Shin-Etsu Silicones for Personal Care

Product Brochure

Emulsifiers Series

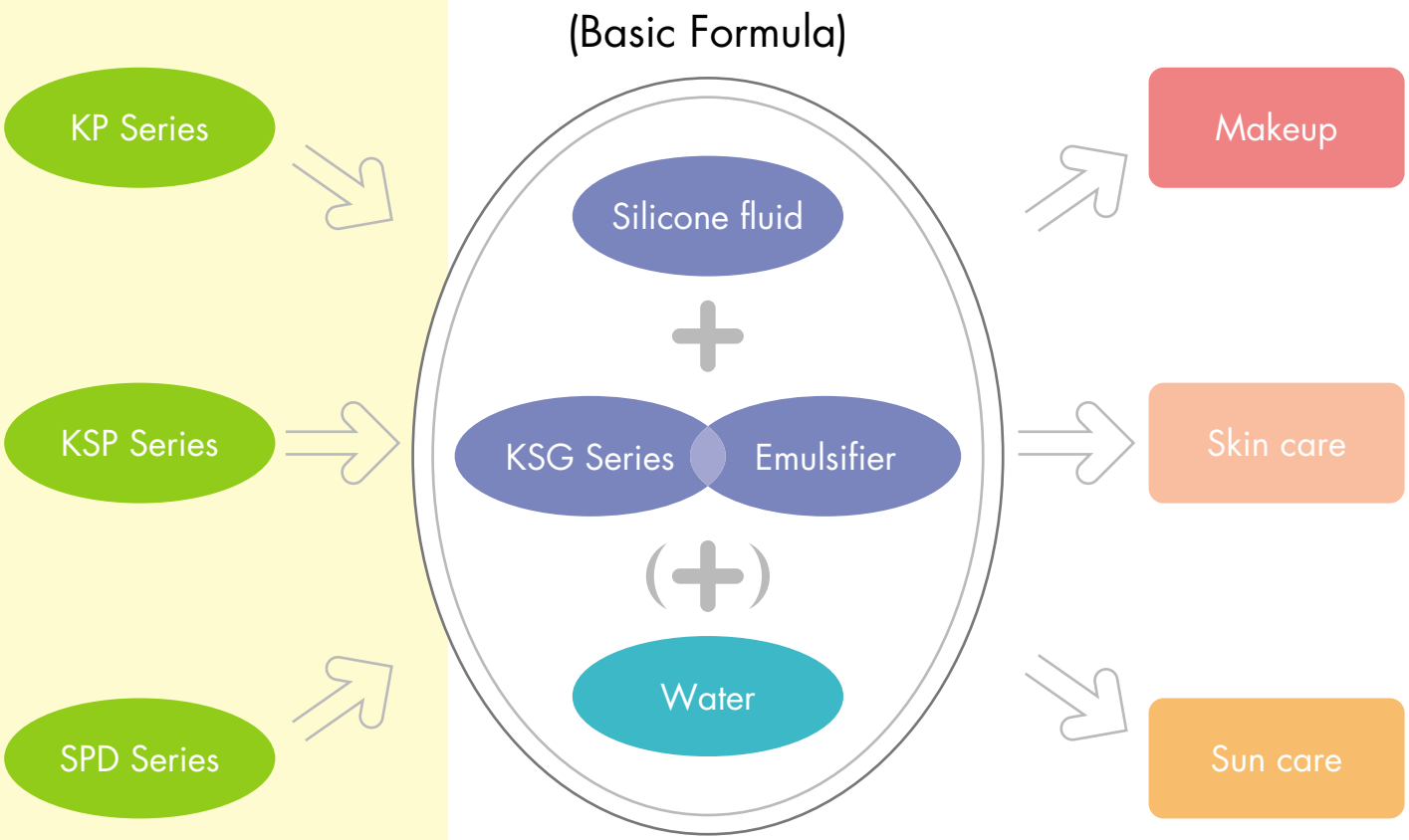
Emulsifiers for Cosmetic Products

ShinEtsu

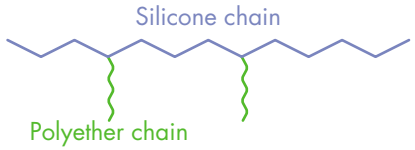
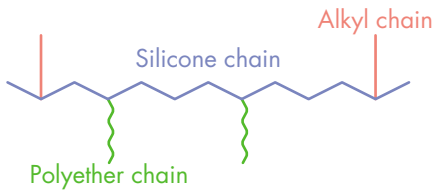
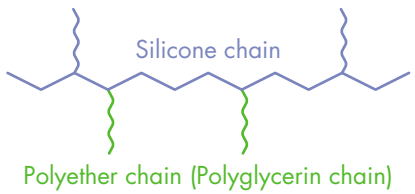
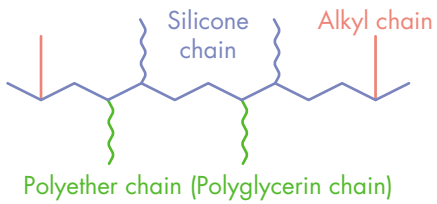
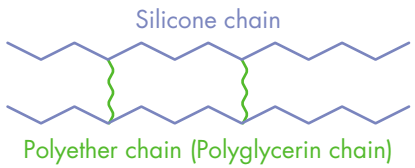
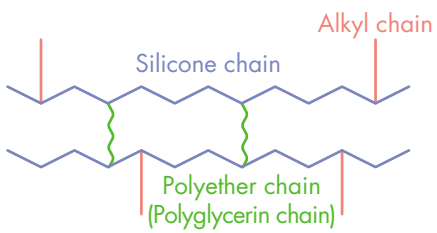
With our distinctive emulsifiers, Shin-Etsu is expanding the possibilities of development for a wide range of cosmetic products.

