

# Magnasoft<sup>\*</sup> Plus<sup>\*</sup>

textile softener

## Product Description

Magnasoft Plus textile softener is a specially engineered, low-amino-containing, silicone fluid designed to maximize the soft, silky, full handle desired from conventional amino-modified silicone fluids but with significantly less yellowing.

Emulsions prepared from Magnasoft Plus textile softener fluid impart superior softness compared to conventional silicones when applied to 100% cotton knits and wovens, polyester/cotton blends, rayon, prints, and a variety of other fabrics, with and without durable press resin.

## Typical Physical Properties

Form	Liquid
Color	Water white
Percent Actives	100
Viscosity at 25°C, cSt	4000
Specific Gravity, 25/25°C	0.97
Flash Point, Pensky-Martens Closed Cup, °C (°F)	>66 (>150)

Momentive Performance Materials provides versatile materials as the starting point for our creative approach to ideas that help enable new developments across hundreds of industrial and consumer applications. We are helping customers

solve product, process, and performance problems; our silanes, fluids, elastomers, sealants, resins, adhesives, urethane additives, and other specialty products are delivering innovation in everything from car engines to biomedical devices.

From helping to develop safer tires and keeping electronics cooler, to improving the feel of lipstick and ensuring the reliability of adhesives, our technologies and enabling solutions are at the frontline of innovation.



## Magnasoft\* Plus\* textile softener

### Performance

#### Whiteness

The following are examples of the superior low-yellowing performance of Magnasoft Plus textile softener fluid relative to competitive aminosilicones on 100% cotton printcloth, 65/35 = polyester/cotton, 100% rayon and 100% cotton knit fabrics, both initially and after accelerated scorching. Magnasoft Plus textile softener fluid exhibited superior softness on all fabrics.

### Non-Yellowing Performance of Magnasoft Plus Textile Softener Fluid vs Competitive Aminosilicone Emulsion

Pad Bath Composition	Parts by Weight		
	1	2	3
DMDHEU Resin (38%)	15.00	15.00	15.00
Mg Cl <sub>2</sub> •6HOH Resin Catalyst (64%)	2.25	2.25	2.25
Competitive Aminosilicone Emulsion (20%)	—	5.00	—
Magnasoft Plus Emulsion (40%)	—	—	2.50
Water	82.75	77.75	80.25
Silicone Solids Add-on (100% wet pick-up), %	—	1.0	1.0
Dry/Cure at 171°C (340°F), min	1.5	1.5	1.5
	Scorched, 200°C		
Reflectance Data <sup>(1)</sup>	Initial	50 sec	100 sec
100% Cotton Printcloth			
Resin Only	74	58	46
Competitive Aminosilicone	58	38	30
Magnasoft Plus Textile Softener	70	54	41
65/35 = Polyester/Cotton Broadcloth			
Resin Only	74	66	57
Competitive Aminosilicone	58	47	38
Magnasoft Plus Textile Softener	69	60	55

(1) Reflectance was determined with a "Colorquest" Spectrocolorimeter; higher values indicate whiter fabrics

## Magnasoft\* Plus\* textile softener

### Performance (continued)

#### Softness and Whiteness

The data presented below demonstrate the superior softness and whiteness provided by Magnasoft Plus textile softener fluid compared to competitive silicone emulsions on a variety of fabrics.

### Softness/Whiteness of Fabrics Treated with Magnasoft Plus Textile Softener Fluid vs Competitive Silicone Emulsions

#### 100% Cotton Knit, Style 459

Model Formulation		Parts by Weight	
Silicone Emulsion (35%)		3.36	
Distilled Water		96.64	
Wet Pick-up, wt %		85	
Silicone Solids on Fabric, wt %		1.0	
Dry/Cure at 171°C (340°F), min		2	
Performance	Competitive Emulsion #1	Magnasoft Plus Textile Softener Fluid	Water Only
Softness Ranking <sup>(1)</sup>	4	1	10
Whiteness <sup>(2)</sup>			
Initial	74	74	73
100 sec at 200°C (392°F)	46	50	58

