

# Smart Solutions for Fiber Sizing



# OUR COMPETENCE

*Evonik is active in over 100 countries around the world. The continuous expansion of our global presence in growth markets ensures outstanding growth prospects for our specialty chemicals business. A balanced spectrum of business activities and end-markets is guaranteed by a close collaboration with our customers and a joint search for solutions. These are the key factors to our success. Our outstanding application and process expertise is based on a broad technology platform of organic specialty surfactants and organo-modified siloxanes. We are experts in interfacial phenomena, at the surface and within the matrix covered by specific analytical.*

*Our product range covers a variety of products with specific application profiles for the mineral and glass fiber industry:*

## TEGOPREN®

Our TEGOPREN® brand is based on the organo-modified siloxanes chemistry. The general molecular architecture of TEGOPREN® products is primarily characterized by their multifunctionality. Their properties include wetting and de-wetting, levelling, lubrication, defoaming, emulsifying, softening and dispersing or coagulating. As a result of the siloxane component TEGOPREN® products are highly surface active. TEGOPREN® products can reduce the surface tension much more than organic surfactants.

## DYNOL™/SURFYNOL®

Our organic specialty surfactants offer high molecular weight and maximal flexibility, as they stabilize or spread interfaces. DYNOL™ surfactants and the Gemini-surfactant types under the

brand name SURFYNOL® are low-foam, superwetting and coalescing surfactants for difficult-to-wet substrates.

DYNOL™ and SURFYNOL® surfactants have a broad utility and are recommended for use in mineral and glass fiber applications. These unique, multifunctional additives are designed to provide superior dynamic surface tension reduction and excellent stability in systems ranging from pH 3–13.

## REWOQUAT®/REWOPAL®/REWOPOL®/TEGO® Addibit

Our organic portfolio which comprises of different functional processing agents such as quaternary ammonium compounds to amido amine-based chemistries, helps to achieve wetting, emulsifying and dispersing properties to address your unique needs.

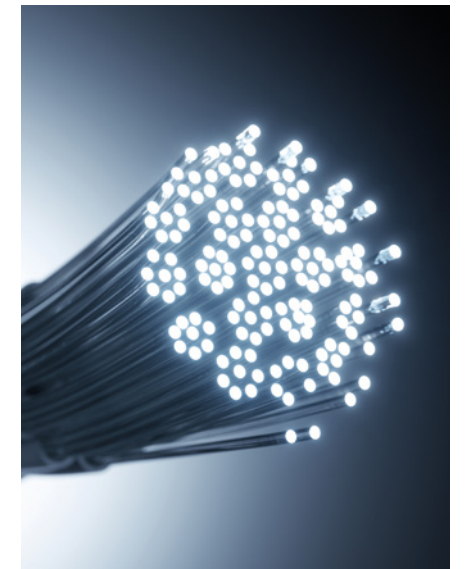
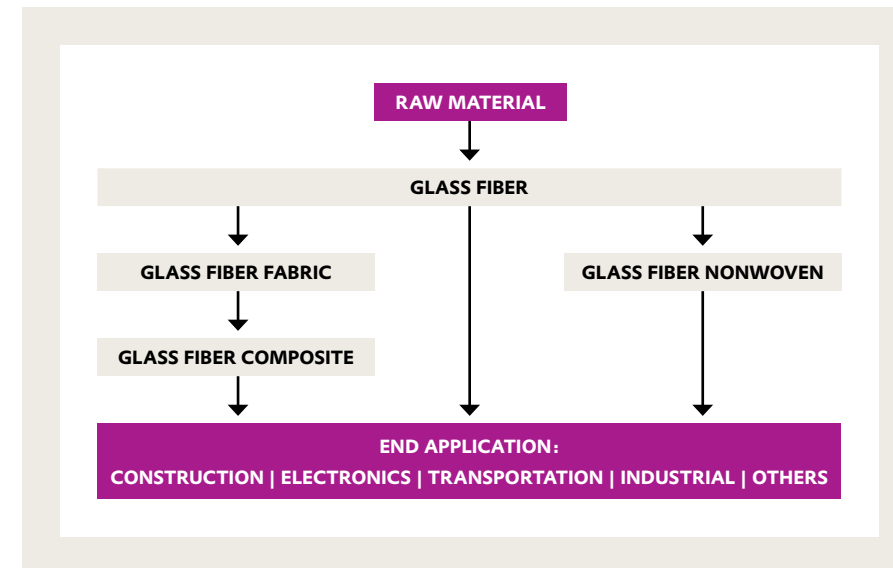
## TEGO® Antifoam

Our high-performance anti-foams, organic oils, siloxanes and molecular based technologies, offer a spectrum of tailored foam reducers branded as TEGO® Antifoam. This offers solutions to identifying the right foam control tools for a broad range of systems and applications.

## AROSURF®

Our AROSURF® products are highly substantive wet end softeners/debonders with high, medium and low debonding effect for premium to low sheet bulkiness with all qualities of feedstocks.

