Technical Data Sheet

Magnasoft™ JSS Hydrophilic Textile Enhancer

Magnasoft* JSS

Description

Magnasoft JSS hydrophilic textile enhancer is a new product that possesses outstanding stability under alkaline conditions and at the high temperatures under which conventional aminosilicone emulsions separate and cause silicone spots. At lower levels than other products, Magnasoft JSS hydrophilic textile enhancer delivers a soft, silky, full hand feel and a hydrophilic property to various fabrics.

Magnasoft JSS hydrophilic textile enhancer can be applied to a variety of fabrics to deliver outstanding softness with very little yellowing, compared to conventional amino silicones.

Dilutions of Magnasoft JSS hydrophilic textile enhancer are extremely shear stable, even at the highly alkaline pH of 14 and at the high temperature of 100°C. Furthermore, its dilutions remain stable in conditions that are often encountered in dyehouses (high temperature baths).

Key Features and Benefits

- Standard hydrophilic finish
- Silicone softness with virtually no yellowing
- For all types of cotton and synthetic fabrics
- A semi-durable, hydrophilic performance
- Excellent pH and shear stability
- Easy-to-handle liquid that is dilutable in water with minimal stirring
- Compatibility with most fi nishing additives
- Compatibility with soil release fl uorocarbon fi nishes

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- Can be readily stripped off of fabric

Typical Physical Properties

Appearance	Clear straw fluid
Viscosity (at 25°C, cPs)	5000
Amine Content, %	0.57
pH (1% at 25°C)	9
Solids Content, %	83

Potential Applications

Magnasoft JSS hydrophilic textile enhancer is a premium enhancer for all types of fabrics: cotton, synthetics and cotton/synthetic blends. Magnasoft JSS hydrophilic textile enhancer can be used effectively on wrinkle-free garments that are treated with DP resin and fluorocarbon soil release finishes.

Magnasoft JSS hydrophilic textile enhancer is normally applied as a water dilution, blended into the treatment bath formulation. The water dilutions of Magnasoft JSS hydrophilic textile enhancer have excellent shear stability at high alkaline conditions and high temperatures. Therefore, it is an excellent material of choice and can be used for applications where normal emulsified softeners do not show adequate shear stability. Magnasoft JSS hydrophilic textile enhancer and its dilutions are very stable over a wide pH environment (3–14 pH). Alternative products that require standard emulsifications may not tolerate these same pH extremes.

How to Apply

Magnasoft JSS hydrophilic textile enhancer can be used as received or prediluted simply with water before applying. The optimum treatment will depend on the required softness of the fabric or yarn after dyeing and rinsing. In order to obtain the optimum performance of Magnasoft JSS hydrophilic textile enhancer, it is strongly recommended that the bath be acidified to pH 4-5 with acetic acid as shown in the examples below.

1. Pad-Dry-Cure Process

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Dosage	3–5 g/l (light fabric) — 4–6 g/l (heavy fabric)
pH	4-5 (adjusted with acetic acid)
Temperature	20-40ºC
Pick-Up	65-100%
Drying	100-130°C for 1-2 minutes
Curing	150-180°C for 1-3 minutes

2. Exhaustion Process

Dosage	0.3–1.0% on the weight of fabric
Liquor Ratio	1/10–1/20
pH 4–5	(adjusted with acetic acid)
Temperature	30–50°C
Time	20–30 minutes
Drying	100–130°C

3. Garment Washing Process

Dosage	0.3–1.0% on the weight of garment
Conditions Same	as exhaustion process

Dilution Preparation

Magnasoft JSS hydrophilic textile enhancer can be used as received or diluted to any active level. The preferred range is 5.0 to 30.0% Magnasoft JSS hydrophilic textile enhancer according to thefollowing procedures:

Processing Recommendations

Formulations	#1	#2	#3	#4
Magnasoft JSS hydrophilic textile enhancer (%)	5	10	20	30
Alcohol Ethoxylated–15E0	–	~0.3	~1.0	~1.0
Biocide (%)	(a)	(a)	(a)	(a)
Water	to 100%	to 100%	to 100%	to 100%

1. Charge water and surfactant into mixing vessel, stir at 400 rpm until surfactant is completely dissolved.
2. Add Magnasoft JSS hydrophilic textile enhancer slowly under stirring and continue to stir for 5 minutes.
3. Add biocide[(a)] if needed. Mix for an additional 10 minutes.
4. Filter to a container.

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(a) Biocides must be used in accordance with FIFRA regulations and manufacturer's label directions.

