %: 50/50 nominal

Shelf Life: 2 months at 18 °C



SHEET MANUFACTURING PROCESS

The Zoltek carbon fiber is processed on a modified SMC compounding line. The fiber is cut to length, followed by impregnation with resin. This process has been specifically optimized to work with Zoltek's unique sizing and large tow format.

MOLDING CONDITIONS

ZOLTEK carbon fiber sheet molding compounds are designed to mold at nominal 150 °C chromed P-20 steel, shear edged tool. Typical pressures are 35-82 bar. Cure time is thickness and tool temperature dependent, but 1 minute is common. The compounded sheet can be stored at 18 °C.

MATERIAL COMPARISON

	CARBON FIBER	GLASS FIBER
Tensile Strength	217 MPa	140 MPa
Tensile Modulus	34 Gpa	13 Gpa
Specific Gravity	1.41 g/cc	11.81 g/cc

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TYPICAL PROPERTIES - CUT COUPONS, AVERAGE 0/90:

PROPERTY	METHOD	UNITS	VALUE
Specific Gravity	ASTM D792	g/cm ³	1.41
Tensile Modulus	ASTM D638	GPa	34.0
Tensile Strength	ASTM D638	MPa	217
Flexural Modulus	ASTM D790	GPa	27.6
Flexural Strength	ASTM D790	MPa	432
Impact Strength N -Izod	ASTM D4812	J/m	483
Glass Transition by DMA	ASTM 7028	°C (Tan Delta)	>192
Water Absorption	ASTM D570	%	<0.30
DTUL (HDT)	ASTM D648	°C	>250
Shrinkage	ASTM D6289	%	0.01
Flammability	UL 94		HB

ABOUT ZOLTEK

ZOLTEK helps companies use our commercial-grade carbon fiber in high-volume automotive applications. Our growing range of intermediate products are well-suited for advanced automotive processing technologies. With manufacturing capabilities in Europe, the United States and Mexico, as well as, a quickly expandable capacity, ZOLTEK has become the supplier of choice for high volume auto applications.