

# ATROX<sup>®</sup> 800HT2VN

## Electrically and Highly Thermally Conductive Die Attach

### DESCRIPTION

**ATROX 800HT2VN** is a dispensable thermosetting conductive die attach with very high thermal conductivity designed for high power semiconductor packages. **ATROX 800HT2VN** has low resin bleed out and low condensable organics which ensure excellent package reliability.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

### TYPICAL PROPERTIES

| Material Properties   | Method         | Value         | Remarks               |
|---|----------------|---------------|-----------------------|
| <b>Uncured</b>  |                |               |                       |
| Chemical type   |                | Thermosetting |                       |
| Color   | Visual         | Grey          |                       |
| Viscosity at 25 °C at 5.0 RPM                                       | ASTM D2196-99  | 19,500 cps    | Brookfield Spindle 51 |
| Thixotropic index<br>(0.5 RPM/5.0 RPM)                              | ASTM D2196-99  | 5.6           | Brookfield Spindle 51 |
| Pot Life @ 23 °C<br>(elapsed time for 25% increase<br>in viscosity) | ISO 10364:1993 | >24 hours     | Brookfield Spindle 51 |
| Storage Temperature   |                | -40 °C        |                       |
| Shelf Life @ -40 (°C/°F)  |                | 6 months      |                       |
| <b>Cured</b>  |                |               |                       |
| Glass Transition (Tan δ Max)  | DMA            | 73 °C         |                       |
| Modulus at 25 °C  | DMA            | 14.5 GPa      |                       |
| Modulus at 260 °C   | DMA            | 3.6 GPa       |                       |
| CTE 1 (below Tg)  | TMA            | 25 PPM        |                       |
| CTE 2 (above Tg)  | TMA            | 60 PPM        |                       |

| Material Properties         | Method        | Value   | Remarks |
|-----------------------------|---------------|---------|---------|
| Thermal Conductivity: Bulk  | Laser Flash   | >130    |         |
| Volume Resistivity (Ohm-cm) | 4-Point Probe | 0.00002 |         |

### DIE SHEAR STRENGTH (3mm x 3mm)

#### Metallized Die (200C cure)

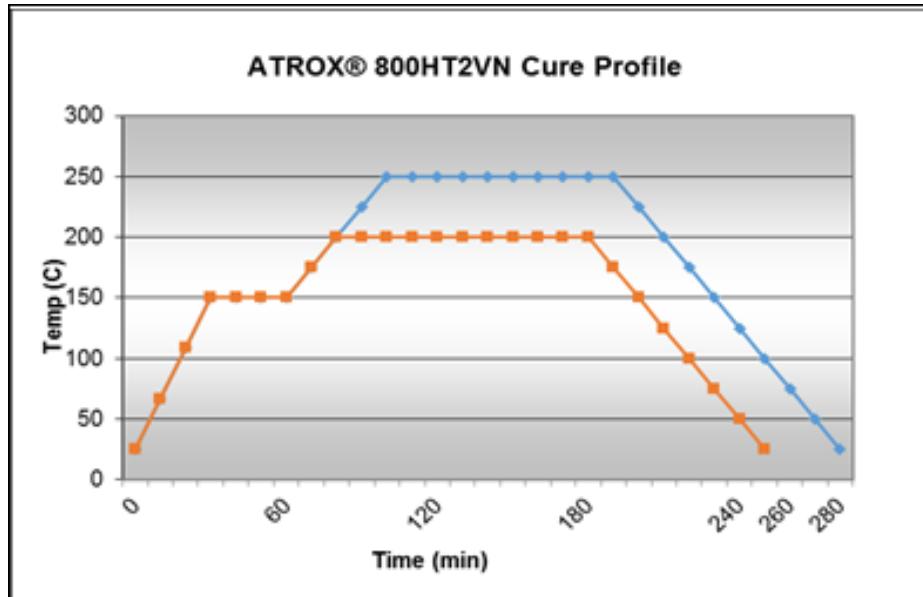
| Lead Frame      | Cure Condition                       | Shear Temp | Value   |
|-----------------|--------------------------------------|------------|---------|
| Ag              | RT to 150 °C/30 min + 200 °C/120 min | 260 °C     | 17 Kg-F |
| PPF<br>(NiPdAu) | RT to 150 °C/30 min + 200 °C/120 min | 260 °C     | 16 Kg-F |
| Cu              | RT to 150 °C/30 min + 200 °C/120 min | 260 °C     | 17 Kg-F |

### MATERIAL APPLICATION

ATROX 800HT2VN is formulated to be applied using a time pressure pump equipped on most die bonders. The material should be consistently dispensed over time. Equipment settings need to be optimized for desired material deposition response based on model and configuration.

