

GLASS FIBER

SIZING



ACHITEX MINERVA

GLASS FIBER SIZING

Achitex Minerva has been studying, producing and marketing products suitable for the finishing of the glass fiber processing cycle, also intended for the thermoplastic and thermosetting sector.

The laboratories have developed a line of aqueous emulsions of grafted polypropylene for the thermoplastic sector, with molecular weights and percentages of different grafting agents according to the final applications, such as Rowing or Chop Strand. The emulsions have excellent stability to the sizing of glass fibers and, thanks to the low content of free maleic anhydride, they can be used without the addition of amines as stabilizers. They have no odour and contain a low content of surfactants.

For the thermosetting sector, has been developed a range of emulsions and aqueous dispersions based on Epoxy Resins for the development of "tailor made" products, with different values of epoxy index and molecular weights.

Oils, antistatic, lubricants normally intended for spinning processes, and pigment dispersions complete the range of products for the processing of glass fiber, giving Achitex Minerva the opportunity to support its customers throughout the entire glass fiber processing cycle.

The emulsions produced are FDA and NPO-free, to protect health and the environment and comply with the "Commission Regulation (EU) No 10/2011" on food contact.

All products comply with the REACH regulation and are controlled by our laboratories according to the parameters set by the UNI EN ISO 9001: 2015 quality control system.



ADVANTAGES

- ✓ Different grafting agents
- ✓ Excellent stability
- ✓ Not needed the addition of amines as stabilizers
- ✓ Odourless
- ✓ Tailor-made solutions
- ✓ Low content of surfactants
- ✓ Low content of free maleic anhydride
- ✓ APEO free
- ✓ FDA approved





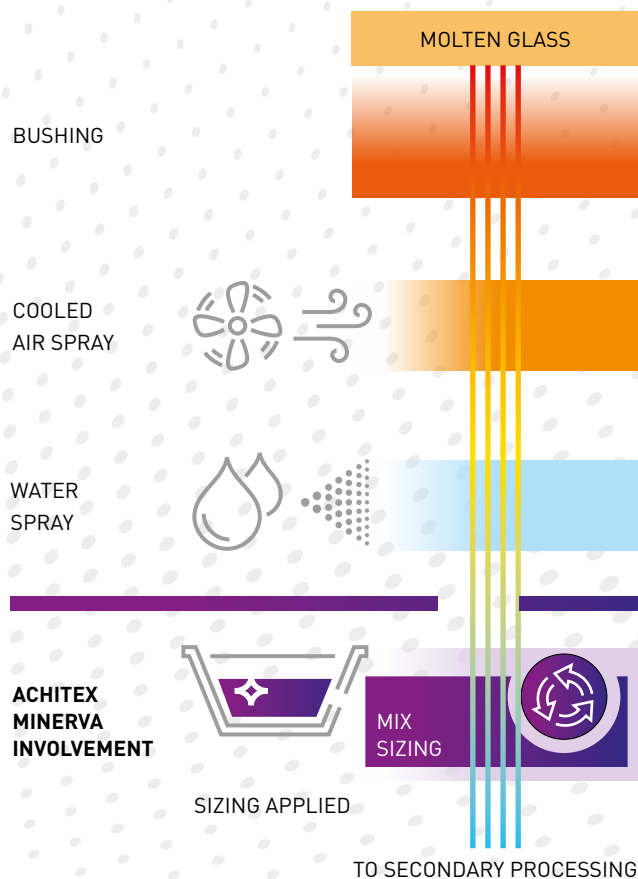
ROLE OF THE SIZING

Sizing chemistry plays a significant role in a composite's mechanical properties including impact resistance, tensile strength, and flexural strength, and chemical properties such as corrosion, hydrolysis, heat and oil resistance.

Every fiber producer use sizing to coat their fibers to protect the fibres from damage and provide compatibility with the matrix.

Glass fiber sizing is not a single chemical compound, but a mixture of several complex chemistries, each of which contributes to the sizing's overall performance. The primary components are the film forming polymeric components (emulsified or dispersed form) and the coupling agent.

