HumiSeal® UV10 LowOutgas

Technical Data Sheet

HumiSeal® UV10 LowOutgas is a one-part, high solids, dual UV heat curable coating formulated specifically for applications in which low outgassing is necessary. The material is tack free upon exposure to the recommended dosage of UV light. A secondary heat cure mechanism ensures that areas shadowed from UV light achieve full cure.

HumiSeal® UV10 LowOutgas has been specifically developed to:

- Cure tack-free with microwave or arc UV light.
- Have a secondary cure mechanism that will fully cure any unexposed areas of the coating quickly under heat
- Fluoresces under UV light to allow coating inspection.

HumiSeal® UV10 LowOutgas meets the following requirements:

- Passes ASTM E595 NASA outgassing
- IPC-CC-830C
- Compliant to Reach and RoHS Directive EU 2015/863

Properties of HumiSeal® UV10 LowOutgas

Typical Properties of Uncured Material

Property	Value
Chemical Class	UV Acrylate
Color	Clear/Slightly Yellow
Recommended Coating Thickness	25 - 125 microns
Recommended UV Cure*	See curing section below
Specific Gravity	0.965
Viscosity, @ 25°C, Spn LV SC4-31 @ 10RPM, cps	750 ± 100 centipoise
Shelf Life at 0-8°C storage	Greater than 3 months (Cont..)

Outgassing Properties Per ASTM E595

Total Mass Loss (%)	0.96
Collected Volatile Condensable Materials (%)	0.01
Water Vapor Regain (%)	0.24

Typical Properties of Cured Material

Property	Value
Thermal Shock, 100 cycles, -65°C to 125°C per IPC-CC-	Pass
Glass Transition Temperature – DSC	72°C
Coefficient of Thermal Expansion, ppm/°C – TMA	Below Tg: 137 Above Tg: 152
Modulus – DMA	13 MPa @ -45°C
	11 MPa @ 20°C
	2.8 MPa @ 120°C
Flammability, per UL-94	HB
Dielectric Strength, ASTM D149 V/mil	455
Dielectric Withstand Voltage, per IPC-CC-830C	>1500 volts
Dielectric Constant, at 1MHz and 25°C per ASTM D150-98	3.2
Dielectric Constant, at 1GHz and 22°C per ASTM D2520	2.7
Dissipation Factor at 1MHz and 25°C per ASTM D150-98	0.01
Moisture and Insulation Resistance, per IPC-CC-830C	75 GΩ

Cure Overview

HumiSeal® UV10 LowOutgas is a highly crosslinked coating. To achieve maximum cross-linking density, the product must be exposed to the correct spectral output. The table below outlines the required dosage and irradiance values necessary to properly cure using microwave style UV cure conveyers at speed of up to 2 ft/min. "H" style bulbs are recommended. After UV exposure and return to room temperature the coating should be tack free. For curing shadow areas, a secondary curing mechanism is necessary using heat. Used in conjunction with UV, this ensures complete curing of the coating.

	Dose (J/cm²)				***Irradiance (W/cm²)***			
	UVA	***UVB***	***UVC***	***UVV***	***UVA***	***UVB***	***UVC***	***UVV***
Min	***5***	***5***	***1.5***	***6***	***0.96***	***1.00***	***0.310***	***1.20***
Max	***7***	***7***	***3***	***6***	***1.15***	***1.15***	***0.340***	***1.50***

Secondary Heat Cure Parameters
1 Hour at 80°C

Storage

Keep stored between 0°C and 8°C in tightly closed, light-blocking containers away from direct sunlight. Do not allow to exceed storage temps of 24°C. Please refer to product labeling for shelf-life information. Consult SDS for safe handling recommendations.

Caution

Application of HumiSeal® product should be carried out in accordance with local and National Health and Safety regulations. Consult SDS/MSDS for safe handling recommendations prior to use.

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