

# LOCTITE ABLESTIK NCF 218

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## PRODUCT DESCRIPTION

LOCTITE ABLESTIK NCF 218 provides the following product characteristics:

<b>Technology</b>	BMI
<b>Appearance</b>	Transparent yellow film
<b>Product Benefits</b>	<ul style="list-style-type: none"> <li>Enable fine pitch, narrow gap Cu Pillar</li> </ul>
<b>Cure</b>	Heat cure
<b>Application</b>	Semiconductor, Films
<b>Typical Applications</b>	Thermal Compression Bonding

LOCTITE ABLESTIK NCF 218 transparent film is specially formulated for Pb free, low  $\kappa$ , thin gap, large and thin die used in advance flip chip applications. This material is suitable for die to die, die to wafer (TSV) or die to substrate applications.

## TYPICAL PROPERTIES OF UNCURED MATERIAL

Shelf Life @ 5 °C, days	180
Flash Point - See SDS	

## TYPICAL PROCESS DATA

### Lamination

Vacuum Time, seconds	10
Pressure, MPa	0.5
Pressure Time, seconds	60
Temperature, °C	50 to 55

### Thermal Compression Bonding

Sample used: 7.3 X 7.3 x 0.15 mm SiN passivation	
Stage Temperature, °C	100
Contact Temperature, °C	130
Search speed, mm/sec	1
Bonding Time (Total), seconds	<4
Bonding Force (depending on die size and bump count), N	35
Peak Temperature, °C	260

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 CURING PERFORMANCE

### Recommended Cure Schedule

30 minutes ramp to 175°C, hold 2 hours @ 175°C

The above cure profiles are guideline recommendations. 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

### Physical Properties

Coefficient of Thermal Expansion:	
Below Tg, ppm/°C	24
Above Tg, ppm/°C	190
Glass Transition Temperature, post cure TMA @ 10°/minute, °C	119
Weight Loss , TGA @ 250 °C, %	1.2
DSC (Differential Scanning Calorimetry):	
On-set temperature, °C	162
Peak temperature	168
Storage Modulus:	
@ 25°C, GPa	6.4
@ 250°C, GPa	0.11
Moisture Absorption, 85°C @ 85°C/85% RH, wt. %	1.2
Extractable Ionic Content, :	
Sodium (Na+)	<10
Potassium (K+)	<10
Chloride (Cl-)	<10

## TYPICAL PERFORMANCE OF CURED MATERIAL

### Hot Die Shear Strength @ 260°C:

3 x 3 mm SiN die on BT substrate	N/mm <sup>2</sup>	5.4
	(psi)	(768)

## 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:

- Allow container to reach room temperature before use, normally 30 minutes.

**DIRECTIONS FOR USE**

1. The surfaces on which the adhesive has to be applied should be clean, dry and free from all dust.

**STORAGE:**

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

**Optimal Storage: -5 to +5°C. Storage below -5°C or above 25°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.

**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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**Reference 2**