

Product overview

TEGOPREN® for tissue, pulp & paper



ABOUT OUR PRODUCTS



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The product range of Evonik covers a variety of products with specific application profiles which address almost all the needs of the tissue, pulp and paper industry.
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Our TEGOPREN® brand is based on the organommodified siloxanes (OMS) chemistry. The general molecular architecture of these amphiphilic graft copolymers is based on a polydimethylsiloxane (PDMS) backbone, onto which organic side chains (i.e. copolyethers of ethylene oxide and propylene oxide, alkyl chains or aryl chains) are attached.

Organommodified siloxanes behave different to organic surfactants in many matrices. This brochure will show the advantages of using OMS.

The siloxane backbone can provide a

low surface tension typical of silicones, whereas the organic branches lead to an improved compatibility of the OMS with the surrounding matrix. Most of the physicochemical properties of OMS are determined by the number of organic moieties, the nature of organic moieties and/or the ratio of siloxane/organic groups.

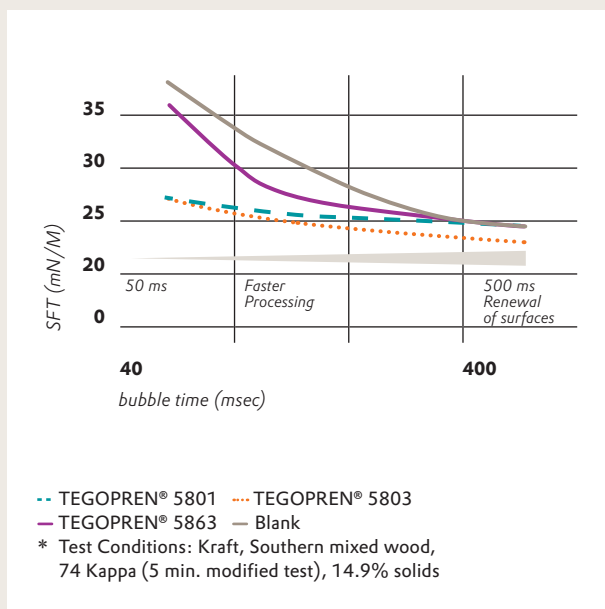
In addition to their pronounced surfactant properties in aqueous and organic systems TEGOPREN® products are primarily characterized by their multifunctionality. Their properties include levelling, wetting and dewetting, releasing and/or debonding, foaming or defoaming, emulsifying or demulsifying and dispersing or coagulating.

The function that TEGOPREN® products fulfill in a given case depends on two factors: The medium (aqueous or

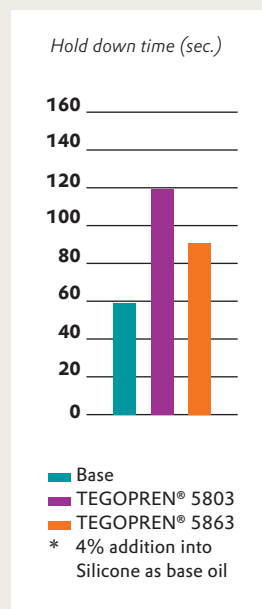
organic) and more importantly the respective structural parameters (type and degree of modification as well as the siloxane segment involved). TEGOPREN® products can exhibit multiple functions provided that the properties are not inconsistent with one another. A release agent for instance can also be a good emulsifier. As a result of the siloxane component TEGOPREN® products are highly surface active. The modified organic groups make them compatible with aqueous and organic systems. Thus, the low surface energy of the siloxane segment is transferred to the interface. TEGOPREN® products can reduce the surface tension much more than organic surfactants. They are also surface active in non-aqueous systems. With their high molecular weight and maximal flexibility they stabilize or spread interfaces.

OUR COMPETENCE FOR YOUR SOFT AND SAFE PRODUCTS

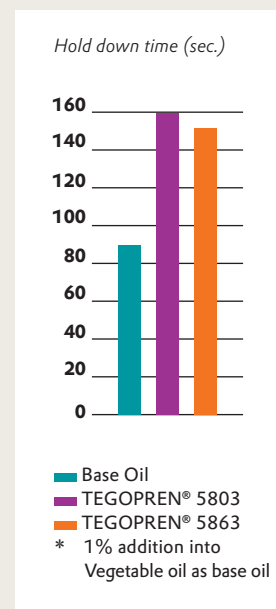
Dynamic Surface Tension of Black Liquor at 80°C [176°F] (0.1% addition)*



30%-Silicone oil based defoamer (0.01% addition)*



80%-Oil based defoamer (0.015% addition)*



Evonik is one of the world's leading specialty chemicals companies. Our activities focus on the key megatrends health, nutrition, resource efficiency and globalization. We are 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 area. 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 organomodified siloxanes. Our product range covers a variety of products with specific application profiles, which address almost all needs of the tissue and fluff pulp industry: softeners and debonders under the AROSURF®, VARISOFT®, and REWOQUAT® trade names as well as softeners and pulp and paper defoamers under the TEGOPREN® trade name.

Providing service, state-of-the-art quality, and know-how the Tissue Competency Center in Richmond, Virginia is a global support application and product development laboratory. The Tissue Competency Center provides customers with technical support and application data showing how Evonik products enhance the customer's products performance. The lab can form hand sheets and test them for various properties such as strength, absorbency and softness. In a close face-to-face collaboration, we will find the solution to enhance the value of your products.

