

MEDICAL GRADE UV ADHESIVE FOR NEEDLE BONDING AND DEVICE ASSEMBLY

PRODUCT DESCRIPTION

Incure Cyro-Weld™ 5002F is a medical-grade UV adhesive specifically formulated for the high-speed assembly of disposable medical devices. Based on biocompatible urethane acrylate chemistry, it cures instantly to form a hermetic, sterilized-ready bond, replacing solvent welding and mechanical joining. Its exceptional bond strength to stainless steel and plastics prevents pull-out failures in needles and catheters, ensuring patient safety. The material is designed to withstand rigorous sterilization cycles, including EtO, Gamma radiation, and Autoclaving, without degrading or discoloration. Ideal for needle hub bonding, catheter assembly, and reservoir sealing, it offers a reliable, gap-filling solution that passes strict regulatory standards. Cyro-Weld™ 5002F is ISO 10993-5 cytotoxicity compliant and is highly recommended for medical device manufacturing.

PRODUCT HIGHLIGHTS

- ISO 10993-5 compliant
- Needle Bonding
- Sterilizable
- Hermetic Seal
- Biocompatible

TYPICAL APPLICATIONS

- Needle Hubs
- Catheter Sets
- Reservoirs
- Oxygenators
- Tube Bonding

UNCURED PROPERTIES

Chemical Type	Urethane Acrylate		
Liquid Appearance	Clear, Fluorescing		
Density, g/ml	1.08	Refractive Index	1.48 @20°C
Surface Energy (Liquid), dynes/cm	36 / 38	Toxicity	Low
¹ Viscosity, cP	300 to 600	Spindle	2 @20rpm

¹ Viscosity (cP) taken at 25°C - Other viscosities are available upon request with a small lab fee.
Email support@uv-incure.com or your nearest local distributor for more information.

CURED PROPERTIES

Shore Hardness, Durometer	D55 to D65	ASTM 2240
Linear Shrinkage, %	0.05	ASTM D2566
Water Absorption at 24hrs, %	1.18	² ISTM D570
Tensile (PSI)	PC-PC 5,400 [^] SS-SS 4,100	ASTM 638
	S-S 4,400 AL-AL 4,700	
Surface After Full Cure	Clear, Fluorescing	² ISTM D189
Elongation at Break, %	415	ASTM 638
Temperature Resistance, °C	-55 to 150	² ISTM D366
Service Temperature, °C	-55 to 80	² ISTM D366
Young's Modulus of Elasticity, PSI	45,000	³ ASTM 638
Linear CTE (α_1 & α_2), ppm/°C	75 / 190	² ISTM D696
Glass Transition Temp (Tg), °C	70	² ISTM D696

² ISTM D696 - refers to Incure Standard Test Method

³ ASTM 538 Young's Modulus test speed @5mm/min for rigid and semi-rigid materials, @50mm/min for non-rigid materials, unless otherwise specified.

RECOMMENDED UV CURE SCHEDULE (FULL CURE)

Full Cure Exposure Time		UVA	UVB	UVC	UVV
F200P (Between Glass Slides)	mW/cm ²	223	56	4	215
Exposure Time (s)	1	mJ/cm ²	223	56	4
F200P @3.75" Dist	7	mW/cm ²	223	56	4
Belt Speed (ft/min)	8	mJ/cm ²	1,561	392	28
F500 @3.0" Dist	3	mW/cm ²	436	127	12
Belt Speed (ft/min)	12	mJ/cm ²	1,308	381	36
S20 w/4-Pole L/G @0.4" Dist	mW/cm ²	3,000	530	50	3,400
Exposure Time (s)	1	mJ/cm ²	3,000	530	50
L9000 LED Spot @0.67" Dist	mW/cm ²	2,800	42	12	102
Exposure Time (s)	1	mJ/cm ²	2,800	42	12

Cure times on 8mm ϕ adhesive sample. Belt speeds using C9000-F200Px1AB (Flood) and C9000-F500x1AC (Focused Beam) conveyors for area curing. Please consult IncureLab™ for any other requirements.

UV INTENSITY REFERENCE TABLE

Incure UV Curing Lamp Model	⁴ Curing Distance vs UV Intensity					
Spot Curing (Diameter)	0.5" (12.6)	1" (25.4)	1.5" (38)	2" (50.8)	2.5" (63.5)	3" (76.2)
S20 ARC (mW/cm ²) / (ϕ mm)	1,400 (3)	1,500 (4)	650 (6)	360 (8)	240 (10)	175 (12)
L9000 (mW/cm ²) / (ϕ mm)	7,500 (9)	5,000 (10)	2,300 (17)	1,200 (20)	700 (25)	450 (30)
Flood/Focus Beam (Area)	UV Intensity (mW/cm ²)					
F200P ARC Flood (6" x 8")	325	280	245	215	190	165
F400 ARC Flood (4" x 4")	860	570	440	345	270	215
F500 ARC Focused (3" x 5")	1,040	685	530	415	325	260
L1044-365 LED Flood (4" x 4")	2,675	2,380	1,900	1,625	1,430	1,280
L1044-405 LED Flood (4" x 4")	2,950	2,625	2,150	1,900	1,650	1,450

⁴ Curing Distance is defined by the tip of light-guide or base of lamp housing to the bond area. All values are nominal with $\pm 10\%$ variation, with LED Flood Static Uniformity at $\pm 78\%$ and Dynamic Uniformity at $\pm 90\%$. Recommended curing parameters in grey

SHELF-LIFE, STORAGE, USE AND HANDLING OF THIS PRODUCT

Shelf-Life of this unopened product is a minimum of 12 from date of manufacture. Avoid direct exposure of bottle to visible light at all times. Containers should remain covered when not in use. Product should be stored in a dark cool place of 10°C to 32°C. Transfer of product into other packages void all warranties. Users should ensure all bonding surfaces are free of grease, mould release, or any contaminants, as bonding performance will be compromised. All tests for cured bonds should be carried out at ambient temperature. Organic solvents, such as IPA, may be used to wipe away uncured material from surfaces. For safe handling of this product, please read Material Safety Data-sheet (MSDS) prior to use.

EtO and GAMMA STERILIZATION (Not Applicable for this Product)

Incure medical products are formulated to withstand standard sterilization methods, such as EtO and Gamma Radiation of 25 to 50 kGrays (cumulative). Enhanced moisture and thermal resistance ensure excellent adhesion strength after one steam autoclave cycle. Depending on bond design and application structure, users should test specific assemblies after sterilization. Consult Incure Support if devices are subjected to multiple sterilization cycles.

NOTE

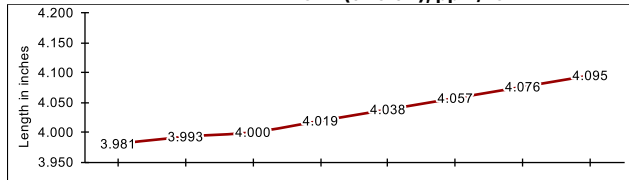
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SECONDARY HEAT CURE SCHEDULE

Continuous Oven Bake

Not Applicable

LINEAR CTE (α_1 & α_2), ppm/°C



*TENSILE STRENGTH VS TEMPERATURE

*Not Applicable for Uni-Prime™ 338 and Acti™ 398

