

# Sizings for High Performance Fibers



Many composites require high temperature processing, or are used in high temperature applications. These applications typically require the use of high temperature polyimide, polyamide, PEEK or PEK resin. If no high temperature sizing is used on the fiber to manufacture the composite, then the sizing will likely degrade during the composite fabrication or during use. This results in a poor interface and micro-voids caused by outgassing. Both of these situations will result in a decrease in mechanical properties and composite failure. Michelman offers an extensive range of sizings, including polyurethanes, polyimides, polyamides, E-MA, Bd-MA and phenoxies, for use in high performance applications.

Product	Solids Type	%NV	Emulsifier Charge	pH	Rec. pH	Brookfield Viscosity cps, mPa·s <sup>(A)</sup>	APE Free <sup>(B)</sup>	chopped strands	continuous fiber	hydrolysis resistance	impact resistance	thermal stability
<b>Michem® Emulsion 48625M1</b>	BdMA	23.5-26.0	N / A	5.0-7.0	2.0-12.0	0-1500	CIN	•	•	•		
<b>FGLASS™ X90</b>	Ethylene Maleic Anhydride Copolymer	39.0-41.0	N / A	2.1-5.0	< 7.0	< 1000	AUB,CIN	SNG	•	•		
<b>Hydrosize® HP3-02</b>	Phenoxy Dispersion	30.0-33.0	Anionic / Nonionic	6.5-8.5	> 5.0	< 4000	AUB,CIN	•				•
<b>Hydrosize® PA845</b>	Polyamide	22.0-24.0	Anionic	9.7-11.0	7.5-10.7	< =100	AUB,CIN					
<b>Hydrosize® HP-1632</b>	Polyimide	10.0-12.0	N / A	7.5-10.5	> 7.0	< 8000	CIN	•				•
<b>Hydrosize® U2022</b>	Polyurethane	58.0-60.0	Anionic / Nonionic	6.5-8.5	> 6.0	500-1700	CIN,SNG	•				• •

(A) cps (mPa.s) @ 60 RPM  
 (B) Alkyl phenol ethoxylate

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