The softness rating discussed in these and subsequent charts is based on a scale of 1 to 8, where 8 is the softest. The wettability (or hydrophilic) rating is measured in seconds.The whiteness rating compares the percent reflectance after treatment with our textile softener to the percent reflectance of a white standard, or

Table 1: Magnasoft JSS Hydrophilic Textile Enhancer vs. Competitive Softener at Various Add-On Levels on Cotton Knit Fabric

Magnasoft JSS Hydrophilic Textile Enhancer	Softness Rating	Softness Rating	Competitive Product
0.3% ----->	5.7	5.6 <-----	0.5%
0.5% ----->	6.5	6.0 <-----	1.0%
1.0% ----->	7.0	7.0 <-----	2.0%

Table 2: Magnasoft JSS Hydrophilic Textile Enhancer vs. Other Hydrophilic Softeners (1% BOWF)

Hydrophilic Softner	Softness Rating	Wettability (sec.) (AATCC Test Protocol 79-1995)	Whiteness ((AATCC Test Method 110-1995)
Magnasoft JSS hydrophilic textile enhancer	7.5	5-8	75-85
Magnasoft HSSD hydrophilic textile softener	4.5	0-1	70
Control	1	0-1	81

The data presented in the tables below demonstrate excellent softness, good wettability, and little or no yellowing of various fabrics treated with Magnasoft JSS hydrophilic textile enhancer.

Table 3: Magnasoft JSS Hydrophilic Textile Enhancer Performance on 100% Cotton Terrycloth

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Add-on (% BOWF)	Softness Rating	Wettability (sec.) (AATCC Test Protocol 79-1995)	Whiteness (AATCC Test Method 110-1995)
0.3	5.7	33	76.7
0.5	6.0	20	77.5
0.7	6.4	15	80.0
1.0	6.5	13	80.1
Control	1	<0.2	80.9

Table 4: Magnasoft JSS Hydrophilic Textile Enhancer Performance on 100% Cotton Knits

Add-on (% BOWF)	Softness Rating	Wettability (sec.) (AATCC Test Protocol 79-1995)	Whiteness (AATCC Test Method 110-1995)
0.3	6.1	28	67.8
0.5	6.4	35	68.4
0.7	6.5	19	68.4
1.0	6.8	20	67.4
Control	1.8	1	72

Table 5: Magnasoft JSS Hydrophilic Textile Enhancer Performance on 100% Cotton Print Cloth

Add-on (% BOWF)	Softness Rating	Wettability (sec.) (AATCC Test Protocol 79-1995)	Whiteness (AATCC Test Method 110-1995)
0.3	4.8	8	86.1
0.5	5.3	8	86.3
0.7	5.8	5	85.1
1.0	6.3	4	85.3
Control	1	<0.2	86

Table 6: Magnasoft JSS Hydrophilic Textile Enhancer Performance on 100% Cotton Twill Cloth

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Add-on (% BOWF)	Softness Rating	Wettability (sec.) (AATCC Test Protocol 79-1995)	Whiteness (AATCC Test Method 110-1995)
0.3	5.6	13	73.8
0.5	6.0	13	73.0
0.7	6.2	14	72.9
1.0	6.5	12	72.5
Control	1	<0.2	74.2

Table 7: Magnasoft JSS Hydrophilic Textile Enhancer Performance on 63/35 Polyester/Cotton Print Cloth

Add-on (% BOWF)	Softness Rating	Wettability (sec.) (AATCC Test Protocol 79-1995)	Whiteness (AATCC Test Method 110-1995)
0.3	6.3	32	91.4
0.5	6.5	10	91.7
0.7	6.6	6	91.9
1.0	7.0	5	92.0
Control	2	41	88.2

Stripping

Formulation for cotton fabric

- 2–5 g/1 NaOH
- 2–3 g/1 SDBS (Sodium Dodecyl Benzene Sulfonate, 30%)
- Water

Formulation for polyester fabric

- 2–5 g/1 Na2CO3
- 2–3 g/1 AE–15 (Alcohol ethoxylated–15 EO)

Procedure for stripping off

- Charge fabric and water into machine
- Add NaOH and SDBS for cotton fabric or Na2CO3 and AE–15 for polyester fabric
- Heat to 100°C and continue to boil for 60 minutes
- Cool down to about 60°C and neutralize with acetic acid to pH 5–6
- Rinse fabric with water

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Comparison between Stripping Magnasoft JSS Hydrophilic Textile Enhancer and Conventional Aminosilicone

Conditions	Fabric Treatment	Oil Spots	Wetting Time (sec.) after Stripping
NaOH: 2 g/l SDBS: 2 g/l Boiling at 100°C for 60 minutes	Cotton Woven with Magnasoft JSS hydrophilic textile enhancer	No	~2
	Cotton Woven with conventional aminosilicone	Yes	>180
	Untreated Cotton Woven	No	~2
	Cotton Knit with Magnasoft JSS hydrophilic textile enhancer	No	11.5
	Cotton Knit with Conventional aminosilicone	Yes	&>180
	Untreated Cotton Knit	No	1.5

Patent Status
Standard copy to come

Product Safety, Handling and Storage
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Limitations
Standard copy to come

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