

SILCOOL™ Thermally Conductive Silicone Oil Compound

Product Description

SILCOOL TIG1000 is a metal-oxide filled silicone compound designed for providing superior thermal conductivity. In particular, the product is suitable for heat sink of power semiconductor devices.

Key Features and Typical Benefits

- High thermal conductivity
- Non-sag type
- Paintable capability
- Wide operating temperature range: -40°C to 170°C
- Low volatility

Typical Physical Properties

PROPERTIES		
Appearance		White, grease like
Specific gravity (25°C)		2.5
Penetration* ¹ (25°C)		340
Bleed* ¹ (150°C, 24h)	%	0.1
Evaporation* ¹ (150°C, 24h)	%	0.1
Thermal conductivity	W/(m·K)	1.00
Volume resistivity* ²	Ω·cm	3.0×10 ¹⁴
Dielectric constant (60Hz)		5.0
Dissipation factor (60Hz)		0.006
Volatile siloxane (D ₃ -D ₁₀)	ppm	30

*1:JIS K 2220 *2:MIL-S-8660B

Typical properties are average data and are not to be used as or to develop product specifications.

Flowability

	Flow rate mm
TIG1000	0
Conventional product	70

Test method: Spread 1g of sample to 10mm² on the SUS plate. Measure flow rate after holding the plate vertically for 24 hours at 70°C.

Heat Resistance (JIS K 2220)

CONDITION	APPEARANCE	WORKED PENETRATION	BLEED %	EVAPORATION %
Initial (25°C)	White, grease like	340	-	-
180°C, 24h	No change	335	0.0	0.2
180°C, 48h	No change	345	-	-
150°C, 1,000h	No change	-	-	-

Heat Cycle Test

Heat cycle condition: 20°C, 10 minutes + 120°C, 10 minutes
 No appearance change was observed after 10,000 cycles

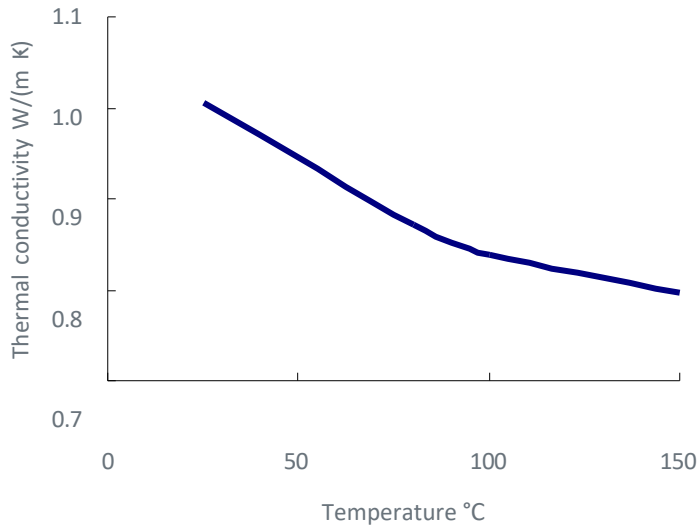
Effect on Silicone Rubber

Weight change of silicone rubber was measured after immersed in the base polymer of TIG1000 at 70°C for 48hours. Weight change rate: +0.1%.

Effect on Polystyrene Foam

TIG1000 was applied on the polystyrene foam having an expansion ratio of 60 times at 70°C for 24hours. No appearance change was observed.

CHANGE OF THERMAL CONDUCTIVITY WITH TEMPERATURE



General Considerations for Use

Compatibility with Plastics and Rubber

SUBSTRATE	CRACK	COLOR CHANGE
ABS	No crack	No change
PBT	No crack	No change
PPS	No crack	No change
Polycarbonate	No crack	No change
Nylon 6,6	No crack	No change
NBR	No crack	No change

Test method

Test specimen: 80mm x 12mm x 2mm Procedure:

1. The test specimen is bent into a circular arc of 75mm chord length.
2. TIG1000 is applied on the outside surface of the specimen.
3. The specimen is left in the 70°C oven for 250 hours.
4. After that, appearance of the specimen is observed.

Note: A preliminary test should be performed before using, because compatibility may vary depending on manufacturer or application.

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

- Wear eye protection and protective gloves as required when handling the product.
- Use the product in a well ventilated area.
- Store in a dark cold area out of direct sunlight.
- Keep out of the reach of children.

Customers should review the latest Safety Data Sheet (SDS) and label for product safety information, safe handling instructions, personal protective equipment, if necessary, emergency service contact information, and any special storage conditions required for safety. Momentive Performance Materials (MPM) maintains an around-the-clock emergency service for its products. SDS are available at www.momentive.com or, upon request, from any MPM representative. For product storage and handling procedures to maintain the product quality within our stated specifications, please review Certificates of Analysis, which are available in the Order Center. Use of other materials in conjunction with MPM 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 application(s).

Contact Information

Email

commercial.services@momentive.com

Telephone

Americas

+1 800 295 2392
Toll free*
+704 805 6946
Direct Number

Latin America

Brazil
+55 11 4534 9650
Direct Number

EMEAI- Europe, Middle East, Africa & India

Europe
+390510924300
Direct number

ASIA PACIFIC

China
800 820 0202
Toll free
+86 21 3860 4892
Direct number

*All American countries

Mexico
+52 55 2169 7670
Direct Number

India, Middle East & Africa
+ 91 44 71212207
Direct number*

Japan
Email
Sales-JP.Silicones@momentive.com

*All Middle Eastern countries, Africa, India, Pakistan, Bangladesh, Sri Lanka.

Korea
+82 2 6201 4600
Direct number

South East Asia, Australia & New

Zealand
+60 3 8309 8088
Direct number*

*South East Asia countries (Malaysia, Singapore, Thailand, Indonesia, Vietnam, Philippines, Cambodia, Myanmar / other countries located in Pacific region).

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2750 Balltown Road,
Niskayuna
NY 12309 USA
momentive.com