

LOCTITE ECCOBOND NCP 5209

November 2013

PRODUCT DESCRIPTION

LOCTITE ECCOBOND NCP 5209 provides the following product characteristics:

Technology	Acrylate
Appearance	Pale yellow
Product Benefits	<ul style="list-style-type: none">• High purity• Non-conductive• Excellent protection of electrical joints• Compatible with small assembly gap and tight pitches
Cure	Thermal compression and Heat cure
Application	Pre-applied underfill

LOCTITE ECCOBOND NCP 5209 is designed for thermal compression bonding processes in flip chip to laminate assembly. LOCTITE ECCOBOND NCP 5209 is a non-conductive paste adhesive designed for advanced flip chip Cu pillar applications.

It is formulated to be pre-applied to the substrate and provide fluxing activity to allow solder joint formation and bump protection reliability in flip chip bonding processes.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Viscosity @ 25 °C, mPa·s (cP):	
Spindle 51, speed 5 rpm	12,500
Thixotropic Index (0.5/5.0 rpm)	2.2
Specific Gravity @ 25°C	1.5
Shelf Life @ -40°C, days	365
Flash Point - See SDS	

TYPICAL CURING PERFORMANCE

Thermal Compression Bonding

Sample used: 7 X 7 mm (275 x 275 mil) die, 1,048 bumps

Step 1: Contact Process

Ramp Rate, °C/sec	200
Contact Temperature, °C	130
Search height, mm	0.5
Search speed, mm/sec	0.3
Hold time, seconds	0.7
Force, N	75
Stage Temp, °C	70

Step 2: Bonding Process

Ramp Rate, °C/sec	200
Peak Temperature, °C	250
Hold time, seconds	2.8
Force, N	75
Stage Temp, °C	70

Post Cure

30 minute ramp to 160°C + 2 hours @ 160°C

The above thermal compression profile and post cure condition are guideline recommendations. These 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

Physical Properties:

Coefficient of Thermal Expansion , ppm/°C:		
Below Tg		28
Above Tg		80
Glass Transition Temperature, °C:		
by TMA		145
by DMA		188
Storage Modulus, DMA @ 25 °C		
	GPa	7.3
	(N/mm ²)	(7,300)
	(psi)	(1,058,775)
Extractable Ionic Content, ppm:		
Sodium (Na+)		<10
Potassium (K+)		<10
Chloride (Cl-)		<10

GENERAL INFORMATION

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

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.
2. After removing from the freezer, set the syringes to stand vertically while thawing.
3. DO NOT open the container before contents reach 25°C temperature. Any moisture that collects on the thawed container should be removed prior to opening the container.
4. DO NOT re-freeze. Once thawed to 25°C, the adhesive should not be re-frozen.

Storage

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

Optimal Storage : -40 °C

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

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

Reference 0.0

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