

# MAGNASOFT\* CJS

## textile enhancer

SPECIALTY FLUIDS - TEXTILES & LEATHER



Momentive Performance Materials introduces new Magnasoft CJS textile enhancer, enriching our well-known product line that includes Magnasoft SRS textile softener and Magnasoft DerMa NT textile enhancer, and addressing the needs of the industry. Textile mills expect an array of benefits from their softeners, including softness, quick water absorption, color and/or shade protection and easy processability for mass textile finishing – and all of these are required at the lowest possible cost.

Magnasoft CJS textile enhancer is a virtually 100% active, linear [ABn high molecular weight silicone copolymer that is an excellent candidate to consider for providing a luxuriously smooth and silky softness, with dry feel, to virtually all types of cellulosic, regenerated cellulosic and cellulosic blends of fabrics / garments. It also can help provide excellent hydrophilicity. In addition, unlike conventional

silicone softeners, it can help retain natural cotton feel on cotton knits and sheets. Due to its high copolymer actives content, Magnasoft CJS textile enhancer must be emulsified before use. Emulsification can be easily achieved with simple mixers and commonly available emulsifiers.

Emulsions of Magnasoft CJS textile enhancer have exhibited good shear stability at extremes of pH and temperature in tests conducted in our laboratories. Such results indicate that Magnasoft CJS textile enhancer may be applied onto fabrics using most types of finishing equipment, including exhaustion, high-speed padding, jet finishing, kiss-roll, spraying and others.

### Key Features and Typical Benefits

- helps provide smooth, silky, rich and in-depth softness with dry/cool feel on virtually all types of cellulosic fabrics
- helps preserve natural feel on cotton knits and sheets
- due to excellent exhaustibility and affinity with cellulosic fibers, helps provide unusually softness effect, at low use levels
- minimal impact on the hydrophilic nature of cotton and cotton blends; typically provides quick absorption
- potentially improved economics due to its highly concentrated nature
- easily emulsified by using simple mixing devices and procedure and typically generates emulsions that possess high shear and pH stability (acid & alkaline)
- virtually no yellowing of white and light shade fabrics
- typically does not affect the shade of dark color fabrics
- may be compatible in typical finishing bath

### Typical Physical Properties

Property	Unit	Value
Appearance	–	Clear to hazy yellow liquid
Viscosity at 25°C	Cps	20,000
Density at 25°C	g/cm <sup>-3</sup>	0.99
Flash Point (ASTM D93)	°C	79

The data values for typical physical properties should not be used as specifications, which are available by contacting Momentive Performance Materials.

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### Potential Applications

Magnasoft CJS textile enhancer is an excellent softener to consider for the delivery of a wide range of advantages to virtually all types of cellulose fabrics. It can be particularly effective on cotton knits, cotton bed sheets and enzyme-treated cotton goods where it can help provide smooth, silky, and in-depth softness with dry/cool feel as well as quick absorption, in addition to the typical silicone softener effects.

Magnasoft CJS textile enhancer is usually applied as a water emulsion. Because of its polar nature, Magnasoft CJS textile enhancer can be easily dispersed in water using emulsifiers in simple mixing devices and containers widely available throughout the industry. There is usually no need for homogenization or colloid milling to emulsify Magnasoft CJS textile enhancer. Table 1, on page 3, shows a sample formulation and procedure to prepare 10% and 70% silicone actives emulsion of Magnasoft CJS textile enhancer.

In tests conducted in our laboratories, emulsions of Magnasoft CJS textile enhancer generally possessed extraordinary shear stability over a wide pH range (3~12), at high temperatures and in the presence of salts. These test results indicate that Magnasoft CJS textile enhancer may be applied under very demanding conditions, such as the high-speed continuous pad-bath finishing, jet finishing, foam and spraying finishing processes typically used for mass textile finishing, which may lead to potentially considerable costs savings for textile mills.

Optimal dose levels of Magnasoft CJS textile enhancer depend on the type of fabric and level of softness required, but 20~50g/lit of 10% silicone actives emulsion is typically recommended as a starting point. In the textile finishing process, an acidic textile finishing bath is most desirable because the softness imparted by Magnasoft CJS textile enhancer is generally maximized at a bath pH of 4.5~5.5.

