

# Silicone solutions for textile processing & finishing

## Selection guide

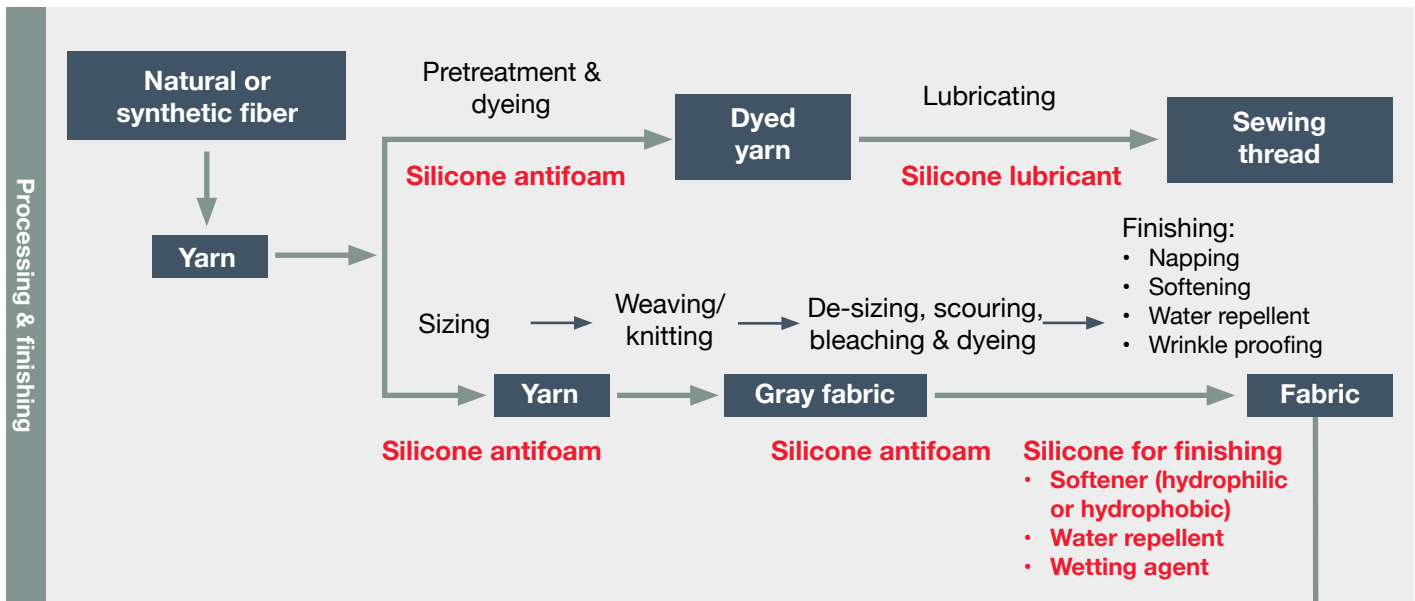


# Silicones in textile processing and finishing – From fiber to apparel

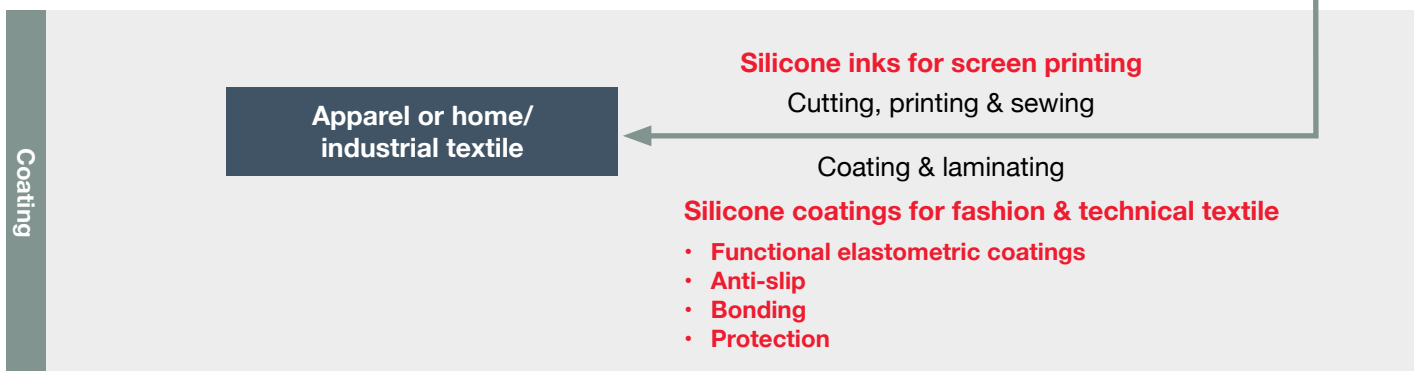
Use of silicone products in various stages of textile processing is well known and established due to the versatility of silicone chemistry and the significant impact it has on productivity and efficiency in textile manufacturing. Because of the features of this chemistry, such as its low surface tension and low coefficient of friction (COF), silicones have been used in applications like sewing thread lubrication, foam control agents during textile pretreatment and dyeing process, as well as in the finishing treatments. Organofunctional silicones continue to be used for differentiated finishes on textiles, which add value through aesthetics and functional performances as needed by consumers.

Over recent years, the use of silicones in textiles has expanded, especially its use in performance apparel and technical textiles where benefits like durable water repellency, stretchability, fire resistance and anti-slip are important. Silicones in this application are used during the finishing process or as a coating on textiles, and they provide a distinct advantage over other chemistries due to their safety in use and durability in end applications.

Find out more on the next pages of this selection guide



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# Lubricants

In the garment sewing process where temperature of the needle can reach higher than 300°C, it is essential to lubricate thread to reduce COF between fibers and metal parts to prevent thread rupture. Silicones, with their low surface tension and high wetting properties, spread over the surface of the thread, and when formulated with wax, they provide the low COF and temperature stability required for high-speed sewing processes. Application of the formulation is usually done through kiss roll process.

Product	Lubricant performance
