

Shin-Etsu Silicones for Personal Care

Product Brochure

SPD Series

SPD-T5·SPD-Z5

Inorganic Powder Dispersions
for Personal Care

Are you satisfied with conventional UV technology?

The SPD series is a dispersion of fine TiO₂/ZnO in cyclopentasiloxane designed for use in sunscreens as well as other skincare and cosmetic products. The SPD products offer performance enhancements due to the use of a novel, high performance dispersant. The unique performance features of the SPD series are:

- High Solids Dispersions that are Stable and have Very Low Viscosity
- Excellent Stability
- High Transparency that facilitates transparent formulations without the use of organic UV absorbers.
- High SPF
- Enhanced Water Resistance
- Smooth, Non-Tacky Skin Feel



SPD series

The physical properties:

Item	Product name	SPD-T5	SPD-Z5
INCI	Polyglyceryl-3	Cyclopentasiloxane Titanium Dioxide Polydimethylsiloxyethyl Dimethicone Aluminum Hydroxide Stearic Acid	Zinc Oxide Cyclopentasiloxane Polyglyceryl-3 Polydimethylsiloxyethyl Dimethicone Hexyl Triethoxysilylethyl Polydimethylsiloxyethyl Dimethicone
Appearance		White - light gray	White - light yellow
Viscosity at 25 °C, mPa*s		300 - 4,000	300 - 4,000
Specific Gravity at 25, °C		1.3	1.7
Volatile Content 105 °C/3 h, %		50	35
Transmissivity*, %		65 min.	65 min

*Percent transmission at 400nm by using spectrophotometer

This brochure is not intended to serve as a certificate of quality guarantee, please contact our sales department for details.

SPD-T5



SPD-Z5



Photographs taken through a glass plate coated with SPD-T5/Z5 (Thickness ; 6 μm).

Composition:

Fine Titanium Dioxide (coated)	40 wt%
Cyclopentasiloxane	50 wt%
Silicone Dispersant	10 wt%

Fine Zinc Oxide (coated)	60 wt%
Cyclopentasiloxane	35 wt%
Silicone Dispersant	5 wt%

Water resistance of SPD-T5, SPD-Z5

Test method

A sample was coated on a quartz plate with thickness of 6 μm by wire bar.

Percent transmission was measured by a spectrophotometer after the plate was immersed in water for 24 hours at room temperature.

Applications

Sunscreen lotion 1 (SPF: 50+, PA++**)

1. KSG-210*	3.0 wt%
2. KSG-15*	2.0 wt%
3. DM-FLUID A-6cs*	5.0 wt%
4. KF-995*	5.0 wt%
5. KF-6028*	1.0 wt%
6. Isotridecyl Isononanoate	4.0 wt%
7. SPD-Z5*	25.0 wt%
8. SPD-T5*	35.0 wt%
9. Dipropylene Glycol	2.0 wt%
10. Sodium Citrate	0.2 wt%
11. Sodium Chloride	1.0 wt%
12. Water	16.8 wt%

A. Combine 1 – 5 and 6 with stirring.

B. Combine 9 – 11 and 12 with stirring.

C. Add B to A. with stirring.

D. Add 7, 8 to C with stirring.

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Sunscreen lotion 2 (SPF: 35**)

1. KSG-210*	3.0 wt%
2. KSG-15*	2.0 wt%
3. DM-FLUID A-6cs*	4.0 wt%
4. KF-995*	2.0 wt%
5. KF-6028*	1.0 wt%
6. Isotridecyl Isononanoate	5.0 wt%
7. Triethylhexanoin	4.0 wt%
8. SPD-Z5*	35.0 wt%
9. Octyl Methoxycinnamate	6.0 wt%
10. Dipropylene Glycol	4.0 wt%
11. Sodium Citrate	0.2 wt%
12. Sodium Chloride	1.0 wt%
13. Water	32.8 wt%