(1) 1 = Softest, 10 = Harshesht

(2) "Colorquest" Spectrocolorimeter; higher values indicate whiter fabrics

#### 100% Cotton Knit, Style 459

Model Formulation		Parts by Weight	
Silicone Emulsion (20%)		5.88	
Water		94.12	
Wet Pick-up, wt %		85	
Silicone Solids on Fabric, wt %		1.0	
Dry/Cure at 171°C (340°F), min		2	
Performance	Competitive Emulsion #1	Magnasoft Plus Softener Fluid	Textile Water Only
Softness Ranking <sup>(1)</sup>	3	1	10
Whiteness <sup>(2)</sup>			
Initial	77	78	74
100 sec at 200°C (392°F)	41	45	45

(1) 1 = Softest, 10 = Harshesht

(2) "Colorquest" Spectrocolorimeter; higher values indicate whiter fabrics

## Magnasoft\* Plus\* textile softener

### Performance (continued)

65/35 = Polyester/Cotton Broadcloth and 100% Cotton Printcloth

Model Formulation		Parts by Weight	
DMDHEU Resin (38%)		15.00	
MgCl <sub>2</sub> •6HOH Catalyst (64%)		2.25	
Silicone Emulsion (20%)		5.88	
Water		76.87	
Wet Pick-up, wt %		85	
Silicone Solids on Fabric, wt %		1.0	
Dry/Cure at 171°C (340°F), min		1.5	
Performance	Competitive Emulsion #1	Magnasoft Plus Textile Softener Fluid	Water Only
Softness Ranking <sup>(1)</sup>			
65/35 = PE/C Broadcloth <sup>(2)</sup>	3	1	5
100% Cotton Printcloth <sup>(3)</sup>	2	1	5
Whiteness <sup>(4)</sup>			
65/35 = PE/C Broadcloth			
Initial	73	74	78
100 sec at 200°C (392°F)	60	62	67
100% Cotton Printcloth			
Initial	73	73	78
100 sec at 200°C (392°F)	53	53	57

(1) 1 = Softest, 5 = Harshesht

(2) Style 7409

(3) Style 400M

(4) "Colorquest" Spectrocolorimeter; higher values indicate whiter fabrics

### 100% Rayon Woven

Model Formulation		Parts by Weight	
DMDHEU Resin (38%)		15.00	
MgCl <sub>2</sub> •6HOH Catalyst (64%)		2.25	
Silicone Emulsion (20%)		5.88	
Water		76.87	
Wet Pick-up, wt %		85	
Dry/Cure Cycle			
Dry at 250°F, min		4	
Cure at 325°F, min		1.5	
Silicone Solids Add-on, %		1.0	
Softness Ranking <sup>(1)</sup>			
Magnasoft Plus Textile Softener Fluid		1	
Competitive Silicone Emulsion #2		3	
Untreated Control		10	

(1) 1 = Softest, 10 = Harshesht

## Magnasoft\* Plus\* textile softener

### Preparation of Milky Emulsions

When it is desirable to formulate a proprietary emulsion based on Magnasoft Plus textile softener fluid, the following model formulations and emulsification procedure are suggested as starting points. Depending on available emulsification equipment, the formulations and procedure may need to be modified.

### Model Formulations

Ingredients	Weight Percent		
	A	B	C
Magnasoft Plus Textile Softener Fluid	20.0	20.0	30.0
"Tergitol" Surfactant TMN-6 <sup>(1)</sup>	3.0	4.0	3.3
"Tergitol" Surfactant 15-S-7 <sup>(1)</sup>	2.0	—	—
"Neodol" 91-6 <sup>(2)</sup>	—	—	2.1
Initial Water #1	4.0	4.0	7.5
Initial Water #2	4.0	4.0	—
Initial Water #3	10.0	10.0	—
Final Water	57.0	57.1	46.0
Sodium Acetate (10% solution)	—	0.5	0.5
Glacial Acetic Acid	—	0.4	0.6