XIAMETER™ MEM-1728 Emulsion	++++
XIAMETER™ MEM-1727 Emulsion	+++++

These are typical properties, not to be construed as specifications.



# Silicone antifoams for textile processing

DOWSIL™ and XIAMETER™ Silicone Foam Control Agents from Dow enable textile manufacturers to operate their pretreatment and finishing step productively, Antifoams help to prevent foam from negatively impacting the pretreatment & dyeing processes through foam marks & equipment overflows which contribute to decreasing productivity.

Formulated specifically for effective foam control and optimal stabilization in a variety of textile pretreatment and finishing foaming media, Dow textile foam control agents act both as antifoams and defoamers in a wide range of temperature and processing conditions. Available as self-dispersible compounds and emulsions, there are stable, efficient and long-lasting foam control agents suitable for every textile processing use.

	North America	Latin America	Europe	Asia	Ready-to-use for non-aqueous system	Ready-to-use for aqueous system	To-be-formulated for aqueous system	Bleaching	Carpet dyeing	Fiber, yarn, fabric treatment	Finishing	Jet dyeing	Post processing	Pre processing	Printing	Scouring	Sizing
XIAMETER™ ACP-0080 Antifoam Compound			●	●		●	●	●	●		●	●				●	●
XIAMETER™ ACP-0544 Antifoam Compound	●	●	●	●		●	●		●	●		●					
XIAMETER™ ACP-1266 Antifoam Compound	●		●	●		●	●					●			●	●	●
XIAMETER™ AFE-0050 Antifoam Emulsion	●	●	●	●	●	●	●					●					
XIAMETER™ AFE-0700 Antifoam Emulsion	●	●	●	●	●		●					●			●		●
XIAMETER™ AFE-0800 Antifoam Emulsion	●		●	●	●	●	●	●			●	●				●	
XIAMETER™ AFE-3168 Antifoam Emulsion	●	●		●	●	●						●	●	●			
DOWSIL™ FS Antifoam 025				●	●											●	●
DOWSIL™ FS Antifoam 92				●		●	●	●	●		●	●				●	●
DOWSIL™ AF-8014 Antifoam	●		●	●		●	●	●			●	●			●	●	●

● Product has been used in the specific application

Specifications writers: These values are not intended for use in preparing specifications. Please contact your Dow representative before writing specifications on these products.

