

RAPID CURING BIOCOMPATIBLE ADHESIVE FOR MEDICAL DEVICE ASSEMBLY

PRODUCT DESCRIPTION

Incure Cyro-Weld™ 5004F is an advanced biocompatible resin engineered for exceptional reliability in dynamic surgical device assembly. It features extraordinary tensile strength and tough rigidity, ensuring robust joint integrity under extreme mechanical stress. Formulated with highly optimized flow control, it maintains excellent surface wetting on automated high-speed lines. Fluorescing property emits a vibrant glow under ultraviolet light, ensuring flawless automated optical inspection of critical medical bonds. Incure Cyro-Weld™ 5004F meets ISO 10993-5 biocompatibility standards while ensuring validated stability under EtO (ISO 11135) and Gamma (ISO 11137) sterilization, with Tg -dependent reliability for steam autoclave performance.

PRODUCT HIGHLIGHTS

- Rapid UV light cure
- Tough rigid profile
- Built-in UV tracer
- Deep moisture barrier
- High impact absorption

TYPICAL APPLICATIONS

- Structural assembly
- Multi-substrate bond
- Precision encapsulation
- Industrial potting
- Automated inspection

UNCURED PROPERTIES

Chemical Type	Urethane Acrylate			
Liquid Appearance	Clear, Fluorescing			
Density, g/ml	1.05	Refractive Index	1.48	@20°C
Surface Energy (Liquid), dynes/cm	38 / 40	Toxicity	Medium	
¹ Viscosity, cP	1,100 to 2,200	Spindle	3 @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	D67 to D77	ASTM 2240
Linear Shrinkage, %	2.50	ASTM D2566
Water Absorption at 24hrs, %	0.31	² ISTM D570
Tensile (PSI)	PC-PC 10,800 [^] SS-SS 600	ASTM 638
	S-S 1,000 AL-AL 1,300	
Surface After Full Cure	Clear, Fluorescing	² ISTM D189
Elongation at Break, %	35	ASTM 638
Temperature Resistance, °C	-55 to 125	² ISTM D366
Service Temperature, °C	-55 to 125	² ISTM D366
Young's Modulus of Elasticity, PSI	253,800	³ ASTM 638
Linear CTE (α1 & α2), ppm/°C	60 / 180	² ISTM D696
Glass Transition Temp (Tg), °C	75	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)	2	mJ/cm ²	446	112	8
F200P @3.75" Dist	6	mW/cm ²	223	56	4
Belt Speed (ft/min)	9	mJ/cm ²	1,338	336	24
F500 @3.0" Dist	4	mW/cm ²	436	127	12
Belt Speed (ft/min)	9	mJ/cm ²	1,744	508	48
S20 w/4-Pole L/G @0.4" Dist	mW/cm ²	3,000	530	50	3,400
Exposure Time (s)	3	mJ/cm ²	9,000	1,590	150
L9000 LED Spot @0.67" Dist	mW/cm ²	2,800	42	12	102
Exposure Time (s)	4	mJ/cm ²	11,200	168	48

Cure times on 8mm ø adhesive sample. Belt speeds using C9000-F200P1AB (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) / (ø mm)		1,400 (3)	1,500 (4)	650 (6)	360 (8)	240 (10)	175 (12)
L9000 (mW/cm ²) / (ø 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 ±10% variation, with LED Flood Static Uniformity at ±78% and Dynamic Uniformity at ±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

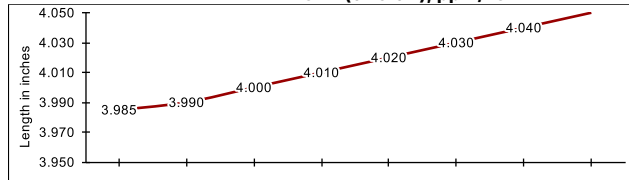
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SECONDARY HEAT CURE SCHEDULE

Continuous Oven Bake

Not Applicable

LINEAR CTE (α1 & α2), ppm/°C



*TENSILE STRENGTH VS TEMPERATURE

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

