



FF2200

January 2009

PRODUCT DESCRIPTION

FF2200 provides the following product characteristics:

Technology	Epoxy
Appearance	Off-white
Cure	Heat cure
Product Benefits	• Reduced process cycle time • Elimination of separate flux application • Reduced dispense time, flow time and cure time • Offers a single material approach
Application	Encapsulant
Substrates	Organic Solder Preservative (OSP) and Copper-nickel-gold

FF2200 is a reflow encapsulant designed for the assembly and protection of flip chip semiconductor devices utilizing a single material approach. The material is formulated to provide the required flux for eutectic and lead free solder joint formation. It also provides the necessary environmental protection and stress distribution properties required by advanced assembly and packaging applications. The material is also compatible with a variety of device passivations, interconnect substrates and substrate finishes.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Viscosity, Brookfield, 25 °C, mPa·s (cP):

Spindle 52, speed 20 rpm 3,600

Shelf Life @ -40°C, months 9

Pot Life 25 °C, hours 16

Flash Point - See MSDS

TYPICAL CURING PERFORMANCE

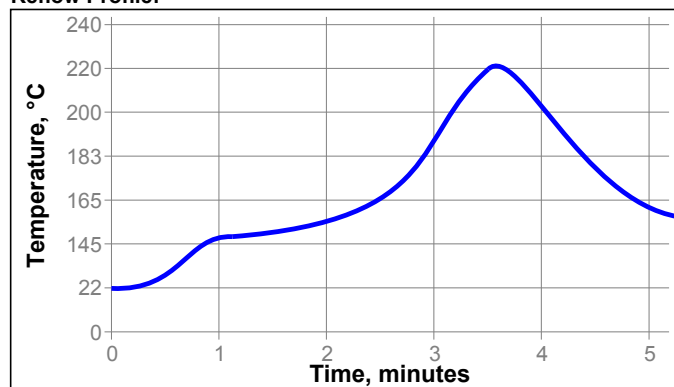
Cure Schedule

Standard SMT reflow cycle incorporating at 145 to 165°C dwell prior to ramp up to reflow temperature

Post Cure: 5 to 10 minutes @ 165°C may be required to achieve the best reliability results

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.

Reflow Profile:



TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Coefficient of Thermal Expansion, ppm/°C:	
Below Tg	75
Glass Transition Temperature (Tg) by TMA, °C	128
Flexural Strength, GPa, (ASTM D790)	2.8
Extractable Ionic Content, @ 100°C ppm:	
Chloride (Cl-)	<10
Sodium (Na+)	<5

TYPICAL PERFORMANCE OF CURED MATERIAL

GENERAL INFORMATION

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

THAWING:

1. Allow container to reach room temperature before use.
2. For best results in dispensing, an 18 gauge needle should be used at 10 psi pressure.
3. Preheat of the substrate is not required with this material.

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.

Optimal Storage: -40 °C. Storage below minus (-)40 °C or greater than minus (-)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.

Conversions

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$

$\text{kV/mm} \times 25.4 = \text{V/mil}$

$\text{mm} / 25.4 = \text{inches}$

$\text{N} \times 0.225 = \text{lb}$

$\text{N/mm} \times 5.71 = \text{lb/in}$

$\text{N/mm}^2 \times 145 = \text{psi}$

$\text{MPa} \times 145 = \text{psi}$

$\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$

$\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$

$\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$

$\text{mPa}\cdot\text{s} = \text{cP}$

Note

The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, **Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.** The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Henkel Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

Trademark usage

Except as otherwise noted, all trademarks in this document are trademarks of Henkel Corporation in the U.S. and elsewhere. ® denotes a trademark registered in the U.S. Patent and Trademark Office.

Reference 0.1