**Every foaming situation is unique.** This document lists DOWSIL™ and XIAMETER™ Foam Control Solutions for textile applications. Suitable foam control agents exist for every foaming situation beyond textiles. Further assistance for your specific situation, technical information, product samples, and buying options are available online at [www.dow.com/antifoam](http://www.dow.com/antifoam).



# Silicone emulsions for durable water repellent finishing

A large variety of sport apparel, garments and outdoor equipment's made of diverse textile compositions requires variable water repellency and durable water repellency (DWR), depending on their end uses. Beyond DWR performances, several product attributes are important either for consumer benefits and ease of use or for textile mill smooth operations.

The trends of today's industry toward more certifications on sustainability, safer chemistry uses, and better production practices require more technical options to brand owner designers, formulators, and textile mills.

Dow's silicone-based technologies offer new solutions characterized by their superior durable water repellency and soft hand-feel. Used in combination with crosslinkers and extenders, variable levels of durability and hand-feel can be targeted.

Product	Key features	Softness <sup>1</sup>	Spray test	DWR	Fabrics <sup>2</sup>	Process stability	Tape adhesion	Low cyclics
DOWSIL™ IE-8749 Emulsion	<ul style="list-style-type: none"> <li>Durable water repellent</li> <li>No scratch mark, chalking</li> <li>Stable sewn seam</li> <li>Soft hand</li> <li>Highly concentrated</li> <li>Hydrophilic stain protection</li> <li>Suitable for all fabrics</li> </ul>	+++++	++++	++++	PES, PA	++	+	Yes

These are typical properties, not to be construed as specifications.  
<sup>1</sup>All ratings are relative to each other: best = +++++; worst = +.  
<sup>2</sup>Results may vary according to the substrate and preferences of the evaluator.



# Silicone polymers and emulsions for fabric finishing

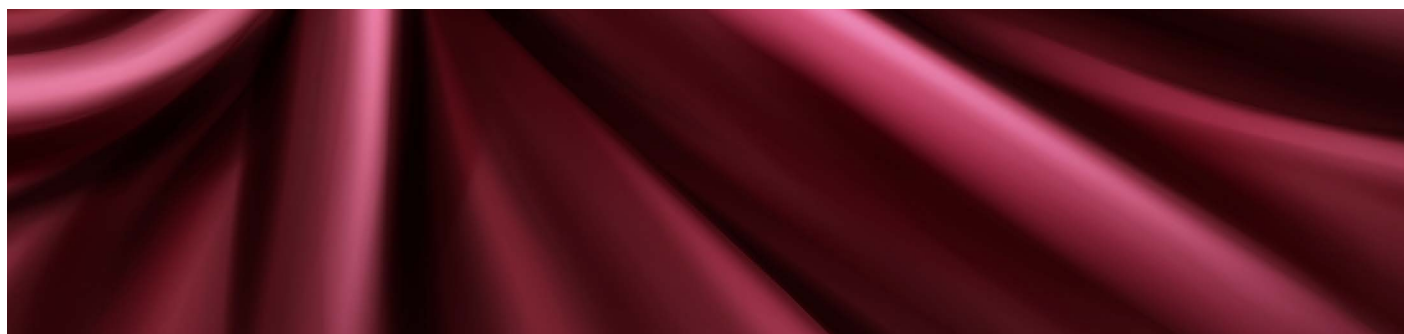
DOWSIL™ and XIAMETER™ Silicone Finishes are widely recognized as the best materials for increasing the softness of fabrics, enhancing their aesthetic feel, and imparting an excellent hand feel. They improve several physical properties, such as tear strength; abrasion and wrinkle resistance; stretch recovery and shrinkage reduction. They can provide either water absorption or water repellency with little-to-no impact on fabric whiteness. They make fabrics more comfortable and more desirable to touch, purchase and wear.