A. Combine 1 – 6 and 7 with stirring.

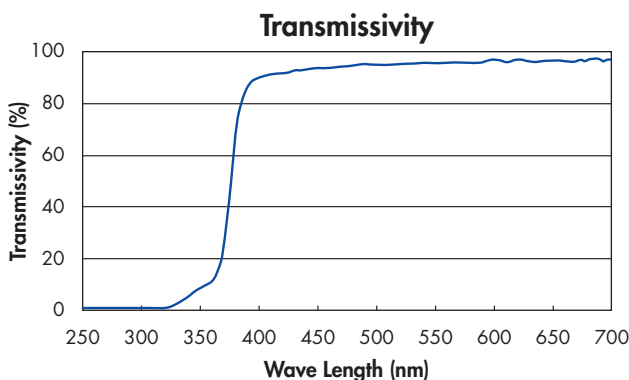
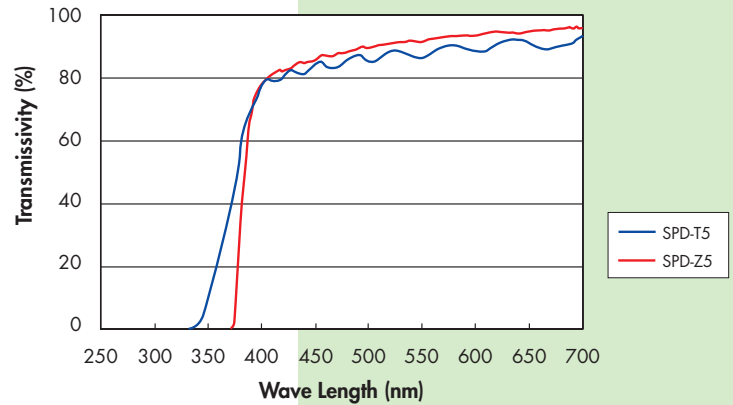
B. Combine 10 – 12 and 13 with stirring.

C. Add B to A. with stirring. D. Add 8 to C with stirring.

* Shin-Etsu

** By Consumer Product Testing Co.

Transmissivity



Silicone Division, Sales and Marketing Department I

6-1, Ohtemachi 2-chome, Chiyoda-ku, Tokyo, Japan

Phone : +81-(0)3-3246-5132 Fax : +81-(0)3-3246-5361

Shin-Etsu Silicones of America, Inc.

1150 Damar Drive, Akron, OH 44305, U.S.A.

Phone : +1-330-630-9860 Fax : +1-330-630-9855

Shin-Etsu Silicones Europe B. V.

Bolderweg 32, 1332 AV, Almere, The Netherlands

Phone : +31-(0)36-5493170 Fax : +31-(0)36-5326459

Shin-Etsu Silicone Taiwan Co., Ltd.

7F, No.102, Civil Boulevard, Sec.4, Taipei, Taiwan R.O.C.

Phone : +886-(0)2-2751-6999 Fax : +886-(0)2-2751-6769

Shin-Etsu Silicone Korea Co., Ltd.

International Insurance Bldg. 904, 120, 5-ka,

Namdaemoon-ro, Chung-ku, Seoul, Korea

Phone : +82-(0)2-775-9691 Fax : +82-(0)2-775-9690

Shin-Etsu Singapore Pte. Ltd.

150 Ubi Avenue 4, #03-00, Singapore 408825

Phone : +65-6743-7277 Fax : +65-6743-7477

Shin-Etsu Silicones (Thailand) Ltd.

7th Floor, Harindhorn Tower, 54 North Sathorn Road,
Bangkok 10500, Thailand


Phone : +66-(0)2-632-2941 Fax : +66-(0)2-632-2945

Shin-Etsu Silicone International Trading (Shanghai) Co., Ltd.

3214 Shanghai Central Plaza, 381 Huaihai Zhong Road,
Shanghai, China

Phone : +86-(0)21-6391-5111 Fax : +86-(0)21-6391-5296

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