

Magnasoft * OPS textile softener



MARKETING BULLETIN

SPECIALTY FLUIDS - TEXTILES & LEATHER

Magnasoft OPS textile softener is a specialty silicone emulsion that has been shown to provide multiple performance benefits on virtually all types of fabric. It is an excellent candidate to consider for an optimum balance of in-depth softness with dry/cool feel, fabric drapeability, hydrophilicity for absorbency fabric and bath stability in textile finishing processes.

Magnasoft OPS textile softener has been tested and shown to deliver a differentiated feel compared to fabrics treated with conventional amino-functional silicones. In contrast with the conventional amino functional silicone softeners, Magnasoft OPS textile softener provided a more comfortable feel, with skin-like touch, in addition to being virtually non-yellowing on fabrics and minimizing processing difficulties in a variety of textile finishing conditions.

Magnasoft OPS textile softener is a water-based emulsion that is manufactured without the use of alkylphenol ethoxylates (APEO) and therefore it is readily applicable for use in virtually any conventional finishing and/or printing processes in textile dyeing and finishing mills.

Key Features and Typical Benefits

- Full softness, slickness and resilience
- A "dry and cool-touch" for cotton and cotton blended fabrics; non-greasy and natural touch noticeably distinguishable from that of conventional amino-functional silicones
- Improved fabric drapeability and wrinkle resistance
- Minimal impact on the hydrophilic nature of cotton and other cellulose fabrics
- Shear stability, even in alkaline and high temperature bath conditions
- Highly resistant to yellowing on white fabrics and to discoloration on colored fabrics
- Versatile compatibility with typical bath conditions for textile finishing
- Water dispersible; ready-to-use in textile finishing processes
- Widely applicable for most available methods and equipment for textile finishing

Typical Physical Properties

Property	Unit	Current
Appearance	-	Transparent to translucent liquid
Viscosity at 25 °C	cPs	150
pH at 25 °C	-	6.5
Emulsion	-	Nonionic
Density g/ml		1.0

Typical properties are average data and are not to be used as or to develop specifications.

Potential Applications

Magnasoft OPS textile softener is an excellent candidate to consider for a wide range of advantages on virtually all types of fabric.

It has been shown to be particularly effective on cotton knits, cotton sheets, cotton/spandex blends, polyester knits, polyester/cotton blends and other cellulose fabrics where it helped provide an optimally balanced hand of softness, slickness and smoothness with dry and cool feel, as well as a reasonable level of hydrophilicity for absorbency.

In tests, Magnasoft OPS textile softener generally possessed excellent shear stability over a wide bath pH range (4-10), at high bath temperature (up to 60 °C) in the presence of salts. These test results indicated that Magnasoft OPS textile softener may be considered for use in most textile finishing methods including padding, exhaustion and spray.

Optimal dosage levels of Magnasoft OPS textile softener depend on the type of fabric level of softness required, but 10-50 g is recommended as a typical starting point.

Performance Data

Table 1: Softness by Hand-Panel Rating

Fabric: Cotton/Spandex Jersey	Hand-Panel Rating					Test Conditions
	Panelist A	Panelist B	Panelist C	Panelist D	Average	
Magnasoft OPS textile softener	4.5	4.5	4.0	4.5	4.4	Dosage for cost-performance at same cost
Amino silicone micro-emulsion	3.75	4.0	3.75	4.0	3.9	Padding → Dry at 150 °C x 2 min
Benchmark A	3.5	3.75	3.75	3.75	3.7	Rating softness by hand panel (5-best, 2-worst)
Benchmark B	4.0	4.25	4.0	4.25	4.1	
Untreated	2.0	2.0	2.0	2.0	2.0	

Fabric: Cotton/Single Jersey	Hand-Panel Rating					Test Conditions
	Panelist A	Panelist B	Panelist C	Panelist D	Average	
Magnasoft OPS textile softener	4.5	4.5	4.5	4.25	4.4	Dosage for cost-performance at same cost
Amino silicone micro-emulsion	4.25	4.0	4.0	4.5	4.2	Padding → Dry at 130 °C x 2.5 min Cure at 160 °C x 1 min
Benchmark A	3.75	3.5	3.75	3.75	3.7	
Benchmark B	4.0	3.75	4.25	4.0	4.0	Rating softness by hand panel (5-best, 2-worst)
Untreated	2.0	2.0	2.0	2.0	2.0	

Note: Test data. Actual results may vary.

Panelist's Comments: The hand of the amino silicone micro-emulsion is slippery and greasy while Magnasoft OPS textile softener provided an excellent, silky touch with a dry/cool feel that was attractive.

Table 2: Hydrophilicity by AATCC Test Method 79-1995

Fabric: Cotton/Spandex Jersey	Wettability using Water (seconds)	Test Conditions
Magnasoft OPS textile softener	9.4	Dosage for cost-performance at same cost
Amino silicone micro-emulsion	28.5	Padding → Dry at 150 °C x 2 min
Benchmark A	5.3	
Benchmark B	49.5	Hydrophilicity measured by water drop (AATCC 79-1995)
Untreated	<1	

Note: Test data. Actual results may vary.

Table 3: Fabric Whiteness

Fabric: Cotton/Single Jersey	Whiteness Index		Test Conditions
	130 °C x 2.5 min only	130 °C x 2.5 min → 160 °C x 1 min	
Magnasoft OPS textile softener	71.52	71.03	Padding → Dry at 130 °C x 2.5 min
Amino silicone micro-emulsion	69.9	69.4	Padding → Dry at 130 °C x 2.5 min → Cure at 160 °C x 1 min
Benchmark A	72.46	71.34	Measuring the fabric whiteness: The higher index number, the whiter the fabric
Benchmark B	71.2	71.0	
Untreated (water only)	71.49	70.9	

Note: Test data. Actual results may vary.

Table 4: Shear Stability under Alkaline Bath Conditions

Product	Oil Droplet Observed		Test Conditions
	Bath pH 8.5	Bath pH 10	
Magnasoft OPS textile softener	None	None	Adjusted bath pH with 10% caustic soda solution
Amino silicone micro-emulsion	Seriously	Seriously	Dosed 50g/l of each softener in the alkaline bath
Benchmark A	None	None	Sheared at 1,500 rpm at room temperature for 60 min
Benchmark B	Much	Much	Observed oil droplet on bath surface and in the bath

Note: Test data. Actual results may vary.

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+40 213 044229

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800 820 0202
+86 21 3860 4892

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0120 975 400
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