The two main classes of emulsifiers are polyether-modified silicones and polyglycerin-modified silicones.
Polyether-modified silicones include linear types, branched types and cross-polymer types,
while polyglycerin-modified silicones include branched types and cross-linked types.
We also offer distinctive alkyl co-modified emulsifiers.
Applying these products enables the development of diverse cosmetic formulations.

Formulation Design



Product Classification

Type		Product	Model
Linear Type	Polyether-modified	KF-6011 KF-6012 KF-6013 KF-6015 KF-6016 KF-6017	
	Polyether/alkyl co-modified	KF-6026	
Branched Type	Polyether-modified	KF-6028	
	Polyglycerin-modified	KF-6100 KF-6104	
	Polyether/alkyl co-modified	KF-6038	
	Polyglycerin/alkyl co-modified	KF-6105	
Cross-polymer Type	Polyether-modified	KSG-210	
	Polyglycerin-modified	KSG-710	
	Polyether/alkyl co-modified	KSG-310 KSG-320 KSG-330 KSG-340	
	Polyglycerin/alkyl co-modified	KSG-810 KSG-820 KSG-830 KSG-840	

Polyether-modified silicones

Linear type

We offer numerous polyether-modified silicone emulsifiers with varying HLB values, meaning these products can be used as either S/W or W/S emulsifiers.
KF-6026 is a W/O emulsifier that is co-modified with alkyl chains.

Product name	INCI	Viscosity (mm^2/s) 25 °C	Specific Gravity 25 °C	Refractive Index 25 °C	HLB	Cloud Point (°C)
KF-6011	PEG-11 Methyl Ether Dimethicone	100	1.06	1.456	14.5	65
KF-6012	PEG/PPG-20/22 Butyl Ether Dimethicone	1,600	1.03	1.446	7.0	35
KF-6013	PEG-9 Dimethicone	400	1.03	1.436	10.0	—
KF-6015	PEG-3 Dimethicone	150	1.00	1.420	4.5	—
KF-6016	PEG-9 Methyl Ether Dimethicone	150	1.01	1.417	4.5	—
KF-6017	PEG-10 Dimethicone	600	1.01	1.420	4.5	—
Alkyl co-modified type						
KF-6026	PEG/PPG-10/3 Oleyl Ether Dimethicone	400	0.97	1.452	4.0	—

✻ This document is not a certification of quality. For documentation of quality assurance and standards, please contact our Sales Department.
✻ INCI names are subject to change without notice.

Branched type

The silicone component has a branched structure, providing unique solubility, superior to that of linear structures.
These emulsifiers enable creation of distinctive products in terms of the viscosity and stability of the emulsions.
KF-6038 has good solubility in both silicone fluid and organic oils.

Product name	INCI	Viscosity (mm^2/s) 25 °C	Specific Gravity 25 °C	Refractive Index 25 °C	HLB
KF-6028	PEG-9 Polydimethylsiloxyethyl Dimethicone	900	1.00	1.420	4.0
Alkyl co-modified type					
KF-6038	Lauryl PEG-9 Polydimethylsiloxyethyl Dimethicone	700	0.96	1.430	3.0

Cross-polymer type

Our KSG-210 swells in silicone fluid, and the products in our KSG-300 series swell in organic oils.
Minute cross-linked particles orient at the interface with water and swell in oil to form a network.
This makes it possible to create highly stable W/S (W/O) emulsions.

Product name	INCI	Penetration (worked) 25 °C	Refractive Index 25 °C
KSG-210	Dimethicone (and) Dimethicone/PEG-10/15 Crosspolymer	400	1.403
Alkyl co-modified type			
KSG-310	Mineral Oil (and) PEG-15/Lauryl Dimethicone Crosspolymer	400	1.450
KSG-320	Isododecane (and) PEG-15/Lauryl Dimethicone Crosspolymer	400	1.420
KSG-330	Triethylhexanoin (and) PEG-15/Lauryl Dimethicone Crosspolymer	395	1.442
KSG-340	Squalane (and) PEG-10/Lauryl Dimethicone Crosspolymer PEG-15/Lauryl Dimethicone Crosspolymer	430	1.445

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Polyglycerin-modified silicones

Branched type

These silicone emulsifiers feature polyglycerin as the hydrophilic component.
These emulsifiers hold moisture well, so emulsions agree with skin and impart a distinctly soft and moist feel.
KF-6105 is a W/O emulsifier that is co-modified with alkyl chains.