(1) Dow Chemical

(2) Shell Chemical Company

### Emulsification Procedure

1. Charge Magnasoft Plus textile softener fluid and emulsifier(s) to a suitable vessel and mix at ~300 RPM for approximately two minutes.
2. Slowly add Water #1 and stir for 10 minutes.
3. Slowly add Water #2 and stir for 10 minutes.
4. Slowly add Water #3 (when present) and stir for 10 minutes.
5. Slowly add Final Water and stir for five minutes.
6. Slowly add Glacial Acetic Acid (when present) and stir for five minutes.
7. Slowly add Sodium Acetate solution (when present) and stir for five minutes.

## Magnasoft\* Plus\* textile softener

### Patent Status

Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute the permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of the patent.

### Product Safety, Handling and Storage

Customers considering the use of this product should review the latest Material Safety Data Sheet and label for product safety information, handling instructions, personal protective equipment if necessary, and any special storage conditions required. Material Safety Data Sheets are available at [www.momentive.com](http://www.momentive.com) or, upon request, from any Momentive Performance Materials representative. Use of other materials in conjunction with Momentive Performance Materials products (for example, primers) may require additional precautions. Please review and follow the safety information provided by the manufacturer of such other materials.

### Limitations

Customers must evaluate Momentive Performance Materials products and make their own determination as to fitness of use in their particular applications.

## Magnasoft\* Plus\* textile softener

### Emergency Service

---

Momentive Performance Materials maintains an around-the-clock emergency service for its products. The American Chemistry Council (CHEMTREC), Transport Canada (CANUTEC), and the Chemical Emergency Agency Service also maintain an around-the-clock emergency service for all chemical products:

Location	Momentive Performance Materials Products	All Chemical Products
Mainland U.S., Puerto Rico	518.233.2500	CHEMTREC: 800.424.9300
Alaska, Hawaii	518.233.2500	CHEMTREC: 800.424.9300
Canada	518.233.2500	CANUTEC: 613.996.6666 (collect) or CHEMTREC: 800.424.9300
Europe, Middle East, Africa	+32.(0)14.58.45.45 (Belgium)	CHEMTREC: +1-703.527.3887 (collect)
Latin America, Asia/Pacific, all other locations worldwide	+518.233.2500	CHEMTREC: +1-703.527.3887 (collect)
At sea	Radio U.S. Coast Guard, which can directly contact Momentive Performance Materials at 518.233.2500 or CHEMTREC at 800.424.9300.	

---

DO NOT WAIT. Phone if in doubt. You will be referred to a specialist for advice.

