



BERGQUIST HI FLOW THF 1600P

Known as BERGQUIST HI-FLOW 300P
April 2020

PRODUCT DESCRIPTION

Electrically Insulating, Thermally Conductive Phase Change Material.

Technology	Phase Change
Appearance	Green
Reinforcement Carrier	Polyimide
Total Thickness , ASTM D374	0.102 to 0.127 mm
Film Thickness , ASTM D374	0.025 to 0.05 mm
Application	Thermal management, Thermally conductive adhesive
Operating Temperature	150 °C

FEATURES AND BENEFITS

- Thermal impedance: 0.13°C-in²/W @ 25 psi
- Field-proven polyimide film
 - excellent dielectric performance
 - excellent cut-through resistance
- Outstanding thermal performance in an insulated pad

TYPICAL APPLICATIONS

- Spring/clip mounted
- Discrete power semiconductors and modules

BERGQUIST HI FLOW THF 1600P consists of a thermally conductive 55°C phase change compound coated on a thermally conductive polyimide film. The polyimide reinforcement makes the material easy to handle and the 55°C phase change temperature minimizes shipping and handling problems.

BERGQUIST HI FLOW THF 1600P achieves superior values in voltage breakdown and thermal performance when compared to its competition. The product is supplied on an easy release liner for exceptional handling in high volume manual assemblies.

BERGQUIST HI FLOW THF 1600P is designed for use as a thermal interface material between electronic power devices requiring electrical isolation to the heat sink.

Bergquist suggests the use of spring clips to assure constant pressure with the interface and power source. Please refer to thermal performance data to determine nominal spring pressure for your application.

TYPICAL PROPERTIES

Physical Properties

Elongation , ASTM D882A, %	40
Tensile Strength, ASTM D882A, MPa	48
Phase Change Temperature, ASTM D3418, °C	55
Flammability Rating, UL 94	V-0

Electrical Properties

Dielectric Breakdown Voltage, ASTM D149, VAC	5,000
Dielectric Constant , ASTM D150 @ 1,000 Hz	4.5
Volume Resistivity, ASTM D257, ohm-meter	1×10 ¹²

Thermal Properties

Thermal Conductivity , ASTM D5470, W/(m-K) ⁽¹⁾	1.6
---	-----

Thermal Performance vs. Pressure

TO-220 Thermal Performance, °C/W

@ 0.001"	
@ 10 psi	0.95
@ 25 psi	0.94
@ 50 psi	0.92
@ 100 psi	0.91
@ 200 psi	0.9
@ 0.0015"	
@ 10 psi	1.19
@ 25 psi	1.17
@ 50 psi	1.16
@ 100 psi	1.14
@ 200 psi	1.12
@ 0.002"	
@ 10 psi	1.38
@ 25 psi	1.37
@ 50 psi	1.35
@ 100 psi	1.33
@ 200 psi	1.32

Thermal Impedance, ASTM D5470, °C-in²/W ⁽²⁾

@ 0.001"	
@ 10 psi	0.13
@ 25 psi	0.13
@ 50 psi	0.12
@ 100 psi	0.12
@ 200 psi	0.12



@ 0.0015"	
@ 10 psi	0.17
@ 25 psi	0.16
@ 50 psi	0.16
@ 100 psi	0.16
@ 200 psi	0.15
@ 0.002"	
@ 10 psi	0.19
@ 25 psi	0.19
@ 50 psi	0.19
@ 100 psi	0.18
@ 200 psi	0.18

1) This is the measured thermal conductivity of the Hi-Flow coating. It represents one conducting layer in a three-layer laminate. The Hi-Flow coatings are phase change compounds. These layers will respond to heat and pressure induced stresses. The overall conductivity of the material in post-phase change, thin film products is highly dependent upon the heat and pressure applied. This characteristic is not accounted for in ASTM D5470. Please contact Bergquist Product Management if additional specifications are required.

2) The ASTM D5470 test fixture was used and the test sample was conditioned at 70°C prior to test. The recorded value includes interfacial thermal resistance. These values are provided for reference only. Actual application performance is directly related to the surface roughness, flatness and pressure applied.

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.

CONFIGURATIONS AVAILABLE

BERGQUIST HI FLOW THF 1600P is supplied in:

- Roll form, die-cut parts and sheet form, dry both sides

Conversions

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

Disclaimer

Note:

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, Resin Technology Group, Inc., 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 **N/A**