

LOCTITE TCF 2000

Known as POWERSTRATE 51
October 2017

PRODUCT DESCRIPTION

LOCTITE TCF 2000 provides the following product characteristics:

Technology	Phase Change
Appearance	Black
Operating Temperature Range	up to 150°C
Application	Thermal management
Typical Assembly Applications	- Thermal grease replacement in computing applications - Used between any heat dissipating electrically isolated component and a heat sink or thermal solution

LOCTITE TCF 2000 phase-change thermal interface material is suitable for use between a heat sink and a variety of heat generating components. This product is supplied as a dry compound coated onto an aluminum substrate.

The compound is designed to flow at the phase change temperature, conforming to the surface features of the heat sink and component. Upon flow, air is expelled from the interface, reducing thermal impedance, performing as a highly efficient thermal transfer material.

LOCTITE TCF 2000 is supplied as die-cut preforms to match a wide variety of electronic components. Custom parts are also available upon request with low cost tooling.

MATERIAL PROPERTIES

LOCTITE TCF 2000 is supplied in a range of compound thicknesses to match surface finish and flatness considerations in the interface area.

AF

Substrate Type	Aluminum		
Thickness:			
Substrate	mm	0.051	
	(inches)	(0.002)	
Compound side	Thickness (Nominal), each mm	0.012	
	(inches)	(0.0005)	
Total	mm	0.076	
	(inches)	(0.003)	
Thermal Impedance, ASTM-D-5470			
@ 10 psi	°C-cm ² /W	0.142	
	(°C-in ² /W)	(0.022)	
@ 80 psi	°C-cm ² /W	0.058	
	(°C-in ² /W)	(0.009)	
:			
@ 10 psi	°C-cm ² /W	0.142	
	(°C-in ² /W)	(0.022)	
@ 80 psi	°C-cm ² /W	0.058	
	(°C-in ² /W)	(0.009)	

PHYSICAL PROPERTIES

Phase Change Temperature, °C	51
Volumetric expansion of thermal compound upon phase change, %	15
Viscosity above phase change temperature	Thixotropic

GENERAL INFORMATION

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

SURFACE CONDITIONS

Different versions of LOCTITE TCF 2000 have been developed to address the variables associated with a wide range of applications. As a general recommendation, we suggest:

Surface Finishes	64 microinches or better 1.6 microns or better
Surface Flatness	0.002 inches/inch or better 0.002 cm/cm or better

DIRECTIONS FOR USE

- LOCTITE TCF 2000 is completely re-workable. No foreign residue remains after disassembly. A replacement pad can be installed without further cleaning.
- If a clean surface is required, any presence of a compound can be easily removed with mineral spirits.
- LOCTITE TCF 2000 is not sensitive to mounting orientation due to its thixotropic rheology.
- This product does not contain silicones and will not migrate from the interface area.

AVAILABILITY

Pre-tooled pads are available for many commonly used electronic devices.

LOCTITE TCF 2000 may be available as single die cut pads, multi-pad sheets, or on continuous rolls for high volume production.

LOCTITE TCF 2000 is also available with adhesive edge strips for ease of assembly. In this case, the pad will be oversized so that the adhesive is outside the thermal path. This enables the adhesive to be provided without compromising the thermal performance of the portion of the pad in the contact area of the thermal path.

STORAGE:

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

Optimal Storage: 23 °C. Storage greater than 40 °C can adversely affect product properties.

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

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.

Conversions

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

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.

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