

# ATROX<sup>®</sup> 558-2C31

## Electrically and Thermally Conductive Die Attach

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

### TYPICAL PROPERTIES

Material Properties	Method	Value	Remarks
<b>A. Uncured</b>			
Chemical type		Thermosetting	
Color	Visual	Grey	
Viscosity at 25 °C at 0.5 RPM	ASTM D2196-99	~50,000 cps	Brookfield Spindle 51
Viscosity at 25 °C at 5.0 RPM	ASTM D2196-99	~ 12,500 cps	Brookfield Spindle 51
Thixotropic index (0.5 RPM/5.0 RPM)	ASTM D2196-99	4.0	Brookfield Spindle 51
Pot Life @ 23 °C (time to doubling of viscosity)	ISO 10364:1993	48 hours	Brookfield Spindle 51
Storage Temperature		-40 (°C/°F)	
Shelf Life @ -40 (°C/°F)		12 months	
<b>B. Cured</b>			
Glass Transition Temperature (T <sub>g</sub> - Max Tan δ)	DMA	140 °C	
Modulus at 25 °C	DMA	4.4 GPa	
Modulus at 260 °C	DMA	0.58 GPa	
CTE 1 (below T <sub>g</sub> )	TMA	45 ppm	
CTE2 (Above T <sub>g</sub> )	TMA	225 ppm	
Thermal Conductivity: Bulk	Laser Flash	4.1 W/mK	
Volume Resistivity		0.0002 Ohm-cm	
TGA Weight Loss during Cure	TGA	1.35 %	

**DIE SHEAR STRENGTH (5.0 MM X 5.0 MM Bare Silicon Die)**

Lead Frame	Cure Condition	Measuring Temperature	Value
Cu	175 °C/1hr	25 °C	69kg
Cu	175 °C/1hr	260 °C	8kg
PPF	175 °C/1hr	25 °C	68kg
PPF	175 °C/1hr	260 °C	13kg

**MATERIAL APPLICATION**

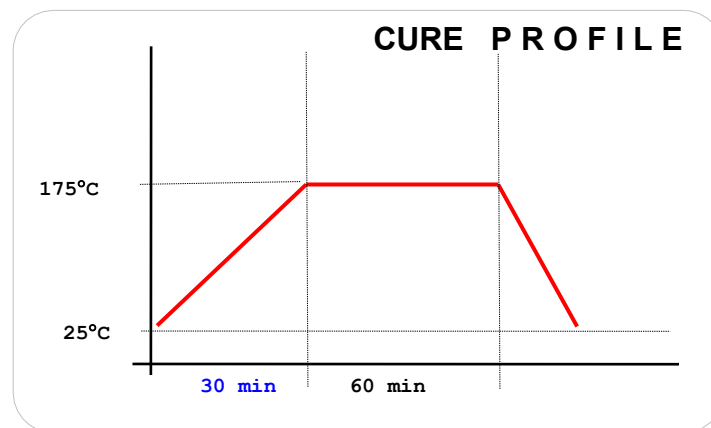
ATROX 558-2C31 is formulated to be applied using a time pressure pump equipped on most die bonders. The material should be consistently dispensed over time.

Equipment settings need to be optimized for desired material deposition response based on model and configuration.

**CURE**

ATROX 558-2C31 cures in 60 minutes in box-oven at 175 °C. For box oven cure, it is recommended that the cure schedule includes at ramp at 5 to 10 °C and a controlled cooling cycle to minimize thermal stresses. Depending on thermal mass of application cure times may vary and should be optimized by the end user.

Alternatively, ATROX 558-2C31 can also be cured in snap cure oven. Kindly consult with your local Technical Service for recommendations.



### 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.

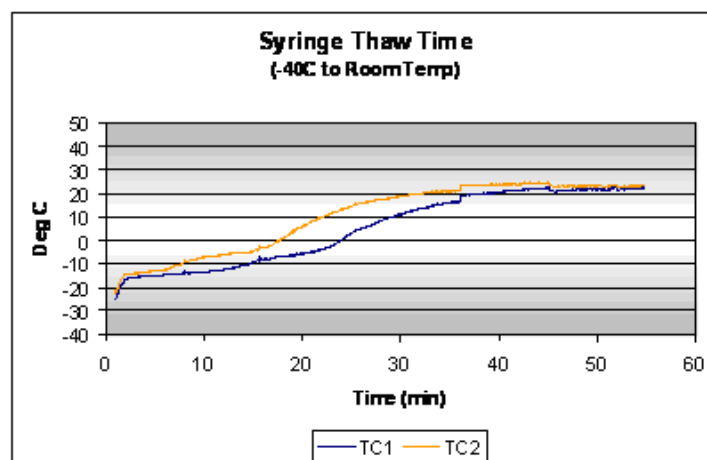
### PACKAGING SIZES

ATROX 558-2C31 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 558-2C31 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 MacDermid Alpha Electronics Solutions 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 12 months. It is recommended that the material be allowed to thaw before usage. Typical thawing times for 5cc and 10cc syringes are presented in chart below. Remove the syringe 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](mailto:techinfo@MacDermidAlpha.com)  
[www.macdermidalpha.com](http://www.macdermidalpha.com)

<p><b>North America</b>          3950 Johns Creek Ct, Suite 300          Suwanee, GA 30024 USA          908.791.2300</p>	<p><b>Europe</b>          Unit 2, Genesis Business Park          Albert Drive          Woking, Surrey, GU21 5RW, UK          44.01483.758400</p>	<p><b>Asia</b>          14 Joo Koon Crescent, Singapore          629014          65.6430.0700</p>
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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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