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THERMAL COMPOUNDS

Selection Guideline
2026
REV1.0

Total Thermal Solution

WAKEFIELDTHERMAL.COM | 603.635.2800

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TABLE OF CONTENTS

1.....	120 Series
3.....	121 Series
4.....	121-20
5.....	121-50
6.....	121-60
7.....	121-80
8.....	121-120
9.....	125 Series
10.....	126 Series
11.....	127 Series
12.....	Competitive Cross Reference

Sold through our Distribution Channels. For help finding the right Thermal Compound for your project, contact us at:
Phone: (603) 635-2800 or communications@wakefieldthermal.com

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120 SERIES

THERMAL GREASE

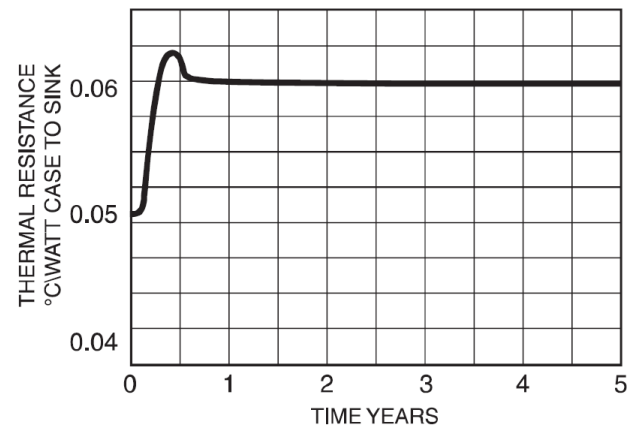
The 120 Series Silicone Oil-Based Thermal Joint Compound fills the minute air gap between mating surfaces with a grease-like material containing zinc oxide in a silicone oil carrier. It possesses an excellent thermal resistance of only 0.05° C/W for a 0.001 in. film with an area of one square inch. There is no measurable increase in case temperature of a mounted semiconductor on a heat sink after the 6-month stabilization period (Time versus Thermal Resistivity graph on page 2).

Part #	Description	Size	Container	Thermal Conductivity	Shelf Life
120-2	Silicone Grease	2 oz	Jar	k = 0.73 W/m·K	24 months
120-5	Silicone Grease	5 oz	Tube	k = 0.73 W/m·K	24 months
120-8	Silicone Grease	8 oz	Jar	k = 0.73 W/m·K	24 months
120-80	Silicone Grease	5 lb	Can	k = 0.73 W/m·K	24 months
120-32	Silicone Grease	20 lb	Can	k = 0.73 W/m·K	24 months
120-1280	Silicone Grease	5 gal	Pail	k = 0.73 W/m·K	24 months
120-SA	Silicone Grease	4 gram	Plastic Pack	k = 0.73 W/m·K	24 months



Thermal Values for Thermal Resistance, Case to Sink (Øcs) When Thermal Joint Compounds are Used		
Case Style Characteristics	Mounting Torque in inch • pounds (N•M)	Typical Thermal Resistance (°C/W)
TO-3	8 (0.9)	0.09
TO-66	9 (0.9)	0.14
TO-220	8 (0.9)	0.50
0.19 (4.8) stud x 0.44 (11.2) hex	15 (1.7)	0.16
0.25 (6.4) stud x 0.69 (17.5) hex	30 (3.39)	0.10
0.38 (9.7) stud x 1.06 (26.9) hex	75 (8.47)	0.07
0.50 (12.7) stud x 1.06 (26.9) hex	125 (14.12)	0.07
0.75 (19.1) stud x 1.25 (31.8) hex	600 (67.79)	0.052

120 Series - Thermal Joint Compound	
Characteristic	Description
Volume Resistivity	5 X 10 ¹⁴ Ω•cm
Dielectric Strength	225 volts/mil
Specific Gravity	2.1 min.
Thermal Conductivity @ 36°C	0.735 W/m•K 5.1(Btu)(in.)/(hr)(ft²)(°F)
Thermal Resistivity (P)	56 (°C)(in.)/watt
Bleed, % after 24 hrs @ 200°C	0.5
Evaporation, % after 24 hrs @ 200°C	0.5
Color	Opaque White
Shelf Life	2 years
Operating Temperature Range (°C)	-40/+200



Safety: Please refer to our company "Material Safety Data Sheet (MSDS)"

121 SERIES

THERMAL GELS

Wakefield Thermal's 1-Part Thermal Gel (Thermal Putty) is a silicone resin-based flexible gap filler. It features low thermal impedance, minimal oil bleeding and excellent extrusion properties; making it ideal for filling gaps between heat-generating electronic components and heat sinks. It is soft, applies low assembly stress and has excellent compressibility and wet-out performance suitable for applications with complex gap thicknesses. There is no cracking or dripping and thickness and shape can be precisely controlled using automated dispensing equipment. This product is non-toxic. Available in 30cc syringes. 12-month shelf life.

