

Product Data

Amino Modified Silicone Fluid TSF4703

TSF4703 is an amino modified silicone fluid developed for textile softener use. It can be easily emulsified to a stable micro emulsion, which gives durable softness and smoothness to cotton, blending cotton woven fabrics and knitted products.

KEY FEATURES

- ◆ Good affinity to fabrics
- ◆ Easy to formulate
- ◆ Imparts durable softness to many fabrics

APPLICATIONS

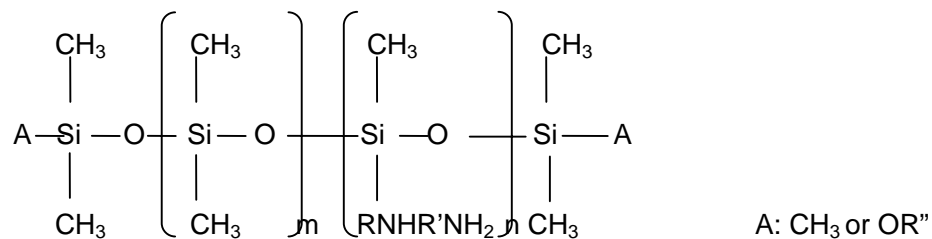
- ◆ Textile softener

TYPICAL PROPERTY DATA

PROPERTIES		
Appearance		Light yellow, transparent
Specific gravity (25°C)		0.98
Viscosity (25°C)	mPa.s {cP}	1,000 {1,000}
Refractive index (n_D^{25})		1.408
Amino equivalent	g/mol	1,600

Typical property data values should not be used as specifications.

CHEMICAL STRUCTURE



SOLUBILITY

Soluble	Toluene, Mineral sprits, Methyl ethyl ketone, Isopropanol, Dimethyl silicone fluid
Insoluble	Methyl cellosolve, Water, Liquid paraffin

EMULSIFICATION INSTRUCTIONS

- Blend the following ingredients using an overhead stirrer.

TSF4703 15.0 parts

DOBANOX 23E (Lion Corporation)* 7.5 parts

Ethylene glycol monobutyl ether 7.5 parts

* $C_{12-13}H_{25-27}O(CH_2CH_2O)_5H$ (HLB9.9)

- Slowly add 69.7 parts of ion exchanged with good agitation.

Note: if desired, biocides may be added in this step.

- Slowly add 0.3 parts of acetic acid. Agitate well for 5-10 minutes to insure homogeneity.

APPLICATION EXAMPLE AS A SOFTENER

TEST CONDITION

Treating bath	2% effective content (TSF4703+DOBANOX 23E) of above emulsion
Test fabrics	Cotton woven
Treating condition	Padding (pick up 100% for Cotton); Drying (130°C, 3min)
Evaluation of softness	Pure Bending Tester (KES-FB2: KATO TECH Co., LTD) Softness* ¹ : (B+2HB)/2 B: Bending rigidity (g-cm ² /cm), 2HB: Hysteresis of B (g-cm/cm)
Evaluation of smoothness	Surface Tester (KES-FB4: KATO TECH Co., LTD) MIU* ² : Mean friction coefficient MMD* ³ : Mean deviation of friction coefficient
Yellowing	Δb measured after heating at 175°C for 30min. with color differential tester based on untreated fabric color
Washing durability	Residual Si rate (%) measured with X-ray Fluorescence Spectrometer (Washing condition: JIS L-0217 103 method)
Water absorption	Water absorbing capacity measured height (mm) of drawn up water for 10 minutes (JIS L-1018 B-method)

TEST RESULTS

Softener	Handling touch	Softness* ¹ (B+2HB)/2	Smoothness MIU* ² /MMD* ³	Yellowing * ⁵ Δb	Washing durability %	Water absorption mm
TSF4703	Slippery	0.043	0.08/0.012	+1.6	94	30
Untreated	Rough	0.070	0.14/0.015	0	0	71

Note *1: A smaller number means softer touch.

*2, *3: A smaller number means smoother touch.

*4: A larger number means better durability.

*5: A smaller number means less yellowing.

HANDLING AND SAFETY

- ◆ Maintain adequate ventilation in the work area at all times.
- ◆ Wear eye protection, protective gloves at all times when working with this product.
- ◆ In case of skin contact, wash skin with soap and plenty of water. If irritation occurs, contact a physician.
- ◆ A study of the chemical in rats, using fumes, shows very high lethal dose. Do not use in aerosol applications.

STORAGE

- ◆ Store in a cool, dry place out of direct sunlight.
- ◆ Keep out of the reach of children.

