

Sizings for Engineered Resins



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. Hydrosize U5-02 and U8-02 are food contact compliant according to the Commission Regulation (EU) no10/2011 repealing Directive 2002/72/EC.

Product	Solids Type	%NV	Emulsifier Charge	pH	Rec. pH	Brookfield Viscosity cps, mPa·s ^(A)	chopped strands	hydrolysis resistance	impact resistance	thermal stability
Michem® Emulsion 48625M1	BdMA	23.5-26.0	N / A	5.0-7.0	2.0-12.0	0-1500	•	•	•	
FGLASS™ X90	Ethylene Maleic Anhydride Copolymer	39.0-41.0	N / A	2.1-5.0	< 7.0	< 1000	•	•	•	
FGLASS™ X91	Ethylene Maleic Anhydride Copolymer	19.0-21.0	N / A	2.5-4.0	< 7.0	5-100	•	•	•	
Hydrosize® U9-01	Formulated Polymer	59.0-61.0	N / A	7.5-9.5	> 6.0	< 500	•	•		•
Hydrosize® HP3-02	Phenoxy Dispersion	30.0-33.0	Anionic / Nonionic	6.5-8.5	> 5.0	< 4000	•			•
Hydrosize® PA845H	Polyamide	28.0-32.0	Anionic	9.7-11.0	> 7.0	0-500	•	•		•
Hydrosize® PA846	Polyamide	33.0-37.0	Amine dispersed	9.5-10.5	7.5-10.7	< =250	•	•		•
Hydrosize® PA874	Polyamide Wax	20.0-27.0	-	9.0-11.0	-	20-1000	•	•		•
Hydrosize® U10-01	Polyurethane	28.0-32.0	Anionic / Nonionic	6.5-10.5	> 3.0	25-5000		•		•
Hydrosize® U2022	Polyurethane	58.0-60.0	Anionic / Nonionic	6.5-8.5	> 6.0	500-1700	•			•
Hydrosize® U2-04	Polyurethane	58.0-60.0	Anionic / Nonionic	7.2-8.5	> 7.0	200-1500	•			•
Hydrosize® U5-01	Polyurethane	55.0-58.0	Anionic / Nonionic	7.2-10.0	> 6.0	200-800	•		•	•
Hydrosize® U5-02	Polyurethane	54.0-56.0	Anionic / Nonionic	7.2-8.5	> 7.0	50-1000	•		•	•

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Product	Solids Type	%NV	Emulsifier Charge	pH	Rec. pH	Brookfield Viscosity cps, mPa·s ^(A)	chopped strands	continuous fiber	hydrolysis resistance	impact resistance	thermal stability
Hydrosize® U6-01	Polyurethane	28.0-32.0	Anionic / Nonionic	6.5-10.5	> 3.0	25-5000			•		•
Hydrosize® U7-01	Polyurethane	55.0-59.0	Anionic / Nonionic	6.5-9.0	> 6.0	50-1000	•				•
Hydrosize® U8-02	Polyurethane	54.0-56.0	Anionic / Nonionic	7.2-8.5	> 7.0	50-1000	•				•

(A) cps (mPa.s) @ 60 RPM

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