



11379 Grooms Road, Blue Ash, OH 45242  
Phone: (513) 469-9919 Fax: (513) 247-2452  
Website: <http://www.maverickcorp.com>  
E-Mail: [info@maverickcorp.com](mailto:info@maverickcorp.com)

# MVK-10

## RTM Polyimide

### Product Description

MVK-10 is a high-temperature thermosetting polyimide resin with service capability up to 288°C. Its low melt viscosity (300-600 cP at 260°C) makes MVK-10 one of a small number of polyimides suitable for use in resin transfer molding (RTM) processes. MVK-10 composites produced by RTM exhibit no voids or microcracking.

Originally developed by Maverick to replace PMR-15 and its highly toxic diamine 4,4'-methylenedianiline (MDA), MVK-10 contains no mutagenic or carcinogenic components. Although it is most suited for RTM processing, its chemistry also allows for the use of autoclave processing or compression molding. MVK-10 is available as a PMR-type resin solution or as a pre-imidized powder from Maverick Corporation.

### Resin Properties

Resin Properties	Test Parameters	Units	Typical Values
Solution Solids Content	204°C/180 min cure	%	60 - 65
Solution Density (Room Temp.)	-	g/mL	1.05 - 1.10
Solution Viscosity (Room Temp)	Brookfield spindle #RV-4, 100 rpm	cP	250 - 650
Powder Melt Viscosity	260°C, Brookfield spindle #27, 50 rpm	cP	300 - 600
Powder Volatile Content	TGA ramp to 316°C	%	4 - 6



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### Physical Properties – Composite

Composite Properties	Test Parameters	Units	Typical Values
Glass Transition Temperature	DMA, Dry	°C	305
Glass Transition Temperature	DMA, Wet (60°C, 90% RH)	°C	250
Glass Transition Temperature	DMA after TOS (260°C, 1000 hrs)	°C	310
Thermal Oxidative Stability	260°C, 1000 hrs	% wt loss	1.1
Moisture Uptake	60°C, 90% RH	% wt gain	1.2
Fiber Volume	ASTM D3171-99	%	56

Reinforcement: T650-35 Carbon Fabric, 8-Harness Satin Weave, UC309 Epoxy Finish



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### Mechanical Properties – Composite

Composite Properties	Test Parameters	Typical Values (MPa)	Typical Values (ksi)
Compression Strength	RT, Dry	656	95
Compression Strength	260°C, Dry	444	64
Compression Strength	RT, Wet (60°C, 90% RH)	663	96
Compression Strength	260°C, Wet (60°C, 90% RH)	282	41
Compression Strength	260°C , after TOS (260°C, 1000 hrs)	440	64
Interlaminar Shear Strength	RT, Dry	50.3	7.3
Interlaminar Shear Strength	260°C, Dry	37.2	5.4
Interlaminar Shear Strength	RT, Wet (60°C, 90% RH)	53.7	7.8
Interlaminar Shear Strength	260°C, Wet (60°C, 90% RH)	22.7	3.3
Interlaminar Shear Strength	RT, after TOS (260°C, 1000 hrs)	46.2	6.7
Interlaminar Shear Strength	260°C, after TOS (260°C, 1000 hrs)	37.9	5.5

Reinforcement: T650-35 Carbon Fabric, 8-Harness Satin Weave, UC309 Epoxy Finish

Disclaimer: The data listed herein fall within the normal range of properties but should not be used to establish specification limits or used alone as the basis of design. Maverick Corporation assumes no obligations or liabilities for any advice furnished or for any results obtained with respect to this information. All such advice is given and accepted at buyer's risk.