

Magnasoft* Prime

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Description

Magnasoft Prime textile softener is designed to provide a soft, silky and full hand with a hydrophilic finish (to all types of fabrics) at lower use levels than other products. The excellent softening properties of this patent-pending product are durable.

Applied to a wide variety of fabrics, Magnasoft Prime textile softener is extremely low yellowing compared to conventional amino silicones. Magnasoft Prime textile softener is a linear copolymer with a random AB block structure.

Key Features and Benefits

The primary features and benefits of Magnasoft Prime textile softener:

- Amazing silicone softness with virtually no yellowing
- Can be used on all types of cotton and synthetic fabrics
- Imparts a durable, hydrophilic performance to all fabric types
- Excellent pH and shear stability
- Easy to handle liquid that is dilutable in water with minimal stirring
- Compatible with fluorocarbon finishes
- Can be applied by pad bath and spray

Typical Physical Properties

Appearance	Clear to hazy yellow fluid
Viscosity	20,000 cPs maximum
% Amine	0.60

Potential Applications

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

Magnasoft Prime textile softener is normally applied as a water dilution, blended into the treatment bath formulation. The water dilutions of Magnasoft Prime textile softener have excellent shear stability. Therefore, it can be used for applications in which normal emulsified softeners do not show adequate shear stability (such as in EVAC systems). Magnasoft Prime textile softener and its dilutions are very stable over a wide pH environment (3-9 pH), while alternative products that require standard emulsifications (unlike Magnasoft Prime textile softener) may not tolerate these same pH extremes.

Dilution Preparation

Magnasoft Prime textile softener can be diluted to any active level. The preferred range is 5.0 to 30.0% solids according to the following procedure:

1. Charge the water into mixing vessel, start stirring at 400 rpm and slowly add the Magnasoft Prime textile softener.
2. Once the Magnasoft Prime textile softener has been added, add a biocide if needed, and mix for an additional 10 minutes.

The resulting dilution is a very stable dispersion.

Processing Recommendations

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 control.

The data presented below demonstrate excellent softness, good wettability and no yellowing of various fabrics treated with Magnasoft Prime textile softener.

Table 1: Magnasoft Prime Textile Softener vs. Competitive Softener at Various Add-On

Levels

Magnasoft Prime Textile Softener	Softness Rating	Softness Rating	Competitive Product
0.3% ----->	5.7	5.75 <-----	0.5%
0.5% ----->	6.5	6.0 <-----	1.0%
1.0% ----->	7.0	7.0 <-----	2.0%

Table 2: Magnasoft Prime Textile Softener vs. Other Hydrophilic Softeners (2% BOWF)

	Softness	Wettability (sec.) (AATCC Test Protocol 79-1995)	Whiteness (AATCC Test Method 110-1995)
Magnasoft Prime Textile Softener	7.5	11-12	75-80
Magnasoft HSSD Textile Softener	4.5	0-1	70
Control	1	0-1	81

Table 3: Magnasoft Prime Textile Softener Performance on 100% Cotton Terrycloth

Add-on (% BOWF)	Softness	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
1.5	7.4	16	79.1
2.0	7.4	12	79.6
Control	1	<0.2	80.9

Table 4: Magnasoft Prime Textile Softener Performance on 100% Cotton Knits

Add-on (% BOWF)	Softness	Wettability (sec.) (AATCC Test Protocol 79-1995)	Whiteness (AATCC Test Method 110-1995)
0.3	6.1	28	67.7
0.5	6.4	35	68.4
0.7	6.5	19	68.4
1.0	6.8	20	67.4
1.5	7.2	22	68.0
2.0	7.3	20	67.9
Control	1.8	1	72

Table 5: Magnasoft Prime Textile Softener Performance on 100% Cotton Print Cloth

Add-on (% BOWF)	Softness	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
1.5	7.0	3	85.2
2.0	7.0	3	85.4
Control	1	<0.2	86

Table 6: Magnasoft Prime Textile Softener Performance on 100% Cotton Terrycloth

Add-on (% BOWF)	Softness	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
1.5	6.8	12	72.0
2.0	7	12	71.6
Control	1	<0.2	74.2

Table 7: Magnasoft Prime Textile Softener Performance on 63/35 Polyester/Cotton Print Cloth

Add-on (% BOWF)	Softness	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
1.5	7.4	4	91.9
2.0	7.5	3	91.5
Control	2	41	88.2

Formulations

On this page and on page 5, we provide four starting point formulations based on our Magnasoft textile softeners, using widely available textile auxiliaries.