PACKAGING

- ◆ 1kg can available in cases of 10
- ◆ 15kg can available
- ◆ 200kg drum available

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Momentive Performance Materials Japan LLC

<http://www.momentive.com>

Technical Answer Center (Japan): Phone: +81-276-20-6182 FAX: +81-276-31-6259
Tokyo Head Office: Phone: +81-3-5544-3111 FAX: +81-3-5544-3122

Product Data

Amino Modified Silicone Fluid TSF4708

TSF4708 is an amino modified silicone fluid developed for textile softener use. It can be easily emulsified to a stable micro emulsion, which gives durable softness and smoothness to cotton, blending cotton woven fabrics and knitted products with low yellowing.

KEY FEATURES

- ◆ Good affinity to fabrics
- ◆ Easy to formulate
- ◆ Low yellowing
- ◆ Imparts durable softness to many fabrics

APPLICATIONS

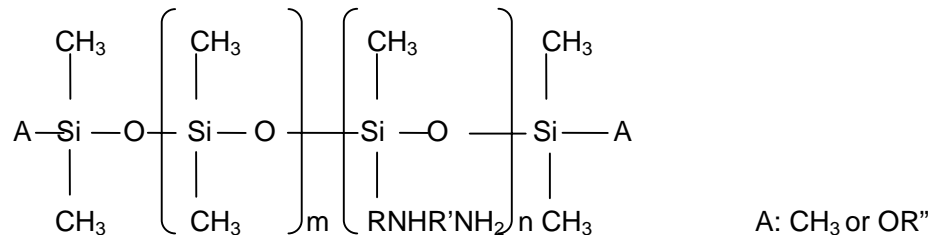
- ◆ Textile softener

TYPICAL PROPERTY DATA

PROPERTIES		
Appearance		Light yellow, semi-transparent
Specific gravity (25°C)		0.98
Viscosity (25°C)	mPa·s {cP}	1,000 {1,000}
Refractive index (n_D^{25})		1.406
Amino equivalent	g/mol	2,800

Typical property data values should not be used as specifications.

CHEMICAL STRUCTURE



SOLUBILITY

Soluble	Toluene, Mineral sprits, Methyl ethyl ketone, Isopropanol, Dimethyl silicone fluid
Insoluble	Methyl cellosolve, Water, Liquid paraffin

EMULSIFICATION INSTRUCTIONS

- Blend the following ingredients using an overhead stirrer.

TSF4708	15.0 parts
Emulgen 105*	7.5 parts
Ethylene glycol monobutyl ether	7.5 parts

* Kao Corporation, Polyoxyethylene (4.1) lauryl ether (HLB9.7)

- Slowly add 69.8 parts of ion exchanged water with good agitation.

Note: if desired, biocides may be added in this step.

- Slowly add 0.2 parts of acetic acid. Agitate well for 5-10 minutes to insure homogeneity.

APPLICATION EXAMPLE AS A SOFTENER

TEST CONDITION

Treating bath	2% effective content (TSF4708+ Emulgen 105) of above emulsion
Test fabrics	Cotton woven
Treating condition	Padding (pick up 100% for Cotton); Drying (130°C, 3min)
Evaluation of softness	Pure Bending Tester (KES-FB2: KATO TECH Co., LTD) Softness* ¹ : (B+2HB)/2 B: Bending rigidity (g-cm ² /cm), 2HB: Hysteresis of B (g-cm/cm)
Evaluation of smoothness	Surface Tester (KES-FB4: KATO TECH Co., LTD) MIU* ² : Mean friction coefficient MMD* ³ : Mean deviation of friction coefficient
Yellowing	Δb measured after heating at 175°C for 30min. with color differential tester based on untreated fabric color

TEST RESULTS

Softener	Handling touch	Softness* ¹ (B+2HB)/2	Smoothness MIU* ² /MMD* ³	Yellowing* ⁴ Δb
TSF4708	Slippery	0.043	0.10/0.009	+1.0
TSF4703	Slippery	0.043	0.08/0.012	+1.6
Untreated	Rough	0.070	0.14/0.015	0

Note *1: A smaller number means softer touch.

*2, *3: A smaller number means smoother touch.

*4: A smaller number means less yellowing.

HANDLING AND SAFETY

- ◆ Wear eye protection, protective gloves at all times when working with this product.
- ◆ In case of skin contact, wash skin with soap and plenty of water. If irritation occurs, contact a physician.
- ◆ A study of the chemical in rats, using fumes, shows very high lethal dose. Do not use in aerosol applications.
- ◆ Maintain adequate ventilation in the work area at all times.

STORAGE

- ◆ Store in a cool, dry place out of direct sunlight.
- ◆ Keep out of the reach of children.

PACKAGING

- ◆ 1kg can available in cases of 10
- ◆ 15kg can available
- ◆ 200kg drum available

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