Our available options include:		Wakefield Thermal Part Number					Test Method
Properties	Units	121-20	121-50	121-60	121-80	121-120	
Color	-	Pink	Pink	Gray	Gray	Gray	Visual
Thermal Conductivity	W/m·K	2.0	5.0	6.0	8.0	12.0	ASTM D5470
Thermal Impedance (@30psi)	°C*in ² /W	0.100	0.060	0.045	0.050	< 0.050	ASTM D5470
Flow Rate (@30cc,90psi)	g/min	80±15	40±5	20±5	30±5	15±5	-
Minimum Interface Thickness	mm	0.10	0.10	0.15	0.17	> 0.25	-
Density	g/cc	2.5	3.1	3.3	3.4	3.45	Helium Pycnometry
Outgassing	%	< 0.2	< 0.5	< 0.5	< 0.5	-	ASTM E595
Dielectric Strength (@AC)	KV/mm	> 2.0	> 5.0	> 8.0	> 6.0	> 3.0	ASTM D149
Dielectric Constant (@1MHz)	-	2.5	7.0	8.0	8.0	-	ASTM D150
Volume Resistivity	Ω·cm	> 10 ¹²	> 10 ¹⁴	> 10 ¹⁴	> 10 ¹⁴	> 10 ¹¹	ASTM D257
Operating Temp.	°C	-40 ~ 150	-50 ~ 150	-50 ~ 150	-50 ~ 150	-50 ~ 150	-
Flame Rating	-	V-0	V-0	V-0	V-0	V-0	UL94
RoHS	-	PASS	PASS	PASS	PASS	PASS	IEC 62321
Halogen	-	PASS	PASS	PASS	PASS	PASS	EN 14582
REACH	-	PASS	PASS	PASS	PASS	PASS	EN 14372

121-20

Product Performance	Test Results	Testing Method
Color	Pink	Visual
Thermal Conductivity	2.0 W/m·K	ASTM D5470
Thermal Impedance (@30psi)	0.10°C*in ² /W	ASTM D5470
Flow Rate (@30cc,90psi)	80±15 g/min	-
Minimum Interface Thickness	0.10mm	-
Density	2.5 g/cc	Helium Pycnometry
Outgassing	< 0.2%	ASTM E595
Dielectric Strength (@AC)	> 2.0 kV/mm	ASTM D149
Dielectric Constant (@1MHz)	2.5	ASTM D150
Volume Resistivity	> 10 ¹² Ω•cm	ASTM D257
Operating Temperature	-40°C ~ 150°C	-
Flame Rating	V-0	UL94
RoHS	PASS	IEC 62321
Halogen	PASS	EN 14582
REACH	PASS	EN 14372

121-20 is a silicone resin-based flexible gap filler. It features low thermal impedance, minimal oil bleeding, and excellent extrusion properties, making it ideal for filling gaps between heat-generating electronic components and heat sinks. It is soft, applies low assembly stress, and has excellent compressibility and wet-out performance, suitable for applications with complex gap thicknesses. Thickness and shape can be precisely controlled using automated dispensing equipment.

APPLICATIONS:

- AI
- High-Performance Computing (HPC)
- SiC & GaN Power Applications

Storage & Transportation: Store in a well-ventilated, cool, and dry place, away from open flames. This product is non-toxic and should be stored and transported as a non-hazardous material.

Package: 30cc

Validity: This product is valid for 12 months

Safety: Please refer to our company "Material Safety Data Sheet (MSDS)"

Features and Benefits:

- Good Thermal Conductivity
- Low Thermal Impedance
- Excellent Wetting Properties
- No Cracking or Dripping

121-50

Product Performance	Test Results	Testing Method
Color	Pink	Visual
Thermal Conductivity	5.0 W/m·K	ASTM D5470
Thermal Impedance (@30psi)	0.06°C*in ² /W	ASTM D5470
Flow Rate (@30cc,90psi)	40±5 g/min	-
Minimum Interface Thickness	0.10mm	-
Density	3.1 g/cc	Helium Pycnometry
Outgassing	< 0.5%	ASTM E595
Dielectric Strength (@AC)	> 5.0 kV/mm	ASTM D149
Dielectric Constant (@1MHz)	7.0	ASTM D150
Volume Resistivity	> 10 ¹⁴ Ω•cm	ASTM D257
Operating Temperature	-50°C ~ 150°C	-
Flame Rating	V-0	UL94
RoHS	PASS	IEC 62321
Halogen	PASS	EN 14582
REACH	PASS	EN 14372

