A535-XF

UV-curable Epoxy Adhesive – Light Filtering

UV CURE with high Depth UV cure and LIGHT FILTERING

PRODUCT DESCRIPTION:

- Base chemistry: epoxy only, cationic polymerization
- One component adhesive ready for use, solvent-free, UV curable, room temperature stable
- High depth of cure
- Opaque adhesive: non-transparent

PRODUCT USE:

- Edge sealant
- Light blocking

FEATURES:

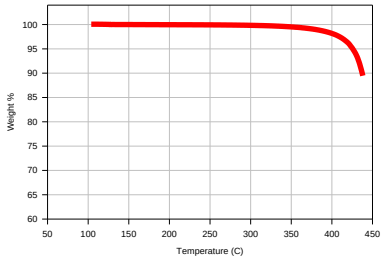
- Epoxy only, high adhesion, high Tg, long shelf and working life, room temperature stable, not sensitive to oxygen in cure process, excellent reliability performances, robust for solder reflow process

INSTRUCTIONS FOR USE:

1) Clean the substrates to remove contamination, dust, moisture, salt and/or oil
2) Dispense adhesive on substrates
3) UV cure
4) Thermal post cure (optional)

TGA DATA:

Conditions: scan rate 10°C/min, in air



TYPICAL PROPERTIES

Uncured resin	
Viscosity at 25 °C, mPa.s or cps (shear rate 10/s)	10,000 to 13,000
Thixotropic index (shear rate: 1/s over 10/s)	3
Density (g/mL)	1.2
Shelf life (15 - 25 °C)	6 months
Working life (15 - 25 °C)	3 months
Cured film	
Outgas, weight % (per Telcordia GR-1221)	0.15
Outgas, weight % (per MIL-STD 883/5011)	0.42
Water absorption (%, 100 °C until saturation)	0.2
Water permeability (g/m 24 hrs) (50 °C/95% RH, 75 μm film)	2.7 x 10^{-4}
Shrinkage (volume, %)	2
Hardness – Shore D	85-90
Glass transition temperature (DMA tan delta, °C)	148
Coefficient of Thermal Expansion (ASTM E831)	
Below Tg (x10^{-6}) °C^{-1}	58
Above Tg (x10^{-6}) °C^{-1}	161
Dielectric Strength (estimated, kV/mm)	20-25
Physical properties tested at 25°C, 50% RH (ASTM D638)	
Tensile strength, MPa	61
Elongation (%)	4
Young's Modulus, MPa	2,300
Operating temperature (°C)	-40 to 140

GENERAL USAGE INFORMATION:

Shipment: no restriction on shipment and no cold shipment is needed
Storage: After the adhesive is received in black syringes or amber HDPE bottles, room temperature storage (15-30°C) in the original container is required.

SAFETY AND HANDLING

The uncured adhesive can be cleaned from apparatus with isopropyl alcohol (IPA), methyl ethyl ketone (MEK), or commercial alcohol based cleaning solution. Avoid direct skin and eye contact. Use only in well ventilated areas. Use protective clothing, **gloves and safety goggles**. Read Material Safety Data Sheet before handling.

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Addison Clear Wave Coatings, Inc., 3555 Legacy Blvd, St. Charles, IL 60174 USA
Tel: +1 630-444-1658, Fax: +1 630-444-1683, www.AddisonCW.com

A535-XF (page 2)
Application notes:

UV CURING CONDITIONS: 3 types of UV lamps can cure A535-XF: 1) LED-365 nm or 2) LED-405 nm or 3) UV metal halide with UV-A

- UV Metal Halide or Mercury UV light source with UV-A (320-400 nm) with UV light intensity: 250 to 1,000 mW/ cm^2
- LED-365 nm with UV light intensity: 250 to 1,000 mW/ cm^2
- LED-405 nm with UV light intensity : 500 to 1,000 mW/ cm^2

LED-365 nm		**LED-405 nm**		**Metal Halide/Mercury(UV-A: 320-400 nm)**	
UV intensity(mW/cm^2)	x time (sec)	UV intensity(mW/cm^2)	x time (sec)	UV intensity(mW/cm^2)	x time (sec)
250	60 sec or more	500	30 sec or more	250	60 sec or more
or 500	20 sec or more	or 1,000	15 sec or more	or 500	20 sec or more
or 1,000	10 sec or more			or 1,000	10 sec or more

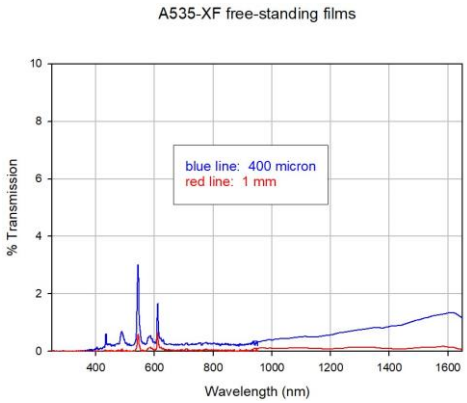
- Thermal post cure at 60 to 100°C for 30 to 60 minutes is optional. Thermal post cure will promote full cure and improve adhesion.
- The recommended UV cure dose is at the adhesive. If the substrates absorb curing light, then the actual cure dose needs to be increased.

BOND LINE THICKNESS: 10 to 1,000 µm

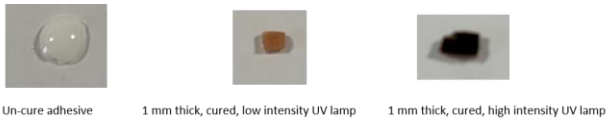
MAXIMUM DEPTH OF CURE IN UV STEP: maximum depth of cure at 1,000 µm is achievable. Engineers are encouraged to experiment with curing conditions for obtaining the desirable cure depth objectives.

LIGHT FILTERING VS. THICKNESS:

UV-VIS and NEAR IR spectra



APPEARANCE OF CURED FILM: It is normal for cured A535-XF to turn from amber to black color depending on thickness and/or intensity of curing light. The variation in the observed color is a visual effect and not an indication of variation in performances.



Un-cure adhesive | 1 mm thick, cured, low intensity UV lamp | 1 mm thick, cured, high intensity UV lamp

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