

## Technical Data Sheet

### FeedBond® FP-5100-E4B

#### *Electrically Conductive Die Attach Adhesive*

**Description:**

**FeedBond®FP-5100-E4B** single component, electrically conductive die attach adhesive is designed for high reliability packaging application. This adhesive can be used for small die sized chip LED, IC etc. It has the excellent rheological properties for high-speed dispensing and minimal resin bleed and low volatile performances are considered as the strength for this material.

**Application Package:**

Chip LED, SMD LED, Photo coupler, IrDA, etc.

**Characteristics:**

- Test for Au, Ag, Cu & PCB substrate, no bleeding problem.
- Middle, low viscosity, apply for use in automatic die attach equipment.
- At high temperature, still maintain fine adhesion and high heat conduction.
- Improve the durability and reliability of FP-5100-E4

| UNCURED PROPERTIES                  |           | TEST DESCRIPTION                                       | TEST METHOD |
|-------------------------------------|-----------|--|-------------|
| Density                             | 3.6 g/cc  | Pycnometer   | FT-P001     |
| Appearance                          | Silver    |  |             |
| Viscosity @ 25°C                    | 11000 cps | Brookfield DV-III/CP-51 @ 5rpm                         | FT-P006     |
| Thixotropic Index @ 25°C            | 5.7       | Brookfield DV-III/CP-51<br>Visc. @ 0.5rpm/Visc. @ 5rpm | FT-P008     |
| Grind                               | <25µm     | Grind meter  | FT-P026     |
| Work Life @ 25°C                    | 48hrs     |  | FT-P024     |
| Shelf Life @ -40°C                  | 12months  | 25% increase in visc. @ 5rpm                           | FT-P018     |
| CURE CONDITION                      |           | TEST DESCRIPTION                                       | TEST METHOD |
| Standard Cure Condition             |           | 90 minutes in oven @150°C                              |             |
|                                     |           | 60 minutes in oven @160°C                              |             |
| MECHANICAL PROPERTIES-<br>POST CURE |           | TEST DESCRIPTION                                       | TEST METHOD |
| Die Shear Strength @25°C > 150g/die |           | 11mil × 11mil die on Ag Leadframe                      | FT-M012     |

p.s. The tables shown above are typical values only. If you need to write a specification, please request our current Standard Release Specification

## FeedBond® FP-5100-E4B

| PHYSIOCHEMICAL PROPERTIES                           | TEST DESCRIPTION             | TEST METHOD |
|---|------------------------------|-------------|
| Glass Transition Temperature (Tg) 99°C              | DMA 3 Point Bending Mode     | FT-M014     |
| Weight loss @200°C <0.5%                            | TGA                          | FT-P010     |
| @300°C <1.0%  |                              |             |
| Decompose temperature 363°C                         | Td (5%), TGA                 | FT-P010     |
| Coefficient of Thermal Expansion                    |                              |             |
| Below Tg( $\alpha$ 1) 38 ppm/°C                     | TMA Expansion Mode           | FT-M016     |
| Above Tg( $\alpha$ 2) 145ppm/°C                     |                              |             |
| Dynamic Tensile Modulus                             | Dynamic Mechanical Thermal   |             |
| @25°C 4266MPa                                       | Analysis using <1.6 mm thick | FT-M019A    |
| @150°C 116MPa                                       | Specimen(TA)                 |             |
| @250°C 93MPa  |                              |             |
| THERMO/ELECTRO PROPERTIES                           | TEST DESCRIPTION             | TEST METHOD |
| Volume resistivity <0.0005 $\Omega \cdot \text{cm}$ | 4-point probe                | FT-P017     |
| Thermal conductivity 3.5W/m-K                       | Hot Disk                     | FT-P022     |

p.s. The tables shown above are typical values only. If you need to write a specification, please request our current Standard Release Specification

### Instruction

#### Thawing

Place the container to stand vertically for 30min ~ 90min. **DO NOT** open the container before adhesive reaches ambient temperature to prevent the moisture condensation. Any moisture that collects on the thawed container should be removed prior to use. Adhesives that appear to have separated should not be used.

#### Storage

Adhesive should be stored @ -20 or -40°C. The shelf life of the material is only valid when the material has been stored at the correct storage condition.

| Temp.      | -35°C~-42°C | -18°C~-22°C | 0°C~5°C | 18°C~28°C |
|------------|-------------|-------------|---------|-----------|
| Shelf life | 12months    | 6months     | 3months | 2days     |

#### Availability

FeedBond® adhesives are packaged in syringes or pots per customer specification. For the details, please contact our Customer Service or sales department.