

PRODUCT SPECIFICATION

600-M

UV Adhesive

Description:

Formulated specifically for single-use medical assemblies, this single-component, fast-curing UV and visible light curable structural adhesive is engineered to bond stainless steel needles to plastic hubs in disposable syringe production. It cures in seconds upon exposure to ultraviolet radiation, forming a flexible, high-strength, impact-resistant bond capable of withstanding rigorous pull-off force requirements.

The adhesive provides exceptional adhesion between stainless steel cannula metals and medical-grade thermoplastics. To support automated manufacturing quality assurance, it features built-in fluorescence under blacklight, allowing seamless, in-line vision inspection using optical scanning equipment.

Typical Properties of Cured/Uncured Material:

Liquid State		Cured State	
Base	Urethane Methacrylate	Elongation @ break (%)	12
Colour	Clear	Hardness, ASTM D2240 Shore D	74
Specific Gravity (25°C)	1.1		
Viscosity (cP)	150-200		

UV Curing System:

Lamp Type	5" x 5" Flood	3/16" Spot	1" x 6" Focused
Max. Lamp Intensity @ 365 nm	300 mW/cm ²	4000 mW/cm ²	8000 mW/cm ²
Adhesive Absorption Range (nm)	300 - 500	300 - 500	300 - 500
Cure Speed (Sec)			
Glass to Glass Bonding	12	11	<5
Surface Cure Speed	16	14	<5

Bond Strength

(Shear Strength, psi, ASTM D4501):

Substrate	psi	N/mm ²
Tensile Strength	4250	29

Cure Conditions:

Cure can be achieved using both low and high-intensity UV light sources. Under a low UV intensity of 30 mW/cm, highly transmissive substrates with joint gaps under 0.25 mm (0.010") cure in 5 seconds, while gaps of 1.75 mm to 2.25 mm (0.070" to 0.090") cure within 10 to 20 seconds. Under a high UV intensity of 100 mW/cm, highly transmissive substrates with gaps under 0.25 mm (0.010") cure in 2 seconds, while larger gaps of 2.5 mm to 5.0 mm (0.100" to 0.200") achieve full cure within 10 to 20 seconds.

Directions For Use:

This adhesive is UV sensitive. Exposure to daylight, UV light and artificial lighting should be kept to a minimum during storage and handling. Adhesive product should be dispensed from applicators with black feed lines. For best performance bond surfaces should be clean and free from grease.

UV cure rate is depends on lamp intensity, distance from light source, depth of cure needed or bond line gap and light transmittance of the substrate through which the radiation must pass.

Recommended intensity for cure in an adhesive application are 40-mW/cm² minimums with an exposure time of 5-6 times the fixture time at this same intensity. For tack free surface cure, as necessary in coating, potting or tacking applications, higher intensity UV is required.

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