

Technical Datasheet

CHIPSHIELD 2401

CHIPSHIELD 2401 is an UV light and/or heat curable epoxy suitable for microelectronic assembly. It cures rapidly when exposed to UV light in the 320-380 nm range to a tough resistant material with excellent adhesion to a variety of substrates.

Key Features include:

- ◆ Ultra low Shrinkage ◆ Good thermal cycle performance
- ◆ Low CTE ◆ Fast fixture time

These are typical properties and are not a product specification.

Properties Uncured	
Standard Color:	Grey
Standard Viscosity:	400,000-450,000 cps
Specific Gravity:	~2.0
Shelf Life:	3 months @ 0°C or less
Pot Life*:	~8 hrs. @ 20-25°C
Contents:	Silica Filler

* Pot Life times are mass dependent. EMIUV makes no guarantee of accuracy. Your results may vary.

Recommended	Tapered Tip,
Dispense Tip:	25 gage or larger
Recommended	>150 µm
Minimum Bond Line	
Thickness:	

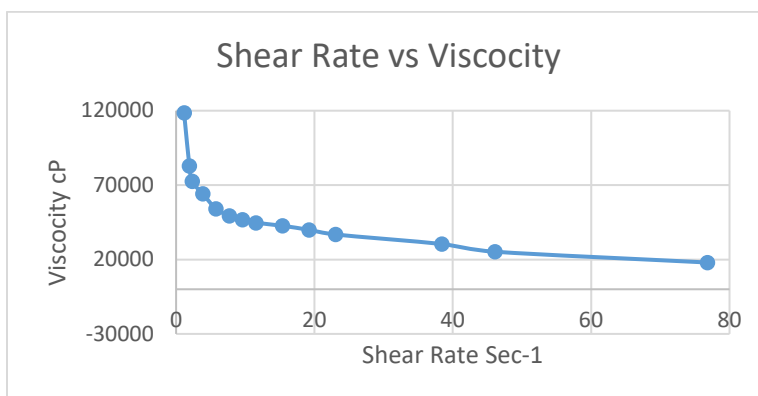
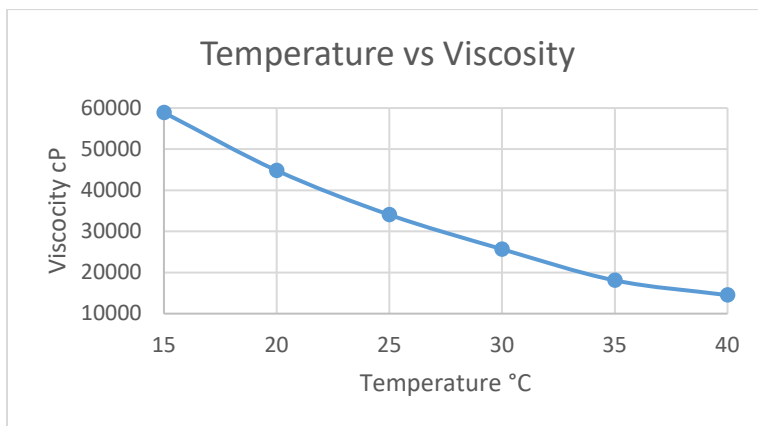
Properties Cured	
Color:	Grey
CTE:	19 ppm/°C
Tg:	175°C (TMA)
Hardness:	94 Rex D
Thermal Conductivity:	~0.7 W/mK
Volume Resistivity:	10 ¹⁵
Linear Shrinkage:	~1.25%
Moisture Absorption:	0.35%
Young's Modulus:	525,000 psi
Tensile Strength:	6200 psi
Elongation:	4%
Lap Shear: (gl to gl)	650 psi
Lap Shear: (stlss to stlss)	1740 psi

Cure Profile

CHIPSHIELD 2401 is cured by UV and heat or heat alone. Optimal light wavelengths are 320-380 nm. 365 nm LED ONLY will cure these materials, longer exposure times may be necessary.

- ◆ A heat cure after UV is REQUIRED for full crosslink. UV exposure only results in 70-80% crosslink. UV exposure + 60 minutes at 110C (plus part heat up time) typically results in 100% crosslink.
- ◆ The Light Guide should be within 1cm of adhesive. Or use the recommended focal length for the LED lens used.
- ◆ Always wear proper eye protection when working with UV light.
- ◆ Contact EMIUV for more detailed curing information.

Broad Spectrum Lamp:	@ 1500 mW/cm2:	5-10 second cycles
365 nm LED:	@ < 1000mW/cm2:	10-30 seconds
Heat only	Heat cure from Liquid	
Cure from Liquid:	Minimum Temperature 110°C:	45-60 minutes
	120°C:	20-30 minutes
	130°C:	10-15 minutes
Post UV Heat:	Minimum temperature, 95°C	4-6 hours
	110°C	45-60 minutes
	120°C:	20-30 minutes
	130°C:	10-15 minutes



Handling and Storage

CHIPSHIELD 2401 is shipped and stored frozen for maximum shelf life.

- ◆ Shelf life is 3 months at 0°C or less.
- ◆ Place the material in the freezer as soon as it is received.
- ◆ Once thawed, the material should not be used for more than 24 hours total time at 20-25°C.
- ◆ Avoid prolonged exposure to elevated temperatures before curing.
- ◆ Store in a cool dark area and avoid prolonged exposure to light during long term storage.
- ◆ Do not thaw and refreeze syringe more than 5 times in testing and research.

Shipping and Unpacking Procedure

This material is packed and shipped in dry ice to protect it and maintain a frozen state during shipment. Depending upon the engineered system of insulated container size, packing material, and dry ice, it can protect the material for 24 hours domestic overnight shipping or up to 14 days in transit for international shipping, depending upon ambient condition.

- ◆ It is critical that the shipping container is not opened in transit and is expedited to its final destination.
- ◆ DO NOT ALLOW THE SHIPMENT TO BE LEFT ON LOADING DOCKS, IN CUSTOMS WAREHOUSES, OR ON FREIGHT TRUCKS FOR EXTENDED TIME PERIODS.
- ◆ Maintaining temperature at 0°C or less upon receipt is critical to maintain the functionality and performance of the material.
- ◆ Failure to maintain these temperatures will void any warranties and will adversely affect the material's performance.
- ◆ Upon receipt, the syringes should be transferred from the shipping container to a freezer at 0°C or less.
- ◆ Care must be taken during this step as a sudden increase in temperature can cause irreversible air voids due to the thermal expansion of the syringe barrels.

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Storage and Thawing

Prior to application, the material must be allowed to thaw naturally to room temperature (ideally 20-25°C) by placing the syringes in a vertical position with dispense tip facing downward. This is a critical step for obtaining optimum dispensing performance.

Approximate Thaw times at 20-25°C for all frozen product:

3cc	15-20 min
5cc	20-30 min
10cc	20-30 min
30cc	30-40 min

- ◆ Under no circumstance should artificial heat sources be used to increase thaw speed.
- ◆ Do not place the syringes in, or near, any heat source including ovens, hot plates, hot air guns, etc. to speed thawing.
- ◆ Do not attempt to dispense the material before it reaches ambient temperature.
- ◆ Wipe all excess moisture or condensation from the syringes prior to use.

End of Document

TDS2401.001
6/2021