

## HumiSeal<sup>®</sup> UV20GEL

### High Performance Staking and Vibration Protection UV Gel Preliminary Technical Data Sheet

A non-sag thixotropic paste, fast curing, and flexible urethane acrylate that bonds well to engineered plastics and metal-based substrates. In addition to the UV cure, this material has a secondary moisture cure mechanism to ensure cure in areas shadowed from UV light. This product is a high-performance adhesive for bonding PET/RPET. HumiSeal UV20GEL is designed for staking and vibration dampening applications, but doubles as a high-performance adhesive for general bonding applications.

Applications	Features	Substrates
• PET/RPET Clamshell Bond	• RoHS & REACH Compliant	• Polycarbonate
• Plastic Bonding	• Shadow Area Cure	• PET/RPET
• Mechanical Shock Protection	• UV Fluorescing	• PVC
• Components Staking	• Fast UV Cure	• Various Metals
• Vibration Protection	• Sag Resistant	• PCB components

#### Properties of HumiSeal<sup>®</sup> UV20GEL Uncured Properties

Property	Value
Solvent Content	No Nonreactive Solvents
Chemical Class	Acrylated Urethane
Appearance	Opaque White
Specific Gravity	1.08
Viscosity @ 25C, T-F(96) @ 1 RPM, cps	1,500,000
Viscosity @ 25C, T-F(96) @ 10 RPM, cps	300,000
Thixotropic Index	4.0 – 6.0

\*\* Highly thixotropic material, will decrease in viscosity with increasing shear rate\*\*

#### Cured Properties

Property	Value
Hardness, Shore A (Initial)	20
Hardness, Shore A (7 days post cure)	60
Tensile Strength, MPa [psi]	4.8 [700]
Elongation, %	>400%
Moisture Resistance	Excellent
Operating Temperature, °C	-40 to 120
Polycarbonate Lap Shear, psi	200
PVC Lap Shear, psi	450

#### Curing

HumiSeal<sup>®</sup> UV20GEL is a highly crosslinked staking material. In order to achieve maximum cross link density and physical performance, the product must be exposed to the correct spectral output. The following table outlines the required dosage and irradiance necessary to properly cure HumiSeal<sup>®</sup> UV20GEL.

Minimum Cure Guidelines – 2.5 mm thickness		
Dosage* (J/cm <sup>2</sup> )	UVA	2.111
	UVB	1.539
	UVC	0.732
Irradiance* (W/cm <sup>2</sup> )	UVA	0.917
	UVB	0.673
	UVC	0.314

\*Values measured with EIT Powerpuck II UV radiometer

Heat is also an important component with UV cure, and different systems produce different heat outputs. Higher heat levels allow UV cure at lower dose/irradiance levels. Consequently, HumiSeal® recommend that curing is discussed with HumiSeal® Technical staff to ensure the exact customer process being used will meet the coating cure requirements. After UV exposure and secondary cure completion coating should be tack free.

HumiSeal® UV20GEL contains a reliable secondary moisture cure mechanism which will cure any shadow areas on the assembly within 7-10 days at ambient moisture.

HumiSeal®UV20GEL was designed to be cured using a microwave UV oven equipped with an “H” style bulb. Arc systems with select bulbs and LED systems can cure HumiSeal® UV20GEL however care must be taken during the equipment selection process to ensure minimum dosage and irradiance values obtained will properly cure the coating. Because of the variations possible in curing equipment type and configuration, it is strongly recommended that you contact HumiSeal Technical Support to discuss your equipment and process in detail.

### Storage

HumiSeal® UV20GEL should be stored in a cool, dry, and dark location at a temperature between 1°C to 25°C. Material is sensitive to moisture, UV, and visible light. Consult SDS for safe handling recommendations.

### Caution

Application of HumiSeal® UV20GEL should be carried out in accordance with local and National Health and Safety regulations. Use only in well-ventilated areas to avoid inhalation of vapors. Avoid contact with skin and eyes.

Consult SDS prior to use.

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