Product name	INCI	Viscosity (mm^2/s) 25 °C	Specific Gravity 25 °C	Refractive Index 25 °C	HLB
KF-6100	Polyglyceryl-3 Disiloxane Dimethicone	40,000	1.08	1.458	high
KF-6104	Polyglyceryl-3 Polydimethylsiloxyethyl Dimethicone	4,000	1.00	1.409	low
Alkyl co-modified type					
KF-6105	Lauryl Polyglyceryl-3 Polydimethylsiloxyethyl Dimethicone	4,000	0.95	1.426	low

Cross-polymer type

Our KSG-710 swells in silicone fluid, and the products in our KSG-800 series swell in organic oils.
These products enable creation of highly stable W/S (W/O) emulsions. They offer superior moisture retention, meaning emulsions agree with skin and have a distinctly soft and moist feel.

Product name	INCI	Penetration (worked) 25 °C	Refractive Index 25 °C
KSG-710	Dimethicone (and) Dimethicone/Polyglycerin-3 Crosspolymer	400	1.400
Alkyl co-modified type			
KSG-810	Mineral Oil (and) Lauryl Dimethicone/Polyglycerin-3 Crosspolymer	380	1.450
KSG-820	Isododecane (and) Lauryl Dimethicone/Polyglycerin-3 Crosspolymer	340	1.420
KSG-830	Triethylhexanoin (and) Lauryl Dimethicone/Polyglycerin-3 Crosspolymer	380	1.442
KSG-840	Squalane (and) Lauryl Dimethicone/Polyglycerin-3 Crosspolymer	380	1.445

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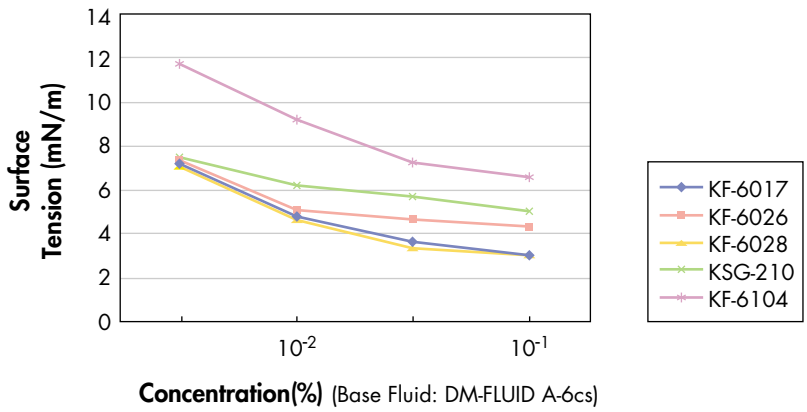
Solubility (concentration 20%)

	KF-6011	KF-6012	KF-6013	KF-6015	KF-6016	KF-6017	KF-6026	KF-6028	KF-6038	KF-6100	KF-6104	KF-6105
KF-96A-6cs (Dimethicone)	I	I	PS	I	S	S	I	S	S	PS	S	S
KF-96A-20cs (Dimethicone)	I	I	PS	I	PS	I	I	PS	S	PS	S	PS
KF-995 (Cyclopentasiloxane)	I	I	I	S	S	S	I	S	S	PS	S	S
Mineral Oil	I	PS	I	I	PS	PS	S	I	S	I	I	S
Isotridecyl Isononanoate	I	S	S	S	S	S	S	S	S	PS	S	S
Triethylhexanoin	S	S	S	S	S	S	S	S	S	PS	PS	S
Ethyl Alcohol	S	S	S	S	S	S	S	S	PS	S	PS	PS
Isopropyl Alcohol	S	S	S	S	S	S	S	S	S	S	S	S
Propylene Glycol	S	I	S	I	I	S	PS	I	PS	S	I	I
1,3-Butylene Glycol	S	I	S	I	I	S	PS	I	PS	S	PS	PS
Glycerin	I	I	I	I	I	I	PS	I	PS	S	PS	PS
Water	S	S	I	I	I	I	I	I	I	G	I	I

S: Soluble PS: Partially Soluble I: Insoluble G: Gel

Surface tension



Concentration(%) (Base Fluid: DM-FLUID A-6cs)

✻ Mesured using a "fully automated interfacial tensiometer (model PD-W, KYOWA INTERFACE SCIENCE CO., LTD.)"

Shin-Etsu

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The Development and Manufacture of Shin-Etsu Silicones are based on the following registered international quality and environmental management standards.

Gunma Complex	ISO 9001	ISO 14001
Naoetsu Plant	ISO 9001	ISO 14001
Takefu Plant	ISO 9001	ISO 14001 (JQA)

http://www.silicone.jp/