



# BERGQUIST GAP PAD TGP EMI4000

July 2023

## PRODUCT DESCRIPTION

BERGQUIST GAP PAD TGP EMI4000 provides the following product characteristics: Thermally Conductive, Conformable EM Absorbing Material.

<b>Technology</b>	Silicone free
Appearance	Dark Gray Pad
Reinforcement Carrier	None
Thickness, ASTM D374	0.75 to 2.0 mm
Inherent Surface Tack	2
<b>Application</b>	Thermal management, EM absorbing, TIM (Thermal Interface Material)
Operating Temperature Range	-40 to 125°C

## FEATURES AND BENEFITS

- Thermal Conductivity: 4 W/mK
- Silicone-free formulation
- Electromagnetic radiation absorbing up to 77 GHz
- Highly conformable with natural tack

BERGQUIST GAP PAD TGP EMI4000 is a highly conformable, silicone-free material offering both thermal conductivity (4W/mK) performance and EM absorption (cavity resonances and/or cross-talk causing electromagnetic interference) at frequencies up to 77 GHz. The soft nature of the material enables low assembly stress and enhances wet-out at the interface resulting in better thermal performance than harder materials with a similar performance rating. Low bleed formula prevents gap instability and loss in functionality over time.

BERGQUIST GAP PAD TGP EMI4000 has an inherent, natural tack on both sides of the material eliminating the need for heat flow-impeding adhesive layers and allowing improved handling during placement and assembly. To further enhance handling, BERGQUIST GAP PAD TGP EMI4000 is supplied with protective liners.

## TYPICAL APPLICATIONS

- Radars
- ADAS Data Modules/Domain Controllers
- V2X/Telematics
- Control Units
- Telecommunications

## TYPICAL PROPERTIES OF CURED MATERIAL

Young's modulus is based on stress at 10% strain using 0.25 mm/min step rate with sample size 509 mm<sup>2</sup>.

### Physical Properties

Hardness, Shore 00	60
Thirty second delay value, ASTM D2240, Bulk rubber	
Heat Capacity, ASTM E1269, J/g-K	0.8
Density, Bulk rubber, ASTM D792, g/cc	2.67
Flammability, UL 94	V-0
Young's Modulus, ASTM D575	kPa 550 (psi) (80)

### Electrical Properties

(Measured at 1mm)

Dielectric Breakdown Voltage, ASTM D149, VAC	1,000
Dielectric Constant, ASTM D150, 1,000 Hz	48
Volume Resistivity, ASTM D257, ohm-meter	4.4×10 <sup>7</sup>

### Thermal Properties

Thermal Conductivity, ASTM D5470, W/(mK)	4
Thermal Impedance, 1mm ASTM D5470, °C-in <sup>2</sup> /W:	
10% Deflection	0.35
20% Deflection	0.3
30% Deflection	0.26

These values are provided for reference only. Actual application performance will vary and is directly related to the surface roughness, flatness and pressure applied. Henkel recommends that all materials are evaluated by the customer for each application.

### EMI Properties

Based on waveguide testing at 1mm thickness.

Attenuation, ASTM D5568	
@ 18 GHz, dB/cm	86
@ 70 GHz, dB/cm	127

## 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 Henkel representative for assistance and recommendations on the specifications of this product.

**CONFIGURATIONS AVAILABLE**

BERGQUIST GAP PAD TGP EMI4000 can be available in the following configurations:

- Die-Cut parts
- Trays
- Tape and Reel

Natural tack both sides.

**STORAGE**

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

Optimal Storage: 25°C (±3), 50% RH (±10) for a 12 months shelf life.

Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel Corporation cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Center or Customer Service Representative.

**Conversions**

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$   
 $\text{kV/mm} \times 25.4 = \text{V/mil}$   
 $\text{mm} / 25.4 = \text{inches}$   
 $\text{N} \times 0.225 = \text{lb/F}$   
 $\text{N/mm} \times 5.71 = \text{lb/in}$   
 $\text{N/mm}^2 \times 145 = \text{psi}$   
 $\text{N/mm}^2 = \text{MPa}$   
 $\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$   
 $\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$   
 $\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$   
 $\text{mPa}\cdot\text{s} = \text{cP}$

**ADDITIONAL INFORMATION****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 2

Americas  
+1.888.943.6535

Europe  
+32.1457.5611

Asia  
+86.21.2891.8000

**For the most direct access to local sales and technical support visit: [www.henkel.com/electronics](http://www.henkel.com/electronics)**