

ALPHA[®] ATROX[®] 558-2C31

Electrically and Thermally Conductive Die Attach

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

TYPICAL PROPERTIES

Material Properties	Method	Value	Remarks
A. Uncured			
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. Cured			
Glass Transition Temperature (T _g - 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 _g)	TMA	45 ppm	
CTE2 (Above T _g)	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

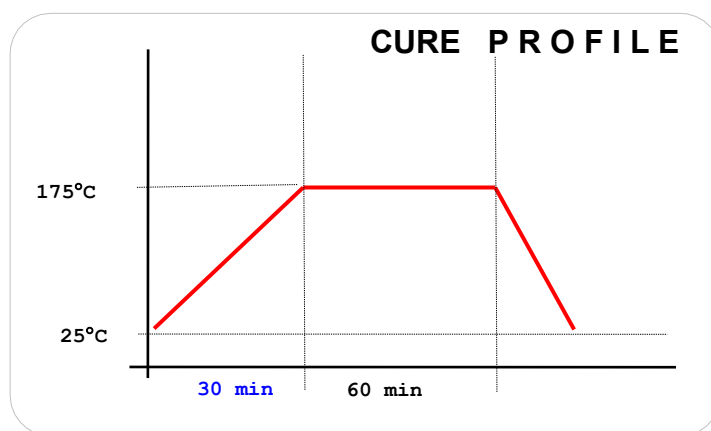
ATROX 558-2C31 is formulated to be applied using a time pressure pump equipped on most die bonders. The material should be consistently dispensed over time.

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.

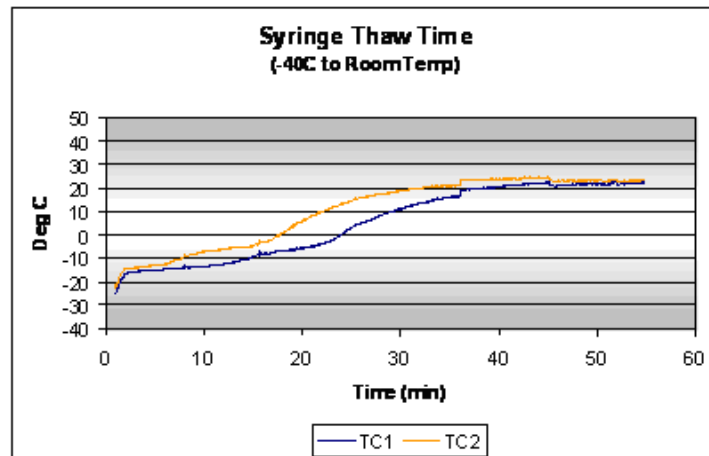
PACKAGING SIZES

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.**

WASTE TREATMENT

Prior to using any recommendations or suggestions for waste treatment, the user is required to know the appropriate local/state/federal regulations for on-site or off-site treatment which may require permits. If there is any conflict regarding our recommendations, local/state/federal regulations take precedent.

CONTACT INFORMATION

www.macdermidalpha.com

North America

140 Centennial Avenue
Piscataway, NJ 08854
1.800.367.5460

Europe

Unit 2, Genesis Business Park
Albert Drive
Woking, Surrey, GU21 5RW, UK
44.01483.758400

Asia

14 Joo Koon Crescent, Singapore
629014
65.6430.0700

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

DISCLAIMER: All statements, technical information and recommendations contained herein are based on tests we believe to be reliable, but the accuracy or completeness thereof is not guaranteed. No statement or recommendation shall constitute a representation unless set forth in an agreement signed by officers of seller and manufacturer. NO WARRANTY OF MERCHANTABILITY, WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY IS MADE. The following warranty is made in lieu of such warranties and all other warranties, express, implied, or statutory. Products are warranted to be free from defects in material and workmanship at the time sold. The sole obligation of seller and manufacturer under this warranty shall be to replace any noncompliant product at the time sold. Under no circumstances shall manufacturer or seller be liable for any loss, damage or expense, direct, indirect, incidental or consequential, arising out of the inability to use the product. Notwithstanding the foregoing, if products are supplied in response to a customer request that specifies operating parameters beyond those stated above, or if products are used under conditions exceeding said parameters, the customer by acceptance or use thereof assumes all risk of product failure and of all direct, indirect, incidental and consequential damages that may result from use of the products under such conditions, and agrees to exonerate, indemnify, defend and hold harmless MacDermid, Incorporated and its affiliates therefrom. No suggestion for product use nor anything contained herein shall be construed as a recommendation to use any product in a

manner that infringes any patent or other intellectual property rights, and seller and manufacturer assume no responsibility or liability for any such infringement.

© 2019 MacDermid, Inc. and its group of companies. All rights reserved. "(R)" and "TM" are registered trademarks or trademarks of MacDermid, Inc. and its group of companies in the United States and/or other countries.