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LOCTITE

Technical Data Sheet

LOCTITE EO7021

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PRODUCT DESCRIPTION

LOCTITE EO7021 provides the following product characteristics:

Technology	Epoxy
Appearance	Black
Product Benefits	• One component • Low viscosity • Fast cure at moderate temperatures
Cure	Heat cure
Application	Encapsulant, Coating

LOCTITE EO7021 encapsulant is designed for use in smart card chip module applications. It is also suitable for die attach automated reel-to-reel processing .

TYPICAL PROPERTIES OF UNCURED MATERIAL

Viscosity, Epprecht , 25 °C, mPa·s (cP):	
Spindle D, speed 5 rpm	17,000
Specific Gravity @ 25ºC, g/cm³	1.19
Shelf Life @ 5°C (from date of manufacture), days	270
Flash Point - See SDS	

TYPICAL CURING PERFORMANCE

Gel Time

@ 100°C, minutes	15
@ 110°C, minutes	7
@ 120ºC, minutes	4

Recommended Cure for Reel-to-Reel Processing

Substrate and Chip Module Preheat, ºC	100
Precure	3 minutes @ 140°C
Postcure (after reel is completely full)	16 hours @ 100°C

Alternate Cure for Reel-to-Reel Processing

Precure	1 hour @ 100°C
Postcure	6 hours @ 120°C

These applies only to coating chip module with 10 to 100 mg of LOCTITE EO7021.

Recommended Cure for Non-Conductive Die Attach Application

1 hour @ 120°C or
5 minutes @ 150°C

The above cure profile is a guideline recommendation. Cure conditions (time and temperature) may vary based on customers' experience and their application requirements, as well as customer curing equipment, oven loading and actual oven temperatures.

TYPICAL PROPERTIES OF CURED MATERIAL

All measurements are taken at room temperature unless otherwise noted.

Physical Properties

Glass Transition Temperature (Tg) by TMA, °C		125
Coefficient of Linear Thermal Expansion , TMA, ppm/°C:		
Alpha 1, 40 to 100 °C		67
Alpha 2, 160 to 200 °C		187
Hardness, , Shore D, DIN 53505, Minimum		83
Tensile Modulus , ASTM D638	N/mm² (psi)	1,447 (210,000)
Flexural Modulus , ASTM D790	N/mm² (psi)	3,364 (488,000)
Elongation , ASTM D638,%		3.97
Thermal Conductivity, ASTM D1674		5.32×10^{-4}
Linear Shrinkage, ASTM D2566,, %		0.73

Electrical Properties

Volume Resistivity, 100 volts, ASTM D257, ohm-cm	1.98×10^{17}
Surface Resistivity, 100 volts, ASTM D257, ohm-cm	5.21×10^{16}
Arc Resistance, ASTM D495, seconds	88.7
Dielectric Constant , ASTM D150:	
@ 10Hz	3.682
@ 1KHz	3.666
@ 10KHz	3.627
@ 100KHz	3.556
Dissipation Factor, ASTM D150:	
@ 100Hz	0.0056
@ 1KHz	0.0063
@ 10KHz	0.0089
@ 100KHz	0.016

TYPICAL PERFORMANCE OF CURED MATERIAL

Tensile Strength , ASTM D638	N/mm² (psi)	48 (7,000)
Flexural Strength, ASTM D790	N/mm² (psi)	0.105 (15.3)

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.

THAWING:

1. Allow container to reach room temperature before use.

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DIRECTIONS FOR USE

1. LOCTITE EO7021 should not be used for potting or globbing masses larger than 1 gram when curing at more than 120ºC. Severe exotgherm may occur and can cause bubble formation, craters on the surface, smoke and high shrinkage. Pre-curing at 100ºC or 110ºC will encounter these disadvantages.
2. Mix thoroughly before use. Heating to 40ºC will lower the viscosity and aid in mixing and pouring (the viscosity will remain the same for a few hours).

STORAGE:

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

Optimal Storage : 10 °C or lower

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

(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
N x 0.225 = lb
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

Note:
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Reference N/A