121-50 is a silicone resin-based flexible gap filler. It features low thermal impedance, minimal oil bleeding, and excellent extrusion properties, making it ideal for filling gaps between heat-generating electronic components and heat sinks. It is soft, applies low assembly stress, and has excellent compressibility and wet-out performance, suitable for applications with complex gap thicknesses. Thickness and shape can be precisely controlled using automated dispensing equipment.

APPLICATIONS:

- AI
- High-Performance Computing (HPC)
- SiC & GaN Power Applications

Storage & Transportation: Store in a well-ventilated, cool, and dry place, away from open flames. This product is non-toxic and should be stored and transported as a non-hazardous material.

Package: 30cc

Validity: This product is valid for 12 months

Safety: Please refer to our company "Material Safety Data Sheet (MSDS)"

Features and Benefits:

- Good Thermal Conductivity
- Low Thermal Impedance
- Excellent Wetting Properties
- No Cracking or Dripping

121-60

Product Performance	Test Results	Testing Method
Color	Grey	Visual
Thermal Conductivity	6.0 W/m·K	ASTM D5470
Thermal Impedance (@30psi)	0.045°C·in ² /W	ASTM D5470
Flow Rate (@30cc,90psi)	20±5 g/min	-
Minimum Interface Thickness	0.15mm	-
Density	3.3 g/cc	Helium Pycnometry
Outgassing	< 0.5%	ASTM E595
Dielectric Strength (@AC)	> 8.0 kV/mm	ASTM D149
Dielectric Constant (@1MHz)	8.0	ASTM D150
Volume Resistivity	> 10 ¹⁴ Ω·cm	ASTM D257
Operating Temperature	-50°C ~ 150°C	-
Flame Rating	V-0	UL94
RoHS	PASS	IEC 62321
Halogen	PASS	EN 14582
REACH	PASS	EN 14372

121-60 is a silicone resin-based flexible gap filler. It features low thermal impedance, minimal oil bleeding, and excellent extrusion properties, making it ideal for filling gaps between heat-generating electronic components and heat sinks. It is soft, applies low assembly stress, and has excellent compressibility and wet-out performance, suitable for applications with complex gap thicknesses. Thickness and shape can be precisely controlled using automated dispensing equipment.

APPLICATIONS:

- AI
- High-Performance Computing (HPC)
- SiC & GaN Power Applications

Storage & Transportation: Store in a well-ventilated, cool, and dry place, away from open flames. This product is non-toxic and should be stored and transported as a non-hazardous material.

Package: 30cc

Validity: This product is valid for 12 months

Safety: Please refer to our company "Material Safety Data Sheet (MSDS)"

Features and Benefits:

- Good Thermal Conductivity
- Low Thermal Impedance
- Excellent Wetting Properties
- No Cracking or Dripping

121-80

Product Performance	Test Results	Testing Method
Color	Gray	Visual
Thermal Conductivity	8.0 W/m·K	ASTM D5470
Thermal Impedance (@30psi)	0.05°C*in ² /W	ASTM D5470
Flow Rate (@30cc,90psi)	30±5 g/min	-
Minimum Interface Thickness	0.17mm	-
Density	3.4 g/cc	Helium Pycnometry
Outgassing	< 0.5%	ASTM E595
Dielectric Strength (@AC)	> 6.0 kV/mm	ASTM D149
Dielectric Constant	8.0	ASTM D150
Volume Resistivity	> 10 ¹⁴ Ω·cm	ASTM D257
Operating Temp.	-50°C ~ 150 °C	-
Flame Rating	V-0	UL94
RoHS	PASS	IEC 62321
Halogen	PASS	EN14582
REACH	PASS	EN14372

121-80 One-Part Thermal Gel (Thermal Putty) is a silicone resin-based flexible gap filler. It features low thermal impedance, minimal oil bleeding, and excellent extrusion properties, making it ideal for filling gaps between heat-generating electronic components and heat sinks. It is soft, applies low assembly stress, and has excellent compressibility and wet-out performance, suitable for applications with complex gap thicknesses. Thickness and shape can be precisely controlled using automated dispensing equipment.

