Technical Data Sheet

Cyro-Weld™ 5004

ACCELERATE MEDICAL DEVICE ASSEMBLY WITH INSTANT BIO RESIN

PRODUCT DESCRIPTION

Incure Cyro-Weld™ 5004 is a medical-grade UV structural adhesive engineered for precision bonding of disposable medical devices. This specialized formula offers superior tensile strength and excellent substrate compatibility across various medical plastics. The high-speed curing profile enables immediate handling on automated production lines, significantly boosting manufacturing throughput. It demonstrates exceptional resistance to aggressive chemicals and stringent medical sterilization methods including EtO and Gamma radiation. With its crystal-clear liquid appearance and balanced viscosity, it ensures validated stability for critical healthcare applications. Incure Cyro-Weld™ 5004 complies to ISO 10993-5 biocompatibility standards.

PRODUCT HIGHLIGHTS

- Instant biocompatible
- Micro-lumen wicking
- Active trace checking
- Seamless plastic weld
- Soluble-free purity

TYPICAL APPLICATIONS

- Needle and hub bonding
- Smart diagnostic pills
- Hearing aid assembly
- Fluid reservoir seals
- Micro-fluidic chips

UNCURED PROPERTIES

Chemical Type		Urethane Acrylate		
Liquid Appearance		Clear		
Density, g/ml	1.05	Refractive Index	1.48	@20°C
Surface Energy (Liquid), dynes/cm		38 / 40	Toxicity	Low
[1]Viscosity, cP	1,100 to 2,200	Spindle	2 @20rpm	

[1] Viscosity (cP) taken at 25ºC - 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			D70 to D80		ASTM 2240
Linear Shrinkage,%			2.50		ASTM D2566
Water Absorption at 24hrs, %			0.31		[2]ISTM D570
Tensile (PSI) * PC-PC / SS-SS / S-S / AL-AL ^ PC Substrate Failure	PC-PC	10,800^	SS-SS	-	ASTM 638
	S-S	-	AL-AL	-	
Surface After Full Cure		Clear			[2]ISTM D189
Elongation at Break, %			35		ASTM 638
Temperature Resistance, °C			-55 to 125		[2]ISTM D366
Service Temperature, °C			-55 to 80		[2]ISTM D366
Young's Modulus of Elasticity, PSI			253,800		[3]ASTM 638
Linear CTE (α1 & α2), ppm/°C			45 / 150		[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.

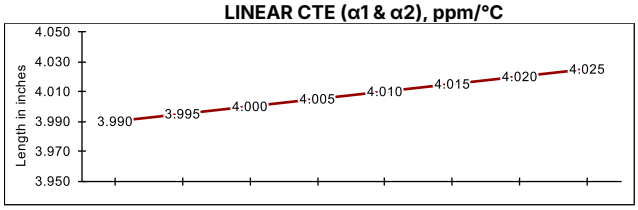
RECOMMENDED UV CURE SCHEDULE (FULL CURE)

Full Cure Exposure Time			UVA	UVB	UVC	UVV
F200P (Between Glass Slides)		mW/cm²	223	56	4	215
Exposure Time (s)	3	mJ/cm²	669	168	12	645
F200P @3.75" Dist	10	mW/cm²	223	56	4	143
Belt Speed (ft/min)	5.5	mJ/cm²	2,230	560	40	1,430
F500 @3.0" Dist	6	mW/cm²	436	127	12	390
Belt Speed (ft/min)	6	mJ/cm²	2,616	762	72	2,340
S20 w/4-Pole L/G @0.4" Dist		mW/cm²	3,000	530	50	3,400
Exposure Time (s)	5	mJ/cm²	15,000	2,650	250	17,000
L9000 LED Spot @0.67" Dist		mW/cm²	2,800	42	12	102
Exposure Time (s)	8	mJ/cm²	22,400	336	96	816

Cure times on 8mm ø adhesive sample. Belt speeds using C9000-F200Px1AB (Flood) and C9000-F500×1AC (Focused Beam) conveyors for area curing. Please consult IncureLab™ for any other requirements.

SECONDARY HEAT CURE SCHEDULE	Continuous Oven Bake
	Not Applicable

LINEAR CTE (α1 & α2), ppm/°C



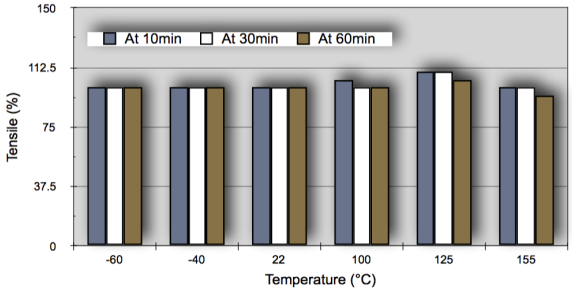
UV INTENSITY REFERENCE TABLE

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/cm²) / (ø mm)	1,400 (3)	1,500 (4)	650 (6)	360 (8)	240 (10)	175 (12)
L9000 (mW/cm²) / (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/cm²)					
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

*TENSILE STRENGTH VS TEMPERATURE

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



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 remained 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

The data contained in this document are furnished for information only. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein. Incure will not be liable for any indirect, special, incidental or consequential loss or damage arising from this Incure product, regardless of the legal theory asserted. Incure recommends that each user adequately test its proposed use and application before repetitive use, using this data as a guide.

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