

**TECHNICAL PRODUCT BULLETIN**



**GENERAL DESCRIPTION**

ALFA GR-104 is an opaque white heat sink grease compound, which is applied to the base and mounting studs of transistor and diodes to provide a positive heat sink seal, this facilitates heat transfer away from electrical/electronic components and into heat sinks, thereby increasing the overall efficiency and performance of the device. GR104 is grease like silicone material, heavily filled with efficient heat conductive zinc oxide and a binding agent, this combination promotes high thermal conductivity, high temperature stability, and the lowest amount of bleed and evaporation. ALFA GR104 thermal compound resists changes in consistency temperatures up to 180°C; function as heat transfer media, durable dielectric insulation, barrier against environmental contaminants and as a stress-relieving shock and vibration absorber over a wide temperature and humidity range. GR104 thermal paste is resistant to ozone and ultraviolet degradation and has good chemical and solvent stability, good interference between the heat producing device and the heat transfer media, and low surface tension that enables them to wet most surfaces. ALFA GR-104 will not harden, dry, or melt after 1200 hours @ 205°C.

- *Thermally Conductive Heat Sink Grease compound*
- *Direct Replacement Of Dow 340 And Wakefield 120*
- *Used Successfully By Ford Motor Co. For 20 Years*
- *Complies To MIL-DTL-4-7113*

**TYPICAL PROPERTIES AND CHEMICAL CHARACTERISTICS**

Color	White
Base Fluid	Dimethyl polysiloxane
Filler	Zinc oxide
Specific Gravity, 25°C, gm/cc	2.45
Viscosity	Paste
Press Flow @ 42.5 PSI, 25°C sec	13
Penetration (Worked), mm	285 <sup>1</sup> / <sub>10</sub>
Evaporation 24 hrs @25°C, %	0.0
Evaporation @ 200°C 24H by weight,%	0.5
Bleed 24 Hours,%	0.6
<b>Electrical Properties</b>	
Dielectric Strength, volts/mil (ASTM D 150)	390
Dielectric Constant @ 100Hz (ASTM D150)	4.40
Dissipation Factor @ 100Hz (ASTM D150)	0.0021
Volume Resistivity, ohm-cm (ASTM D257)	2.9x10 <sup>14</sup>
<b>Thermal Properties</b>	
Thermal Conductivity W/m-K	0.88
Operating Temperature Range, °C	-60 to 205
Thermal Resistance °C-In <sup>2</sup> /W	0.05



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**POTENTIAL USES**

- Effective thermal coupler for any heat sink device, CPU to heat sink
- Automotive temperature-sensing devices
- Temperature sensors
- Applied to the base and mounting studs of transistor, diodes and silicone controlled rectifiers
- Power transistors
- Diodes, semiconductors
- Thermal Joints
- For any device where efficient cooling is required
- Potting
- TEC Modules
- Hardware
- Telecommunications
- Right product for thermal management
- High-voltage corona suppressant in connectors for fly back transferors located in TV sets.

**FEATURES AND BENEFITS**

- Non-Sag or flowing
- Non-Hazardous polymerization
- Non-Toxic
- Non-Corrosive
- Reworkable
- Easily removed
- Non-Flammable
- Easy to apply via dispensing or screen printing
- Low surface tension that enables it to wet most surfaces, which can lower the thermal contact resistance between the substrate and material.

**APPLICATION METHODS**

Automated or manual dispensing

**USAGE INSTRUCTIONS**

For industrial use only Read MSDS carefully prior to use.

**Limitations**

GR-104 is neither tested nor represented as suitable for medical or pharmaceutical use.

**ENVIRONMENTAL IMPACT DATA**

<b>ODP</b>	<b>None</b>	<b>VOC</b>	<b>None</b>
<b>HCFC</b>	<b>None</b>	<b>HFC</b>	<b>None</b>

**STORAGE HANDLING & SHELF LIFE**

GR-104 has a shelf life of 5 years at room temperature (76°F) in an unopened container, settlings may occur during long term storage, it is recommended to re-mix the filler by hand or mechanical mixing. Keep container tightly closed store in cool area away from ignition sources and oxidizers, no special precautions need to be taken if product is handled according to directions. Shelf life is indicated on the product label, any special storage and handling instructions will be printed on the product container label.



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**CLEAN UP AND DISPOSAL**

GR-104 can be removed by using solvents such as mineral spirit, heptane, or isopropyl alcohol. Dispose of in accordance with local, state, and federal regulations for hazardous waste.

**AVAILABILITY & PACKAGING**

Size	Packaging
1.5 gm	Syringe
2.5 oz (70.87 gms)	Tube
5 oz. (142 gms)	Tube
8 oz.	Jar
4.5 Lb.	Quart Can
20 Lb.	1 Gallon Plastic Pail
60 Lb.	Pail