APPLICATIONS:

- AI
- High-Performance Computing (HPC)
- SiC & GaN Power Applications

Storage & Transportation: Store in a well-ventilated, cool, and dry place, away from open flames. This product is non-toxic and should be stored and transported as a non-hazardous material.

Package: 30cc

Shelf Life: 12 months

Safety: Please refer to our company "Material Safety Data Sheet (MSDS)"

Features and Benefits:

- Good Thermal Conductivity
- Low Thermal Impedance
- Excellent Wetting Properties
- No Cracking or Dripping

121-120

Product Performance	Test Results	Testing Method
Color	Gray	Visual
Thermal Conductivity	12.0 W/m·K	ASTM D5470
Thermal Impedance (@30psi)	< 0.05°C*in ² /W	ASTM D5470
Flow Rate (@30cc,90psi)	15±5 g/min	-
Minimum Interface Thickness	> 0.25mm	-
Density	3.45 g/cc	Helium Pycnometry
Dielectric Strength (@AC)	> 3.0 kV/mm	ASTM D149
Dielectric Constant	8.0	ASTM D150
Volume Resistivity	> 10 ¹¹ Ω·cm	ASTM D257
Operating Temp.	-50°C ~ 150 °C	-
Flame Rating	V-0	UL94
RoHS	PASS	IEC 62321
Halogen	PASS	EN14582
REACH	PASS	EN14372

121-120 One-Part Thermal Gel (Thermal Putty) is a silicone resin-based flexible gap filler. It features low thermal impedance, minimal oil bleeding, and excellent extrusion properties, making it ideal for filling gaps between heat-generating electronic components and heat sinks. It is soft, applies low assembly stress, and has excellent compressibility and wet-out performance, suitable for applications with complex gap thicknesses. Thickness and shape can be precisely controlled using automated dispensing equipment.

APPLICATIONS:

- AI
- High-Performance Computing (HPC)
- SiC & GaN Power Applications

Storage & Transportation: Store in a well-ventilated, cool, and dry place, away from open flames. This product is non-toxic and should be stored and transported as a non-hazardous material.

Package: 30cc

Shelf Life: 12 months

Safety: Please refer to our company "Material Safety Data Sheet (MSDS)"

Features and Benefits:

- Good Thermal Conductivity
- Low Thermal Impedance
- Excellent Wetting Properties
- No Cracking or Dripping

125 SERIES

HIGH PERFORMANCE THERMAL GREASE

The 125 Series is specifically formulated without diluent or solvent. Offers dispensable and screen printable consistency to achieve low BLT and optimum thermal conductivity for optimum thermal performance. Exhibits excellent resistance to pump out, outgassing and phase separation while eliminating concern of silicone deposition on optics and electronics within any package.

The 125 Series is high performance thermal grease designed to meet the thermal and reliability requirements of high-end chipset, graphic processors trend ever-faster clock speeds. RoHS, REACH compliant and halogen-free.

Part #	Description	Size	Container
125-6-10	High Performance Non-Silicone	10 cc	Syringe

Typical Property	Results	Test Method
Type	Silicone free	
Special Future	High thermal conductivity. Tacky, zero pump out. No-solvent.	
Color	Grey	Visual
Viscosity 5 rpm @ 25°C, PaS	900-1200	Helipath
Specific Gravity	2.4	ASTM D792
Operating Temperature Range, °C	-55 °C to 200 °C	
Shelf Life @ 25°C	1 Year	
THERMAL		
Thermal Conductivity (W/m·K)	6.0	ASTM D5470
ELECTRICAL		
Breakdown voltage (KV/mm)	2.8	ASTM D149
Dissipation factor (1KHz)	0.12	ASTM D150
Volume resistivity (Ohm-cm)	10 ⁹	ASTM D257

Safety: Please refer to our company "Material Safety Data Sheet (MSDS)"

126 SERIES

EXTREME PERFORMANCE PHASE CHANGE THERMAL COMPOUND

The 126 Series is a nontoxic, synthetic, ester-based (nonsilicone) Thermal Joint Compound with metal oxide fillers designed to enhance thermal performance characteristics of plastic and metal package devices exceeding that of silicone-based compounds. Solved are problems associated with contamination of wave solder baths and migration of silicone-based products. Shelf life: 5 years.