Dow silicone fabric finishes are available in a wide range of chemistries to meet the broadest and the most specific fabric property needs. Amino and amido-functional polymers are one of the most popular forms. Other silicone materials typically used in fabric finishing formulations include hydroxy, methyl hydrogen and epoxy-polyether functionalities. Silicones can be formulated into customized emulsions or blended with organic polymer emulsions to provide a wide variety of performance properties.

## Silicones polymers for fabric finishing/softening

Product	Key features	Hand	Type of hand	Low cyclics
XIAMETER™ OFX-8040 Fluid	<ul style="list-style-type: none"> <li>• Very good softness</li> <li>• Cost-effectiveness</li> <li>• Medium % amino-functional</li> <li>• Micro-emulsifiable</li> </ul>	++++	Silky	No
XIAMETER™ OFX-8505 Fluid	<ul style="list-style-type: none"> <li>• Very good softness</li> <li>• Very good hydrophilicity</li> <li>• Minimal impact on fabric whiteness</li> </ul>	+++	Natural	Yes
XIAMETER™ OFX-8630 Fluid	<ul style="list-style-type: none"> <li>• Premium softness</li> <li>• Very low impact on fabric whiteness</li> <li>• Medium amine %</li> </ul>	++++	Silky, bouncy	No
XIAMETER™ OFX-8803 Fluid	<ul style="list-style-type: none"> <li>• Good softness</li> <li>• Modified amino-functional</li> <li>• Excellent high-shear stability and durable press</li> <li>• Bath compatibility; improved alkaline stability and anionic compatibility</li> </ul>	++++	Natural, silky	Yes
XIAMETER™ OFX-8813 Fluid	<ul style="list-style-type: none"> <li>• Durable softness</li> <li>• Hydrophilic</li> <li>• Very low yellowing</li> <li>• Micro-emulsifiable</li> </ul>	++++	Natural	Yes
XIAMETER™ OFX-8822 Fluid	<ul style="list-style-type: none"> <li>• Premium softness</li> <li>• High amine %</li> <li>• Micro-emulsifiable</li> </ul>	+++++	Silky	Yes
DOWSIL™ AP-8041 Fluid <b>NEW</b>	<ul style="list-style-type: none"> <li>• Good softness</li> <li>• Non-yellowing</li> <li>• Suitable for all synthetics &amp; natural fabric</li> <li>• Low amine %</li> <li>• Polymer, micro/macro emulsifiable</li> </ul>	+++	Soft	Yes

These are typical properties, not to be construed as specifications.



## Silicone emulsions for fabric finishing/softening

Product	Key features	Hand <sup>1</sup>	Type of hand <sup>2</sup>	Low cyclics
DOWSIL™ 8898 Premium Emulsion	<ul style="list-style-type: none"> <li>• Amino polymer emulsion</li> <li>• Very good softness</li> <li>• Suitable for natural and synthetics, PES micro-fiber “leather”</li> <li>• Good stability</li> </ul>	++++	Soft	No
XIAMETER™ MEM-8715 Emulsion	<ul style="list-style-type: none"> <li>• Reactive silicone polymer emulsion</li> <li>• Good hydrophobicity</li> <li>• Improved durability</li> <li>• Very low yellowing</li> </ul>	++++	Soft	No
XIAMETER™ MEM-8031 Emulsion	<ul style="list-style-type: none"> <li>• Amino+OH polymer emulsion surface modifier, highest slip</li> <li>• Suitable for PES, PES/cotton, cotton, nylon, PES/wool</li> </ul>	++++	Silky	No
DOWSIL™ HV 496 Emulsion	<ul style="list-style-type: none"> <li>• High MW polymer emulsion</li> <li>• Multifunctional benefits</li> <li>• Printed surface feeling modification, softening, non-adhesion</li> </ul>	++	Natural	Yes

These are typical properties, not to be construed as specifications.

This document lists DOWSIL™ and XIAMETER™ Silicone Fabric Finishing Polymers and Emulsions available around the world. Additional fabric finishing polymer products may be found online at [www.dow.com/textiles](http://www.dow.com/textiles).





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