

MicroCoat Technologies

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Unparalleled in Polymer Coatings and Adhesives Technology™

PRODUCT DATA SPECIFICATION

MicroCoat Optically Clear Glob Top Coating MCT E-54050 for Light Pipes, LED's, Detectors

MicroCoat Technologies E-54050 Series are optically clear microelectronics grade UV curable epoxy coating for microelectronics applications with operating temperatures of -55°C to $+150^{\circ}\text{C}$. It is a single component non-frozen liquid that cures in seconds to a tough, hard, polymer when exposed to ultraviolet light. Specifically formulated for coating chip-on-board devices on any substrate that does not require shielding from ambient light*, hybrid circuits, LED's, detectors, or IC detector die, for its excellent light transmissivity. Thin films ($<.010''$) can be cured in under 15 seconds, and thick sections (up to about $.065''$), in 20-30 seconds. This material is exceptionally stable stored at room temperature for up to 12 months in a cool ($5-22^{\circ}\text{C}$), dark place in the original container. Acrylated Epoxies are differentiated from other types of plastics by a unique combination of economy, high transparency and impressive optical properties. As an added benefit, they are more inherently light stable than other polymers.

These coatings are sensitive to UV from 320 to 380 nanometers with peak sensitivity around 365nm. A filled area, as compared to a glob top or film, will require more energy or a longer cure cycle due to its thicker cross section. Longer cure exposures will darken the coating. Optimum results may be achieved by trying different time vs. distance from the light source. After cure, adhesion to ceramic, glass, metals, silicon, printed circuit boards, and other glass filled plastics, is excellent.

Typical Physical Properties:

Uncured Material

Color:	Optically Clear
Viscosity (cps):	11K – 12K
Percent non-volatile material:	99+%
Flash Point:	$>200^{\circ}\text{C}$
Solubility:	Chlorinated solvents, oxygenated solvents
Shelf life:	12 -18months @ 25°C

Cured Material

Color:	Optically clear
Refractive Index:	1.88 @ $<.040''$ thick @850nm
Durometer:	D80
Tg by DSC:	$\sim 150^{\circ}\text{C}$
Mechanical deflection from -40°C – 140°C	1-2 microns
Extractable Ions:	$<10\text{ppm}$ per MIL-STD-883 Notice 3, Method 5011.4
Extractable Organics: Fluorinated solvent extraction followed by analysis of residuals:	Nothing detected by GC/MS
Wt. Loss after UV Cure:	0.055%

* Silicon devices that require protection from ambient light may require an overcoat with an opaque material.

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