

SILCOOL™ TIA241GF LIQUID DISPENSED GAP FILLER

Description

SILCOOL TIA241GF gap filler is a 2-component, soft, thermally conductive silicone material used to dissipate heat from electronic devices. Its non-slumping pasty consistency offers physical stability that can allow improved processing. SILCOOL TIA241GF gap filler can be used as a liquid dispensed alternative to pre-fabricated thermal pads in a broad array of thermal designs for electronic applications.

Key Features and Typical Benefits

- Good thermal conductivity
- Fast, low temperature cure
- Convenient 1:1 mix ratio by weight
- Retained softness after cure for enhanced stress relief during thermal cycling
- Excellent slump resistance (stays in place)
- Repairable
- Flame retardant: UL94V-0 certified (File no. E56745)
- Glass bead options available (180 & 250µm) for bond line thickness (BLT) control

Typical Physical Properties

Uncured Properties	SilCool TIA241GF (A) gap filler	SilCool TIA241 GF (B) gap filler
Appearance (Part A & B)	Blue	Pale Blue
Viscosity ⁽⁴⁾ Pa*s	220	220
Mix Ratio by Weight	1:1	
Viscosity ⁽⁴⁾ after Mixing Pa*s	220	
Thixo Index	2.6	
Work Life at 23 °C Hours	2	
Cure Conditions Hours		
at 100 °C	0.25	
at 70 °C	0.50	
at 23 °C	24	

Cured Properties (30 minutes at 100 °C)		
Appearance		Blue
Density (23 °C)	g/cm ³	3.14
Thermal Conductivity ⁽¹⁾	W/m•K	4.1
Thermal Resistance ⁽²⁾	mm ² •K/W	30 (BLT: 80µm)
Hardness (Type E)		45
Hardness (Shore 00)		70
Tensile Strength	MPa	0.2
Elongation	%	40
Volume Resistivity	MΩ•m	1.0 x 10 ⁴
Dielectric Strength	kV/mm	14
CTE ⁽³⁾	ppm/C°	110
Low Volatile (D ₄ -D ₁₀)	ppm	150
Flame Retardant	(UL94)	V-0 (equivalent)
Relative Temperature Index	(RTI)	150 °C (equivalent)

(1): Hot wire method / (2), (3): In-house test method.

(4): Rheometer

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

Potential Applications

Thermal interface for electronic components in Automotive, Consumer, Telecommunication, Lighting and Industrial applications.

General Considerations for Use

Materials such as water, sulfur, nitrogen compounds, organic metallic salts, phosphorus compounds, etc. contained in the surface of the substrate can inhibit curing. A sample patch should always be conducted before proceeding in order to determine substrate compatibility.

- Wear eye protection when handling uncured rubber as it can irritate eyes. In case of eye contact, immediately flush eyes well with water and contact a physician.
- Maintain adequate ventilation in the work place at all times.

While the typical operating temperature for silicone materials ranges from -45°C to 200°C, the long-term maintenance of its initial properties is dependent upon design related stress considerations, substrate materials, frequency of thermal cycles, and other factors.

Storage

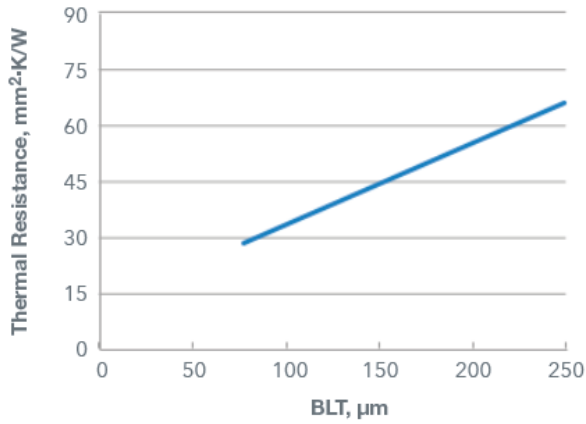
- Store in a cool, dry place out of direct sunlight.
- Keep out of the reach of children.

Option for Glass Beads

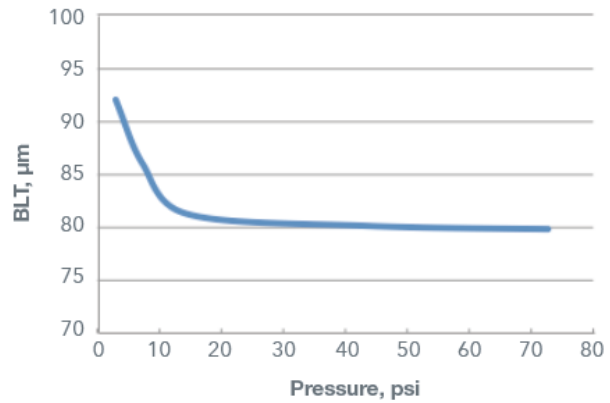
- Material is available with spacers for bond line thickness control.
- Currently available glass bead sizes: 180µm and 250µm; other sizes can be made available upon request.

Additional Test Data

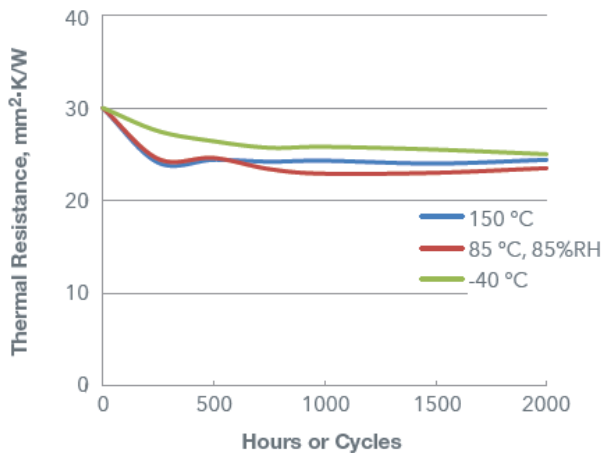
Thermal Resistance and BLT



BLT vs. Assembly Pressure



Thermal Resistance Reliability



Note: Test data. Actual results may vary.

Example Test Conditions:

Sandwich 0.02ml of SILCOOL TIA241GF gap filler between 10mm x 10mm silicon dies, assemble at 500kPa pressure and cure at 100 °C for 0.5 hours. Measure thermal resistance using Laser Flash Method.

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

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 applications.

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