Beyond these two major components, sizings also may include additional lubricating agents, as well as antistatic agents that keep static electricity from building up on the nonconductive fibers as they are formed and converted at high speeds, surfactants, adhesion promoter, plasticizers, antifoams, and rheology modifiers.



THERMOPLASTIC PRODUCTS

GRAFTING TECHNOLOGY

Achitex Minerva has developed a unique technology that allows you to modify polyolefins with different MFI and different types.

Through this innovative technology it is possible to obtain a customized level of grafting MA (Maleic Anhydride), as well as a polymer with a very specific molecular weight.

It is possible to achieve a controlled polydispersibility, fully comparable to the most common grafted polypropylene products.

The grafted MA polyolefins have been developed and selected specifically to work in Chopped Strand (CS), Direct Roving (DR) and Long Fiber Thermoplastic (LFT) applications.

EMULSION TECHNOLOGY

Achitex Minerva emulsion systems have been designed and developed to measure to work both in Chopped Strand (CS) and Direct Roving (DR) / Long Fiber Thermoplastic (LFT) applications, overcoming the most common problems such as the "Fuzz" effect and ensuring high mechanical performance both immediately and after aging cycles.

	Mechanical performance	Detergent resistance	Colour	Odour performance	MW	Grafting level	Direct roving	LFT	Chopped
POLIFINISH 40 H	••	••	•	••	L	••••	●	●	
POLIFINISH 640 H	••	••	•••	••	M	••••	●	●	●
POLIFINISH 15 A	•••	•••	•••	•••	M/H	•••			●
POLIFINISH 30 A3	•••	••	•	•	M	•••		●	●
POLIFINISH 352	••••	•••	•••	•••	M/H	••		●	●
POLIFINISH CS 74	•••	•••	•••	•••	H	•		●	●
POLIFINISH CS 574	••••	••••	••••	•••	H	•		●	●

• Average	•• Good	••• Very Good	•••• Excellent	M: Medium	L: Low	H: High
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THERMOSETTING PRODUCTS

Achitex Minerva thanks to proprietary technology and special know how developed during the years is able to do epoxy emulsions with specific epoxy index and required particle size in addition also a more particular products like reacted epoxy or salified epoxy that have the best performance in thermosetting application.

EPOXY EMULSION	Aspect	Epoxy Index (g/eq)	Solid Content (%)	pH	Viscosity (cPs)	PSD (µm)
AEPOXI EL 60	white emulsion	185-215	59-61	3-5	< 5000	D50 < 1
AEPOXI ESL 55	white emulsion	210-245	54-56	3-5	< 5000	D50 < 1

EPOXY DISPERSION FOR AR GLASS	Aspect	Epoxy Index (g/eq)	Solid Content (%)	pH	Viscosity (cPs)	PSD (µm)
AEPOXI P220	transparent colourless	0	64-66	6-8	4000-8000	n.a.

SALIFIED EPOXY DISPERSION	Aspect	Epoxy Index (g/eq)	Solid Content (%)	pH	Viscosity (cPs)	PSD (µm)
AEPOXI 732 SF	yellowish transparent solution	n.a.	35-37	3-5	20-500	n.a.

AUXILIARY PRODUCTS

	Aspect	pH	Ionic nature	Description
ACHISTAT OCV	Transparent colourless	5-8	Cationic	Antistatic generally used when winding glass fibre coils. It is characterized by its high antistatic effect, for being free from odours and yellowing, as well as for being easily removed from the fibre with a simple aqueous wash. The product also has algacide properties.
TEXLUBE NI LIQ	White to slightly yellow dispersion	5-7	Non Ionic	The product finds its application as a lubricating and antistatic agent on surfaces such as fibres, plastic and glass. It improves the degree of sliding between the fibres and between the fibres and the surface, thus avoiding the formation of electrostatic charges in the case of dry cutting.



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UNI EN ISO 14001:2015



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