STARTING FORMULATION	A	B	C
Magnasoft Prime Textile Softener, %	5	5	5
Magnasoft TLC Hydrophilic Softener, %	1	2	2
Surfactant, %	16	10	7
PE Wax Emulsion, 20% NI, %	0	24	24
DPG or PEG 400, %	0	0	3
Water, %	78	59	59

PE wax emulsion, 20% NI Polyethylene wax emulsion 20% solids, non-ionic

DGP DiPropylene glycol

PEG 400 Polyethylene glycol / 400 molecular weight

Method of Preparation for Starting Formulations A, B and C

1. Heat the water to 40-45°C and add, with slow stirring, surfactant. Mix until fully homogeneous.
2. Cool to ambient temperature. Add, with stirring, Magnasoft Prime textile softener, Magnasoft TLC hydrophilic softener, DPG or PEG 400. Add the polyethylene wax emulsion last.
3. Mix at a speed that produces a small vortex for 15 minutes or until the blend is fully homogeneous.
4. Drum off through a 200 micron filter to remove any extraneous matter.

Cotton toweling treated with Formulation A was soft and hydrophilic (water drop penetrated in 3-4 seconds).

Cotton towelling treated with Formulation B was soft, had improved surface slickness and was equally hydrophilic.

Cotton towelling treated with Formulation C was soft, slick, had improved bulky feel and was equally hydrophilic.

STARTING FORMULATION	D
Magnasoft Prime Textile Softener, %	4
Magnasoft TLC Hydrophilic Softener, %	4
Magnasoft SRS Textile Softener, %	12
DPG or PEG 400, %	5
Water, %	75
Biocide	as appropriate

Method of Preparation for Starting Formulation D

1. Charge the water and slowly add Magnasoft TLC hydrophilic softener with mild stirring at ambient temperature.
2. When fully dispersed, slowly add Magnasoft Prime textile softener with mild stirring at ambient temperature.
3. Increase the mixing speed to produce a small vortex, and slowly add Magnasoft SRS textile softener, followed by DPG or PEG 400 and biocide.
4. Mix for 15 minutes or until fully homogeneous.
5. Drum off through a 200 micron filter to remove any extraneous matter

Cotton towelling treated with the above formulation was very soft and slick and exhibited almost instantaneous hydrophilicity.

Elastomeric Formulation

There is interest in textile softeners that provide an “elastomeric finish”. This gives a hand that is drier than that of a typical amino, but that is more silky and slippery.

Magnasoft Prime textile softener can fully crosslink to give a soft, hydrophilic and elastomeric finish.

If the formulation described below is placed in a glass dish and heated to the typical dry/cure conditions, the remainder is a totally tack-free film that can be peeled. Towels treated with this elastomeric formulation feel bulkier and more luxurious.

Table 8:

STARTING FORMULATION	Elastomeric Formulation
Magnasoft Prime Textile Softener	5
Magnasoft SRS Textile Softener	10
Magnasoft HWS Hydrophilic Softener	2
Tyzor TE	0.62
Water	82.38

Table 9: Table Summarizes the Properties of Magnasoft Prime Textile Softener and Magnasoft SRS Textile Softener

	Magnasoft SRS Textile Softener	Magnasoft Prime Textile Softener
Softness on Natural Fibers	++++	+++++
Softness on Synthetics and Wool	+++++	+++
Hydrophilicity	++	++++
Shear Stability of Dispersions	+++++	+++++
Fabric Yellowing	Almost None	Almost None
Odor	None	Surfactant Type
Overdyeable	Yes	Yes
pH Stability	+++++	++++
Water Dispersibility	Easy	Easy

Patent Status

Standard copy to come

Product Safety, Handling and Storage

Standard copy to come

Limitations

Standard copy to come

Contact Information

For product prices, availability, or order placement, contact our customer service at [Momentive.com/CustomerService/](https://www.momentive.com/CustomerService/)

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