ORIEM TECHNOLOGY SDN. BHD. **(597413-T)**
Plot 25, Bayan Lepas Industrial Estate, Non-FTZ, Phase 4,
Bayan Lepas, 11900 Penang, Malaysia.
Tel: (6)04-642 6363 Fax: (6)04-642 6366

PRODUCT TECHNICAL BULLETIN

Rev. A

SM 0331UV

(Epoxy Encapsulant)

PRODUCT DESCRIPTION

SM0331UV is a two component, unfilled, rigid potting epoxy resin for encapsulation of mainly LED SMD devices. SM0331UV derived from SM0331 with addition of UV stabilizer to enhance the UV resistant property. SM0331UV has a special stress relieving mechanism that will allow superior reliability performance. When casted, SM0331UV provides excellent clarity, thermal shock resistant and excellent environmental protection.

Key advantages of SM0331UV:

a) Achieve full cure in less than 6 hours
b) High purity material to ensure good consistency
c) Low mixed viscosity to allow easy casting
d) Stress relieving mechanism to offer superior reliability performance

TYPICAL PROPERTIES

Uncured:

Property	03 UV(Part A)	31 (Part B)	Test Method
Color	Blue Clear	Clear	Visual
Shelf life @ 30°C (from date of manufacturing), month	15	12	Use test
Viscosity @ 25°C, cP Brookfiled	4000 - 6000	80 - 150	ASTM2393
Mix viscosity @ 25°C, cP Brookfield		400-800	ASTM2393

Cured:

Property	SM0331UV	Test Method
Color	Water Clear	Visual
Glass transition temperature (midpoint), °C	135 ± 5	ASTM D3418

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Coefficient of thermal expansion ($\alpha 1$ and $\alpha 2$), ppm	$\alpha 1 = 70$; $\alpha 2 = 175$	ASTM D686
Moisture uptake @ 100˚C / 24hrs, %	<1.0 %	ASTM D570

HANDLING & MIXING

Pre-Heating Part A (before mixing)	= 60°C/ 1hour
Mix Ratio (R03UV : H31)	= 110 : 100
Recommended weighing tolerance	= ± 0.1g
Pot Life (upon mixing Part A&B)	= 4 hours

Caution!

Visually inspect containers of the resin before use. Part B does not require heating before mixing. The anhydride system in Part B is moisture sensitive. Always reseal the opened container immediately after use. It is a good practice to purge with nitrogen before resealing. Shake the bottle right before use and make sure that all ingredients inside are properly mixed after storage. Preheat Part A to 60°C for an hour to reduce the viscosity and allow ease of flow. No reaction will take place. Pour the required quantity of Part B into the container first. This is important as Part A has high viscosity and will adhere very well to the side wall of the container making it difficult to mix homogeneously. Then stir gently manually to have partial mix. Then use automated (preferably vacuum mixer) mixer to mix the Part A and Part B. Proceed to degassing if necessary. Application of pressure should be around –30in Hg. Due to low molecular weight of Part B, continuous bubbling may occur. Do not over degas the Part A and B mixture as continuous evaporation of Part B may offset the optimum mix ratio (10 to 20 minutes should be sufficient).

CURE PROCEDURE

Cure profile	= 155 ± 5°C / 1 hour then 150 ± 5°C / 4 hours (exclude ramp up and ramp down)

Important!

The curing time suggested above does not include ramp up from room temperature and ramp down from curing temperature. It should be noted that during the first stage cure, the ramp up time should be fast. This is to reduce excessive vaporization of the anhydride component.

SAFETY AND FIRST AID

Prevent prolonged or frequent skin contact. Wear protective gears when mixing. Avoid inhalation of vapor. Mix in a well ventilated area. If contact occurs, wash with soap and water. Please refer to MSDS for more information.

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PACKAGING & STORAGE

SM0331UV available in 20kg per box (small packaging in 5kg for each Part A and Part B). SM0331UV should be stored in a dry place, preferably in the sealed original container.