

LOCTITE HYSOL KL 5000HT-HR

August 2014

PRODUCT DESCRIPTION

LOCTITE HYSOL KL 5000HT-HR is a Halogen-Free ("Dark Green") transfer mold compound providing the following product characteristics:

Technology	Epoxy
Cure	Heat
Appearance	Black
Filler Type	Silica
Filler Weight, %	83
Application	Mold Compound
Target Package(s)	TO220 Full Pack
Product Benefits	• Halogen free • High thermal conductivity • High productivity • Void-free narrow gap filling capability
Flammability Rating	UL 94 V0 @ 1/8 inch thickness

LOCTITE HYSOL KL 5000HT-HR is designed to improve thermal management in semiconductor devices. This material is formulated to have high thermal conductivity, which makes it applicable for devices requiring improved heat dissipation. It is specifically recommended for use in the assembly of fully molded (isolated) power transistors and rectifiers with high HTRB and reliability requirements.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Spiral Flow, @ 175°C, cm	35
Gel Time @ 175°C, seconds	19
Shelf Life @ 5°C, days	183
Specific Gravity, g/cm ³	2.2

TYPICAL PROCESS DATA

Handling

Preheat Temperature, °C	75 to 100
Molding Temperature, °C	150 to 195
Molding Pressure, Kg/cm ²	30 to 70
Transfer Time, seconds	10 to 30
Curing Time, seconds	90 to 120
Post Cure Time, hours	2 to 6

LOCTITE HYSOL KL 5000HT-HR has been formulated to provide the best possible moldability and as wide a molding latitude as possible. Although molding and curing conditions will vary from situation to situation, recommended starting ranges are shown above.

Please contact Henkel Technical Service for alternative process parameters if needed.

TYPICAL PROPERTIES OF CURED MATERIAL

All measurements are taken at 175°C, unless otherwise noted.

All physical, electrical and analytical measurements are taken on specimens cured for 2 minutes @ 175°C with post cure of 6 hours @ 175°C, unless otherwise specified.

Physical Properties

Hot Hardness, Shore D, @ 175°C, after 120 seconds	84
Glass Transition Temperature (Tg), °C	168
Coefficient of Thermal Expansion, ppm/°C:	
Below Tg	20
Above Tg	63
Flexural Modulus @ 25 °C	N/mm ² 15,442 (psi) (2,239,090)
Flexural Strength @ 25°C	N/mm ² 132 (psi) (18,140)
DMA Modulus:	
@ 25°C	N/mm ² 21,985 (psi) (3,188,655)
@ 175°C	N/mm ² 2,023 (psi) (293,411)
@ 260°C	N/mm ² 1,005 (psi) (145,762)

Application Specific Properties

Thermal Conductivity, W/(m-K)	2.0
Shrinkage, %	0.26
Extractable Ionic Content (ITM107B), ppm:	
Chloride (Cl-)	6.7
Sodium (Na+)	7.8
Potassium (K+)	5.3
Volume resistivity @ 25°C, 500 V, Ω-cm	4.8×10 ¹⁵
Dielectric Constant / Dissipation Factor:	
@ 1 MHz	6.4/3.9

GENERAL INFORMATION

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

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or other strong oxidizing materials.

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.

Storage

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

Mold Compound materials should be stored at 5°C or below, in closed containers. After removal from cold storage, the material **MUST** be allowed to come to room temperature, in the sealed container, to avoid moisture contamination. The suggested waiting time for a standard 15 kg carton box is 24 hours.

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

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

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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