Technical Data Sheet

BERGQUIST GAP FILLER TGF 4000

Known as BERGQUIST GAP FILLER 4000
October 2018

PRODUCT DESCRIPTION

A thermally conductive, liquid gap filler material.

Technology	Silicone
Appearance (cured)	Blue
Appearance - Part A	Blue
Appearance - Part B	White
Cure	Room temperature cure or Heat cure
Application	Thermal management, TIM (Thermal Interface Material)
Mix Ratio by weight: Part A: Part B	1 : 1
Mix Ratio by volume: Part A: Part B	1 : 1
Solids Content, %	100
Operating Temperature Range	-60 to 200ºC

FEATURES AND BENEFITS

- Thermal Conductivity: 4.0 W/m-K
- Extended working time for manufacturing flexibility
- Ultra-conforming, with excellent wet-out
- 100% solids - no cure by-products
- Excellent low and high temperature mechanical and chemical stability

BERGQUIST GAP FILLER TGF 4000 is a two-part, high thermal conductivity, liquid gap filling material. The mixed system will cure at room temperature and can be accelerated with the addition of heat. BERGQUIST GAP FILLER TGF 4000 offers an extended working time to allow greater flexibility in the customer's assembly process.

Liquid dispensed thermal materials offer infinite thickness variations and impart little to no stress on sensitive components during assembly. BERGQUIST GAP FILLER TGF 4000 exhibits low level natural tack characteristics and is intended for use in applications where a strong structural bond is not required.

As cured, BERGQUIST GAP FILLER TGF 4000 provides a soft, thermally conductive, form-in place elastomer that is ideal for fragile assemblies and filling unique and intricate air voids and gaps.

TYPICAL APPLICATIONS

- Automotive electronics (HEV, NEV, batteries)
- Computer and peripherals
- Between any heat-generating semiconductor and a heat sink
- Telecommunications

TYPICAL PROPERTIES OF UNCURED MATERIAL

Viscosity, High shear, Capillary, ASTM D5099, mPa·s (cP):	
1,500/ sec, Part A and B measured separately	50,000
Density, ASTM D792, g/cc	3.1
Working Time @ 25°C, Parallel plate rheometer, see reactivity application note, minutes	240
Shelf Life @ 25ºC , days	150

TYPICAL CURE SCHEDULE

Cure Schedule

24 hours @ 25°C
30 minutes @ 100°C

Parallel plate rheometer, see reactivity application note.

TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties

Hardness, Shore 00, Thirty second delay value, ASTM D2240	75
Heat Capacity, ASTM D1269, J/g-K	0.8
Flammability, UL 94	V-0

Electrical Properties

Dielectric Strength, ASTM D149, V/mil	450
Dielectric Constant , ASTM D150 @ 1,000 Hz	7.9
Volume Resistivity, ASTM D257, ohm-meter	1×10^{10}

Thermal Properties

Thermal Conductivity, ASTM D5470, W/(m-K)	4.0

GENERAL INFORMATION

For safe handling information on this product, consult the Safety Data Sheet, (SDS).

Not for product specifications

The technical data contained herein are intended as reference only. Please contact your local quality department for assistance and recommendations on specifications for this product.

The above cure profiles are guideline recommendations. Cure conditions (time and temperature) may vary based on customers' experience and specific application requirements, as well as customer curing equipment, oven loading and actual oven temperatures.

CONFIGURATIONS AVAILABLE

BERGQUIST GAP FILLER TGF 4000 is available in the following configurations:

- Cartridges
- Kits

STORAGE

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

Optimal Storage: 5 to 25ºC for a 5 month shelf life, in sealed containers with moisture barrier packaging.

Conversions

(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
N x 0.225 = lb/F
N/mm x 5.71 = lb/in
psi x 145 = N/mm²
MPa = N/mm²
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

Disclaimer

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product. Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Belgium NV, Henkel Electronic Materials NV, Henkel Nederland BV, Henkel Technologies France SAS and Henkel France SA please additionally note the following:
In case Henkel would be nevertheless held liable, on whatever legal ground, Henkel's liability will in no event exceed the amount of the concerned delivery.

In case products are delivered by Henkel Colombiana, S.A.S. the following disclaimer is applicable:
The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product.
Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Corporation, or Henkel Canada Corporation, the following disclaimer is applicable:
The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, **Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.** The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Henkel Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

Trademark usage
Except as otherwise noted, all trademarks in this document are trademarks of Henkel Corporation in the U.S. and elsewhere. ® denotes a trademark registered in the U.S. Patent and Trademark Office.

Reference 1