### CURE

ATROX 800HT2VN cures using ramp profile with 30 minute soak at 150 °C + ramp 20 minute to 200 °C and soak for 120 minutes. It is recommended that the cure schedule includes at ramp at 5 to 10 °C and a controlled cooling cycle to minimize thermal stresses. For higher adhesion and thermal performance it is recommended to use 250 °C Peak curing temperature as per below profile Depending on thermal mass of application cure times may vary and should be optimized by the end user.



### RELIABILITY PERFORMANCE

ATROX 800HT2VN is recommended for excellent reliability with stable Electrical and Thermal performance during MSL and Thermal Cycling. There is no limitation on die size for metalized die packages. However, it is recommended to consult with your local technical service for optimizing critical parameters for specific packages.

It is also possible to assembly Bare Silicon dies up to 10 mm<sup>2</sup> with excellent electrical and thermal performance. For die sizes larger than 10 mm<sup>2</sup>, kindly contact your local sales representative or assistance.

### CLEAN-UP

Uncured material may be cleaned from dispenser components and surfaces with a variety of solvents, including IPA, acetone, MEK, methylene chloride, etc. Always wash and dry thoroughly prior to re-use of the dispenser components. The cleaning technique should be active cleaning of the components – flush, wash or wipe, followed by a drying step to ensure a clean, dry surface. Do not soak since this can solubilize the hardener within the uncured resin and curing (very difficult to remove). Contact your equipment supplier to ensure the solvent is compatible with their components. Clean and maintain dispense valves as recommended by the equipment manufacturer.

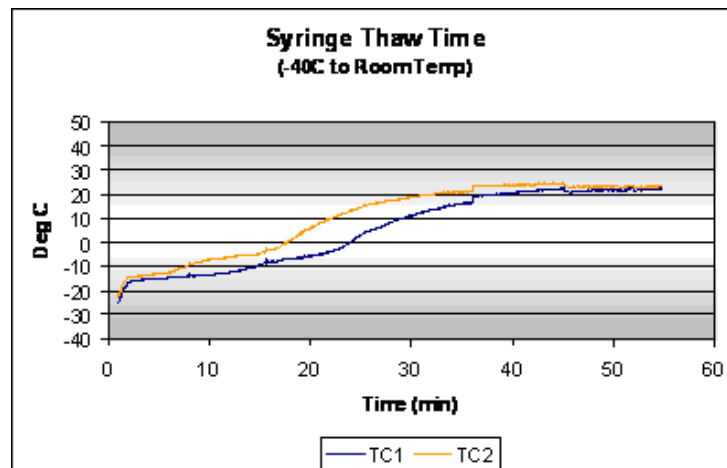
**AVAILABILITY**

ATROX 800HT2VN is available in 5 or 10 cc EFD or Musashi syringes

**SHIPPING & STORAGE**

Material is normally shipped in insulated boxes using dry ice to ensure that the ATROX 800HT2VN maintains all its properties. On receipt, it must be ensured that dry-ice remnants are present in the insulated shipping box. If there is no dry ice, or if the material is not cold, then please contact Alpha Advanced Materials immediately. Exposing to elevated temperatures during shipment and storage will compromise on the performance aspect of the material adversely.

It is recommended to store the syringes of material at -40 °C for a maximum shelf life of 6 months. It is recommended that the material be allowed to thaw before usage. Typical thawing times for 100 gram Jar is typically 90 minutes. Remove the jars from freezer and set aside, allowing it to thaw at room temperature, until it reaches room temperature. To prevent contamination of unused product, do not return any material to its original container.



**SAFETY & WARNING**

It is recommended that the company/operator read and review the Safety Data Sheets for the appropriate health and safety warnings before use. **Safety Data Sheets are available.**

**CONTACT INFORMATION**

To confirm this document is the most recent version, please contact  
**techinfo@MacDermidAlpha.com**  
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Also read carefully warning and safety information on the Safety Data Sheet. This data sheet contains technical information required for safe and economical operation of this product. READ IT THOROUGHLY PRIOR TO PRODUCT USE. Emergency safety directory assistance: US 1 202 464 2554, Europe + 44 1235 239 670, Asia + 65 3158 1074, Brazil 0800 707 7022 and 0800 172 020, Mexico 01800 002 1400 and (55) 5559 1588

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