They are highly substantive softeners with low impact on tensile strength to achieve good machine run-ability and excellent surface smoothness of the tissue.



## INDUSTRIES & APPLICATIONS OF GLASS FIBERS



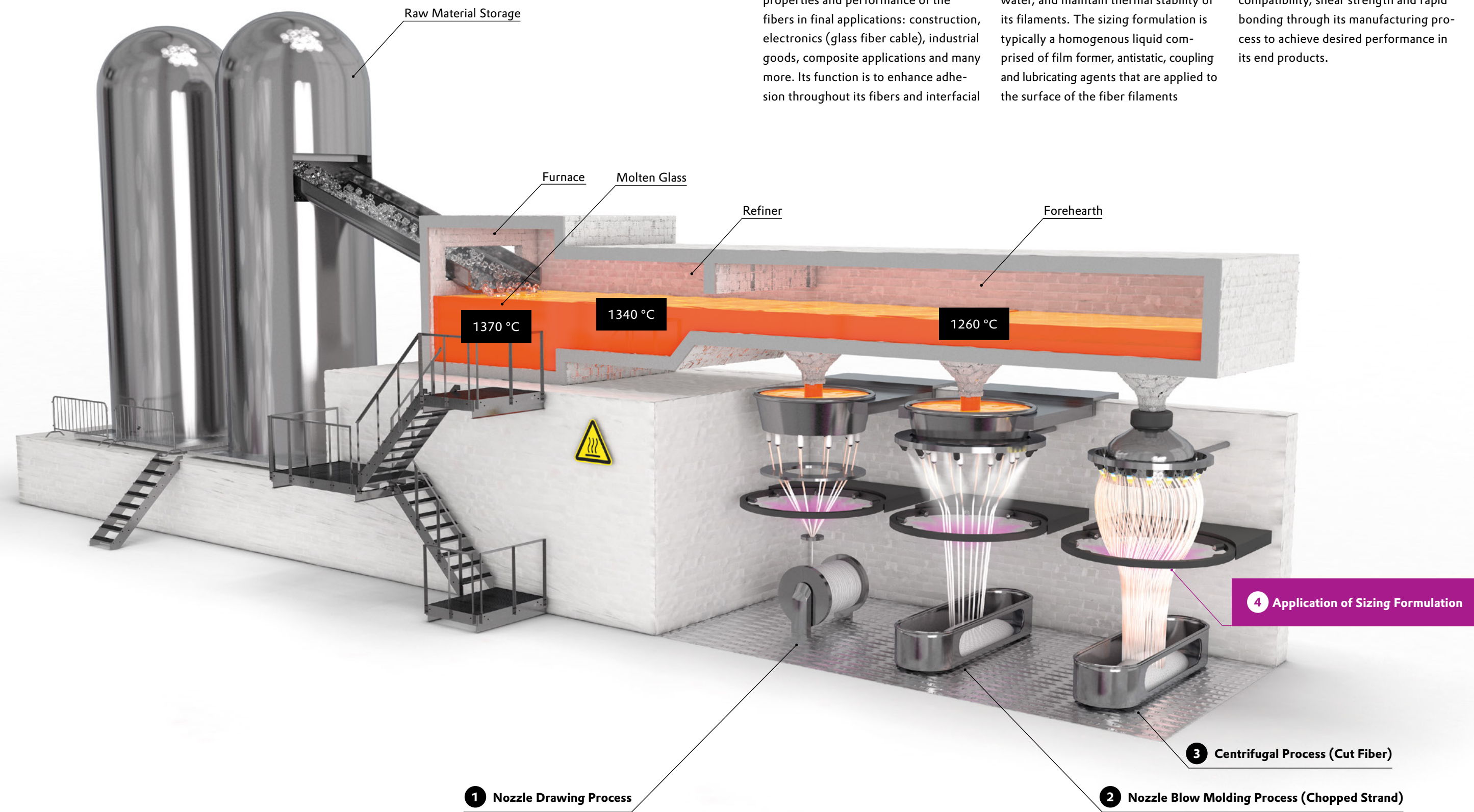


# WHAT IS FIBER SIZING

Fiber sizing is possibly the most important component within manufacturing of fiberglass, as it helps to improve the properties and performance of the fibers in final applications: construction, electronics (glass fiber cable), industrial goods, composite applications and many more. Its function is to enhance adhesion throughout its fibers and interfacial

matrix, protect from mechanical abrasion (e.g., transport, storage and handling), guard from chemical and/or water, and maintain thermal stability of its filaments. The sizing formulation is typically a homogenous liquid comprised of film former, antistatic, coupling and lubricating agents that are applied to the surface of the fiber filaments

directly after the melt, forming complex weaving, winding, or roving strands. Further imparting good dilutability, compatibility, shear strength and rapid bonding through its manufacturing process to achieve desired performance in its end products.