Product overview

Product Characteristics

PRODUCT NAME	APPLICATION	BENEFITS	WATER	ALCOHOL	ESTER OIL (OCTYL STEARATE)	PARAFFIN OIL	AROMATIC (HYDROCARBON)	ALIPHATIC (HYDROCARBON)	SUGGESTED USAGE LEVELS	APPEARANCE (20 C°)	DENSITY, G/ML	FLASH POINT IN C°	CLOUD POINT IN C° (4% IN WATER)	VISCOSITY IN MPAS (25 C°)
TEGOPREN® 5801	• performance booster	<ul style="list-style-type: none"> • decrease of foam knock down times • increase of foam hold down times • release of entrained air from surfaces 	I	S	S	P	S	S	direct addition: 0.1 – 0.25% formulation use: 0.5 – 4.0%	liquid, clear to straw colored	0.95 – 1.10	> 90	-	700 – 1,700
TEGOPREN® 5803	• performance booster & defoamer	<ul style="list-style-type: none"> • enhancement of foam knock down and hold down time • improved drainage and washer efficiency 	I	S	S	P	S	S	direct addition: 0.1 – 0.25% formulation use: 0.5 – 4.0%	liquid, clear to yellow	0.95 – 1.05	> = 90	-	600 – 900
TEGOPREN® 5825	<ul style="list-style-type: none"> • dispersing agent • additive for concentrates and emulsions of mineral oils and silicone oils 	<ul style="list-style-type: none"> • performance booster for oil based, silicone based and water based defoamers • improved performance in both hard wood and softwood black liquor • fast initial knock down time and substantial hold down time • health rating of 1 • reduction of pitch problems • increase of pulp washing performance 	S	S	I	P	S	I	direct addition: 0.15 – 1.0% formulation use: 0.5 – 4.0%	liquid, clear to yellow	1.020 – 1.035	> 200	20	1,500 – 2,500
TEGOPREN® 5840	• hydrophillic wetting and spreading	<ul style="list-style-type: none"> • solvent free easy to handle liquid • reduction of the surface tension of water based systems • enhanced spreading on non-polar surfaces • improved spreading and wetting properties 	S	S	I	I	S	S	direct addition: 0.03 – 1.0%	liquid, colorless to pale straw	~ 1.01	> = 101	20 – 30	40 – 90
TEGOPREN® 5852	• additive in defoamers for the bleaching process of pulp	<ul style="list-style-type: none"> • improved washer efficiency in pulp processing • enhancement of the dispersability of the defoamer and the rinse of water 	D	S	S	P	S	I	direct addition: 0.25 – 1.0% formulation use: 0.5 – 4.0%	liquid, colorless to pale straw	1.01 – 1.03	> 100	< 20	220 – 380
TEGOPREN® 5863	• defoamer booster	<ul style="list-style-type: none"> • non-flammable highly concentrated product • improvement of the knock down and hold down time of defoamers based on mineral or silicone oil for pulp mill application • improvement of the washer efficiency in pulp processing 	S	S	S	P	S	I	direct addition: 0.15 – 1.0% formulation use: 0.5 – 4.0%	liquid, colourless to pale straw/brownish	1.03 – 1.05	> 65	41 – 45	2,000 – 3,400
TEGOPREN® 5867	• defoamer booster	<ul style="list-style-type: none"> • non-flammable highly concentrated product • significantly improved knock down and hold down time of defoamers based on mineral or silicone oil for pulp mill applications • improved washer efficiency in pulp processing 	S	S	S	I	S	I	direct addition: 0.15 – 1.0% formulation use: 0.5 – 4.0%	liquid, yellowish	1.04 – 1.06	> 90	55-61	800 – 1,100
TEGOPREN® 5878	• hydrophillic wetting and spreading	<ul style="list-style-type: none"> • solvent free easy to handle liquid • reduction of the surface tension of water based systems • enhanced spreading on non-polar surfaces 	S	S	I	I	S	I	direct addition: 0.03 – 0.6%	liquid, colorless to pale straw/brownish	1.00 – 1.02	> 100	< 20	11 – 24
TEGOPREN® 6814	• defoamer booster	<ul style="list-style-type: none"> • better processability resulting in higher through-put • higher surface quality giving better water repellency, surface gloss and lower friction • enhanced hold down performance of defoamers 	I	I	S	P	S	S	formulation use: 0.5 – 4.0%	liquid, colorless to pale straw	0.88 – 0.92	> 100	-	250 – 450

D= dispersable
I= insoluble S= soluble P= partially soluble (<5%)

Europe | Middle East | Africa

Evonik Nutrition & Care GmbH
Goldschmidtstraße 100
45127 Essen
Germany
Phone +49 201 173-2665
Fax +49 201 173-1990
www.evonik.com

Asia | Pacific

Evonik Specialty Chemicals Co., Ltd.
55, Chundong Road
Xinzhuang Industry Park
Shanghai, 201108
PR China
Phone +86 21 6119-1125
Fax +86 21 6119-1406

The Americas

Evonik Corporation
7801 Whitepine Road
P.O. Box 34628
Richmond, VA 23234
USA
Phone +1 804 727-0700
Fax +1 804 727-0855

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04/2017 Inv.-Nr.: 02-17