# Principal Locations

Regional Information	Phone	Fax
<b>North America</b>		
World Headquarters 187 Danbury Road Wilton, CT 06897, USA	800.295.2392	607.754.7517
<b>Latin America</b>		
Rodovia Eng. Constâncio Cintra, Km 78,5 Itatiba, SP – 13255-700 Brazil	+ 55.11.4534.9650	+ 55.11.4534.9660
<b>Europe, Middle East, Africa and India</b>		
Leverkusen Germany	00.800.4321.1000 + 31.164.293.276	+ 31.164.241750
<b>Pacific</b>		
Akasaka Park Building 5-2-20 Akasaka Minato-ku, Tokyo 107-6112 Japan	+ 81.3.5544.3100	+ 81.3.5544.3101
<b>Customer Service Centers</b>		
<b>North America</b>		
Charleston, WV 25314, USA E-mail: <a href="mailto:cs-na.silicones@momentive.com">cs-na.silicones@momentive.com</a>	<b>Specialty Fluids</b> 800.523.5862	304.746.1654
	<b>UA, Silanes, Resins, and Specialties</b> 800.334.4674	304.746.1623
	<b>RTV Products-Elastomers</b> 800.332.3390	304.746.1623
	<b>Sealants and Adhesives and Construction</b> 877.943.7325	304.746.1654
<b>Latin America</b>		
Argentina and Chile	+ 54.11.4862.9544	+ 54.11.4862.9544
Brazil	+ 55.11.4534.9650	+ 55.11.4534.9660
Mexico and Central America	+ 52.55.5899.5135	+ 52.55.5899.5138
Venezuela, Ecuador, Peru, Colombia, and Caribbean	+ 58.212.285.2149	+ 58.212.285.2149
E-mail: <a href="mailto:cs-la.silicones@momentive.com">cs-la.silicones@momentive.com</a>		
<b>Europe, Middle East, Africa and India</b>		
E-mail: <a href="mailto:cs-eur.silicones@momentive.com">cs-eur.silicones@momentive.com</a>	00.800.4321.1000 + 31.164.293.276	+ 31.164.241750
<b>Pacific</b>		
E-mail: <a href="mailto:cs-ap.silicones@momentive.com">cs-ap.silicones@momentive.com</a>		
Japan	+ 81.276.20.6182	
China	+ 86.21.5050.4666 (ext. 1523)	
Korea	+ 82.2.6201.4600	
Singapore	+ 65.6220.7022	
<b>Worldwide Hotline</b>	<b>800.295.2392</b>	<b>+ 607.786.8131</b>
<b>Worldwide Web</b>		<b>+ 607.786.8309</b> <a href="http://www.momentive.com">www.momentive.com</a>

THE MATERIALS, PRODUCTS AND SERVICES OF THE BUSINESSES MAKING UP MOMENTIVE PERFORMANCE MATERIALS INC., ITS SUBSIDIARIES AND AFFILIATES, ARE SOLD SUBJECT TO MOMENTIVE PERFORMANCE MATERIALS INC.'S STANDARD CONDITIONS OF SALE, WHICH ARE INCLUDED IN THE APPLICABLE DISTRIBUTOR OR OTHER SALES AGREEMENT, PRINTED ON THE BACK OF ORDER ACKNOWLEDGMENTS AND INVOICES, AND AVAILABLE UPON REQUEST. ALTHOUGH ANY INFORMATION, RECOMMENDATIONS, OR ADVICE CONTAINED HEREIN IS GIVEN IN GOOD FAITH, MOMENTIVE PERFORMANCE MATERIALS INC. MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, (i) THAT THE RESULTS DESCRIBED HEREIN WILL BE OBTAINED UNDER END-USE CONDITIONS, OR (ii) AS TO THE EFFECTIVENESS OR SAFETY OF ANY DESIGN INCORPORATING ITS PRODUCTS, MATERIALS, SERVICES, RECOMMENDATIONS OR ADVICE. EXCEPT AS PROVIDED IN MOMENTIVE PERFORMANCE MATERIALS INC. STANDARD CONDITIONS OF SALE, MOMENTIVE PERFORMANCE MATERIALS INC. BUSINESS AND ITS REPRESENTATIVES SHALL IN NO EVENT BE RESPONSIBLE FOR ANY LOSS RESULTING FROM ANY USE OF ITS MATERIALS, PRODUCTS OR SERVICES DESCRIBED HEREIN. Each user bears full responsibility for making its own determination as to the suitability of Momentive Performance Materials Inc.'s materials, services, recommendations, or advice for its own particular use. Each user must identify and perform all tests and analyses necessary to assure that its finished parts incorporating Momentive Performance Materials Inc.'s products, materials, or services will be safe and suitable for use under end-use conditions. Nothing in this or any other document, nor any oral recommendation or advice, shall be deemed to alter, vary, supersede, or waive any provision of Momentive Performance Materials Inc.'s Standard Conditions of Sale or this Disclaimer, unless any such modification is specifically agreed to in a writing signed by Momentive Performance Materials. No statement contained herein concerning a possible or suggested use of any material, product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right of Momentive Performance Materials Inc. or any of its subsidiaries or affiliates covering such use or design, or as a recommendation for the use of such material, product, service or design in the infringement of any patent or other intellectual property right.