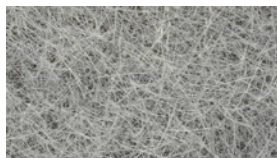
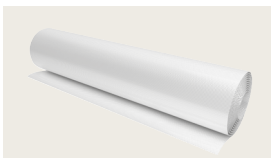
# SIZING ADDITIVES

## MULTIFUNCTIONAL ADDITIVE

SITREN® CSA is essentially an alkyl imidazoline derivative. It is a flake, compatible with non-ionic and cationic surfactants.

As the multifunction additive with 1 – 3 % dosage in sizing formulations, SITREN® CSA functions as lubricant and also helps to homogenize and disperse fiber particularly for textile fiber glass.

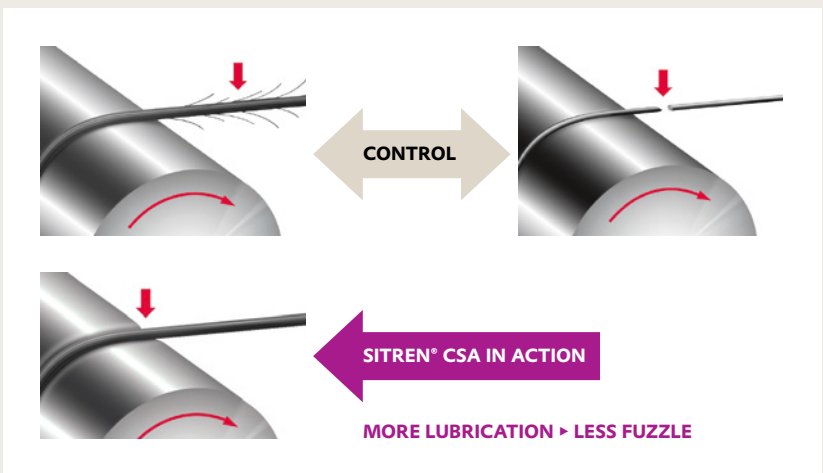
### Glassfiber Textiles



without SITREN® CSA

with SITREN® CSA

### SITREN® CSA for a higher quality



## APPLICATION/PRODUCT

### Application

Sizing

Dispersing/Lubrication/Antistatic

### Product

SITREN® CSA

REWOQUAT® WE 45 HF

TEGO® Addibit F 4 HB

TEGO® Addibit L 300 N

AROSURF® PA 842 V

## OTHER SIZING ADDITIVES

With our extensive chemical toolbox of wetting agents, defoamers, antistatic agents, emulsifiers and other surfactants we can offer the right additive for various sizing formulations.

## Product Overview

			Product effects	
Products	Appearance at 20°C	Chemical base	Process additives	Perf. additives
SIZING AGENTS				
NEW AROSURF® PA 842 V	liquid	Quat. Ammonium compound	Dispersing/ Lubrication/Antistatic	–
SITREN® CSA	flaky	Fatty acid amidamine acetate	Dispersing/ Lubrication/Antistatic	–
REWOQUAT® WE 45 HF	liquid	Quat. Ammonium compound	Dispersing/ Lubrication/Antistatic	–
NEW TEGO® Addibit F 4 HB	flaky	Fatty acid amino amide	Dispersing/ Lubrication/Antistatic	–
NEW TEGO® Addibit L 300 N	liquid	Amido-amine	Dispersing/ Lubrication/Antistatic	–
WETTING				
TEGOPREN® 5840	liquid	PE–siloxane	Wetting	–
SURFYNOL® 2502	liquid	dyn. wetting agent	Wetting	–
SURFYNOL® 465	liquid		Wetting	–
DYNOL™ 607	liquid	Gemini surfactant	Wetting	–
REWOPAL® EO 70	liquid	Oleic acid polyglycolester	–	Wetting/Emulsifier
REWOPOL® SB DO 75 PG	liquid	Solution of sodium diisooctyl sulfosuccinate	–	Wetting
REWOQUAT® WE 15 DPG	liquid	TEA esterquat based on vegetable oleic acid	–	Wetting
DEFOAMER				
TEGO® Antifoam 1488	liquid	OMS based emulsion	Defoaming	–
TEGO® Antifoam 50	liquid	Silicone based emulsion	Defoaming	–
ANTISTATICS				
TEGO® Antistatic GFT*	liquid	Quat. Ammonium compound	Dispersing/ Lubrication/Antistatic	–
REWOQUAT® CPEM	liquid	Quat. Ammonium compound	Dispersing/ Lubrication/Antistatic	–
DISPERSION EMULSIFIER				
TAGAT® V20	liquid	Castor oil. ethoxylated. oleate	Wetting	–
HYDROPHOBIZATION				
SITREN® 447	liquid	Water based emulsion of funct. siloxane	–	Water repellency
SITREN® 595**	liquid	Aqueous emulsion based on react. Org. siloxanes	–	Water repellency

\*Asia only \*\*Europe only

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