Magnasoft CJS textile enhancer may be combined, blended or formulated with a broad range of cationic and/or nonionic textile auxiliaries, as well as with other silicone materials, to help provide differentiated finished fabric performance. Generally, these include organic quats, amphoteric (botanics) or imidazolines, alkylolamine ester, fatty acid amide, ethoxylated/propoxylated surfactants, polyethylene wax emulsions, starch, other water soluble or emulsifiable polymers, amino silicones, amino/polyether silicones or other silicone emulsions. Such formulations may be developed for use in specific applications such as textile finishing, spin finishes, thread lubrication, etc.

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## Performance Data

**Table 1: Sample Formulations for Magnasoft CJS Emulsions**

Magnasoft CJS textile enhancer can be easily emulsified in simple mixing devices and containers widely available throughout the industry. There is usually no need for homogenization or colloid milling to emulsify Magnasoft CJS textile enhancer.

Ingredients	10% Silicone Active Formulation [% wt]	70% Silicone Active Formulation [% wt]	
		Formulation A	Formulation B
Magnasoft CJS textile enhancer	10.0	70.0	70.0
Tridecyl Alcohol 6EO Ethoxylate	2.3	2.24	-
Tridecyl Alcohol 10EO Ethoxylate	-	-	14.0
Tridecyl Alcohol 12EO Ethoxylate	1.7	11.76	-
Butyl Carbitol	1.5	10.0	10
Acetic Acid	0.2	-	-
Sodium Acetate	0.1	-	-
Water	84.2	6.0	6.0
Biocide	Per manufacturer's label	Per manufacturer's label	Per manufacturer's label

### Procedure for 10% Actives Formulation

1. Charge Magnasoft CJS textile enhancer, TDA+EO emulsifiers and butyl carbitol. Mix well till fully homogeneous.
2. Dissolve acetic acid, sodium acetate and biocide in water.
3. Slowly add the water solution to silicone/emulsifiers blend while mixing. Avoid stirring too much air into the mixture.
4. Filter into the containers.



*10% actives emulsion of Magnasoft CJS textile enhancer*

### Procedure for 70% Actives Formulation

1. Charge Magnasoft CJS textile enhancer, TDA+EO emulsifiers and butyl carbitol. Mix well till fully homogeneous.
2. Slowly add the water to silicone/emulsifiers blend while mixing. Avoid stirring too much air into the mixture.
3. Filter into the containers.



*70% actives emulsion of Magnasoft CJS textile enhancer*

Note: Test results. Actual results may vary.

Product formulations are included as illustrative examples only. Momentive makes no representation or warranty of any kind with respect to any such formulations, including, without limitation, concerning the efficacy or safety of any product manufactured using such formulations.

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## Performance Data (continued)

**Table 2: Electrolyte Compatibility**

### Electrolyte Compatibility



After 5 days  
at room temperature



After 5 days  
at 50°C

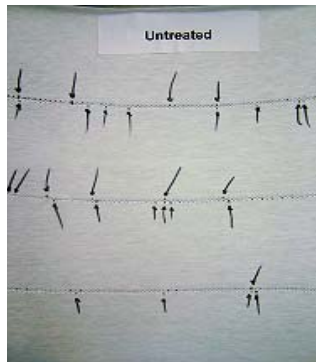
#### Test Condition:

- mix 100g/L of 10% actives Magnasoft CJS textile enhancer based emulsion with 40g/L of MgCl<sub>2</sub>.
- observe compatibility after 5 days storage at room temperature and 50°C respectively.

Note: Test results. Actual results may vary.

**Table 3: Sewing-Ability (30g/L of 10% actives Magnasoft CJS emulsion on Cotton Knits)**

### Sewing-Ability



No needle hole was observed on cotton knits treated with Magnasoft CJS textile enhancer



Note: Test results. Actual results may vary.

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### Performance Data (continued)

**Table 4: Color Thermo-Migration of Dyed Fabric**

Thermo-Migration	Color Change (%)		
	Polyester/Cotton blended woven	100% Polyester woven (Red)	100% Polyester woven (Green)
Fabric treated with Magnasoft CJS textile enhancer	1.2%	6.0%	4.5%
Fabric treated with benchmark of hydrophilic softener	4.4%	11.0%	5.0%

*Test Conditions:*

- apply fabrics with Magnasoft CJS textile enhancer and the benchmark
- cure the fabrics at 190°C x 1 min.
- measure the color change

Note: Test results. Actual results may vary.

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### Patent Status

Technical subject matter in this publication is described and protected by one or more of the following U.S. Patents and their foreign counterpart patents and/or patent applications: U.S. Patent No. 6,475,568. Other U.S. and foreign patents and/or patent applications not listed covering the subject matter may be relevant.

### Product Safety, Handling and Storage

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