Part #	Description	Size	Container	Thermal Conductivity
126-2	Non-Silicone Compound	2.0 oz	Jar	$k = 0.69 \text{ W/m}\cdot\text{K}$
126-4	Non-Silicone Compound	4.0 oz	Tube	$k = 0.69 \text{ W/m}\cdot\text{K}$
126-5LB	Non-Silicone Compound	5.0 lbs	Can	$k = 0.69 \text{ W/m}\cdot\text{K}$

Characteristics	Description
Appearance	Smooth, white homogenous paste
Solids Content, wt %	65% min
Thermal Conductivity @ 36°C	.69 W/m·K, 4.8 (Btu)(in.)/(hr)(ft²)(°F)
Interface Thermal Resistance	0.043°C/W TO-3 at 0.0008 thick film
Bleed, 24 hrs @ 200°C, wt %	0.09% max
Evaporation, 24 hrs @ 200°C, wt %	0.6 max
Volume Resistivity	$2.3 \times 10^{12} \Omega\cdot\text{cm}$
Dielectric Strength	200 volts/mil
Specific Gravity @ 60°F	2.93 (gm/cc)
Penetration	280 to 320
Operating Range	-40°C to 200°C



Safety: Please refer to our company "Material Safety Data Sheet (MSDS)"

127 SERIES

EXTREME PERFORMANCE PHASE CHANGE THERMAL COMPOUND

The 127 Series is an advanced thermal interface material, formulated as a hybrid phase change material without diluents or solvents for optimal performance. This dispensable, screen-printable compound achieves ultra-low bond line thickness and unmatched thermal conductivity.

Engineered to resist pump-out, outgassing and phase separation, the 127 Series eliminates concerns over silicone deposition on sensitive optics and electronics. It meets the demanding thermal and reliability needs of high-speed chipsets and graphic processors while remaining halogen-free and fully RoHS and REACH compliant.

With its stay-put viscosity, the 127 Series is ideal for precision application in the most complex assemblies. Experience thermal excellence with no tradeoffs in stability or safety - upgrade to our 127 Series for your next-generation designs.

Part #	Description	Size	Container	Thermal Conductivity
127-12-10	Non-Silicone Phase Change Compound	1.0 gram	Syringe	k = 12.00 W/m·K
127-12-30	Non-Silicone Phase Change Compound	3.0 gram	Syringe	k = 12.00 W/m·K
127-20-10	Non-Silicone Phase Change Compound	1.0 gram	Syringe	k = 20.00 W/m·K
127-20-30	Non-Silicone Phase Change Compound	3.0 gram	Syringe	k = 20.00 W/m·K

Typical Property	Results
Type	Silicone free, hybrid phase change paste
Special Feature	Extreme thermal conductivity. Zero pump out. No-solvent.
Color	Light grey
Viscosity, cps	280000
Specific gravity	2.5
Operating temperature range °C	-50°C to 200°C
Shelf life @ 25C	2.5 years
Bondline Thickness	4-10 microns (preferred) 100 microns maximum

THERMAL	
Recommended maximum temperature	130°C
Phase change and cure temperature	50°C (122°F)
ELECTRICAL	
Breakdown voltage (VAC/mil)	200
Outgassing, % TML	0.15%TML
Volume Resistivity	10 ¹⁴ Ω·cm



Safety: Please refer to our company "Material Safety Data Sheet (MSDS)"

COMPETITIVE CROSS REFERENCE

121 SERIES

SOURCES:

Wakefield data: Thermal Gels Selection Guideline, 2026 Rev1.0, p.1.

Competitor data: published manufacturer datasheets, verified July 2026.

Part #	Wakefield TC (W/m•K)	Henkel / Bergquist	Parker Chomerics	Laird / Qnity	Fujipoly Sarcon	T-Global
121-20	2.0	Gap Filler TGF 2000	N/A	N/A	N/A	N/A
121-50	5.0	Gap Pad TGP 5000	N/A	N/A	Sarcon PG45A	N/A
121-60	6.0	Gap Pad TGP 6000ULM	N/A	Tflex CR607	N/A	TG6060 Putty
121-80	8.0	Gap Pad TGP 7000ULM	THERM-A-GAP PAD 80 and GEL 75	Tflex HD90000	Sarcon PG80B	TG-S808
121-120	12.0	N/A	THERM-A-GAP GEL 120	Tflex SF16	Sarcon PG130A and PG150A	N/A

N/A = No confirmed competitor match

All competitor product names, trademarks, and part numbers are the property of their respective owners and are used solely for identification purposes. This Competitive Cross-Reference is based on publicly available manufacturer specifications, which Wakefield Thermal has not independently verified. Wakefield Thermal makes no representation or warranty regarding the interchangeability or equivalence of any referenced products. Customers are responsible for verifying performance and suitability for their intended application.

NOTES

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.