FP4526 epoxy underfill is designed for capillary flow on flip chip applications.

**TYPICAL PROPERTIES OF UNCURED MATERIAL**

- **Viscosity, Brookfield - Cone & Plate, 25 °C, mPa·s (cP):** 4,700
- **Specific Gravity:** 1.7
- **Particle Size, µm, maximum:** 27
- **Flow Rate, @ 90 °C, 0.5 inch flow, seconds:** 30
- **Pot Life @ 25°C, hours:** 36
- **Gel Time @ 121°C, minutes:** 9
- **Shelf Life @ -40°C, months:** 9
- **Flash Point - See MSDS**

**TYPICAL CURING PERFORMANCE**

**Recommended Cure Schedule**
- 15 minutes @ 165°C
  (Heat sink or hot plate cure)

**Alternative Cure Schedule**
- 30 minutes @ 165°C
  (Convection oven)

With all fast cure systems, the minimum required time for cure depends on the rate of heating. Conditions where a hot plate or a heat sink is used are optimum for fastest cure. Cure rates depend on the mass of material to be heated and intimate contact with the heat source.

**TYPICAL PROPERTIES OF CURED MATERIAL**

**Physical Properties:**
- **Coefficient of Thermal Expansion, ppm/°C:**
  - Below Tg (40 to 90°C): 33
  - Above Tg (190 to 220°C): 101
- **Glass Transition Temperature (Tg) by TMA, °C:** 133
- **Extractable Ionic Content, ppm:**
  - Chloride (Cl-): 25
  - Sodium (Na+): 10
- **Flexural Modulus, N/mm² (psi):**
  - 8,500 (1,232,500)

**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 used with 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.

**THAWING:**

1. Allow container to reach room temperature before use.
2. DO NOT re-freeze. Once thawed, the adhesive should not be re-frozen.

**DIRECTIONS FOR USE**

1. For best results in dispensing a 22 gauge needle should be used at ~10 psi pressure.
2. Optimum preheat temperature for the part is 80 to 90°C.

**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

\( \text{°C} \times 1.8 + 32 = \text{°F} \)

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

\( \text{mm} / 25.4 = \text{inches} \)

\( N \times 0.225 = \text{lb} \)

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

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

\( \text{MPa} \times 145 = \text{psi} \)

\( N \times 8.851 = \text{lb/in} \)

\( N \times 0.738 = \text{lb/ft} \)

\( N \times 0.142 = \text{oz/in} \)

\( \text{mPa·s} = \text{cP} \)

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.

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