EPO-TEK® MED-323LP

Technical Data Sheet
For Reference Only
Biocompatible/High Temperature, Optical Epoxy
ISO 10993-5 Tested/Compliant

Date:	February 2021	
Rev:	VIII	
No. of Components:	Two	
Mix Ratio by Weight:	10 : 1	
Specific Gravity:	Part A: 1.21	Part B: 1.08
Pot Life:	24 Hours	
Shelf Life- Bulk:	One year at room temperature	

Biocompatible Certified Cure: 150°C / 1 Hour

Alternative biocompatible cure schedules may be possible, but have not been certified. Contact med@epotek.com with any questions.

NOTES:

- Container(s) should be kept closed when not in use.
- Filled systems should be stirred thoroughly before mixing and prior to use.
- Performance properties (rheology, conductivity, others) of the product may vary from those stated on the data sheet when bi-pak/syringe packaging or post-processing of any kind is performed. Epoxy's warranties shall not apply to any products that have been reprocessed or repackaged from Epoxy's delivered status/container into any other containers of any kind, including but not limited to syringes, bi-paks, cartridges, pouches, tubes, capsules, films or other packages.

Product Description: EPO-TEK® MED-323LP is a biocompatible, high strength, high temperature, high Tg, long pot-life epoxy. It is used in many medical applications for adhesive, potting, sealing and encapsulation, especially suited for use in fiber optics, endoscope, implants and surgical tooling.

Typical Properties: Cure condition: 150°C / 1 Hour Different batches, conditions & applications yield differing results.
Data below is not guaranteed. To be used as a guide only, not as a specification. * denotes test on lot acceptance basis

PHYSICAL PROPERTIES:		
* Color (before cure):	Part A: Clear to slight yellow Part B: Yellow	
* Consistency:	Pourable liquid	
* Viscosity (23°C) @ 50 rpm:	3,500-5,000	cPs
Thixotropic Index:	N/A	
* Glass Transition Temp:	≥ 100	°C (Dynamic Cure: 20-200°C/ISO 25 Min; Ramp -10-200°C @20°C/Min)
Coefficient of Thermal Expansion (CTE):		
Below Tg:	56	x 10^{-6} in/in°C
Above Tg:	182	x 10^{-6} in/in°C
Shore D Hardness:	84	
Lap Shear @ 23°C:	> 2,000	psi
Die Shear @ 23°C:	≥ 20	Kg 7,112 psi
Degradation Temp:	428	°C
Weight Loss:		
@ 200°C:	0.03	%
@ 250°C:	0.09	%
@ 300°C:	0.29	%
Suggested Operating Temperature:	< 350	°C (Intermittent)
Storage Modulus:	431,884	psi
Particle Size:	N/A	

OPTICAL PROPERTIES @ 23°C:		
Spectral Transmission:	≥ 90% @ 680-1580	nm
Refractive Index:	1.5711 @ 589	nm

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Selected Applications for EPO-TEK® MED-323LP

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Fiber and Electro-Optics

- Impregnating and terminating fiber optic image bundles and light guides, adhesive for flexible endoscopes, adhesion to plastic and glass optical fibers, structural and near hermetic sealing of glass, ceramic and metals
- Manufacture of all kinds of endoscopes, such as, laryngoscopes, gastroscopes, broncho-scopes and micro ophthalmoscopes; healthcare optics for colonoscopy, urology, and otolaryngology
- Fiber optic enabled OCT imaging delivered via catheter
- Fiber optic adhesive for surgical lighting and optics including loupes and endoscopic aftermarket repair adhesive.
- Fiber optic catheter lasers for photo dynamic therapy in tumor removal treatments

Imaging Technologies

- OCT using NIR laser for cardiac and ophthalmic imaging
- Endoscopy with camera and video interface
- Capsule endoscopes for GI tract viewing and monitoring
- Ultrasound imaging
- Dental reconstruction using hand-held laser scanner
- Vitreo-Retinal imaging using micro ophthalmic optics
- Temperature probes integration, subcomponent bonding and final assembly of MRI and CT machines

Ultrasound / Ultrasonic

- Adhesive for catheter delivered surgical mapping. 3D imaging and mapping catheters; catheter ultrasound for cardiac therapy, such as AFib treatments
- Front-end ultrasound fabrication adhesive responsible for PZT arrays
- Back-end PZT processes enabling transducers, ultrasound probe repair adhesive
- Repair adhesive for ultrasound probe
- Imaging modalities based on Doppler Radar

Life Sciences and MicroFluidics

- DNA and gene sequencers, readers and amplification circuits
- Water purity, testing, monitoring and flow delivery systems

Device and Diagnostics

- Sensor integration and subcomponents for respiratory, anesthesia, vapor and suction; gas and liquid flow monitoring
- Irrigation and pharmaceutical delivery via ultrasonic nebulizers
- SpO2 patient monitoring; capnography, gas analyzers and flow meters
- Adhesive for anesthesia and gas analyzers, and flow meters
- Widely used adhesive for pressure and pH monitoring catheters
- Implantable Devices
- Hearing aids and implants; acoustic circuits and structural assembly

Surgical Tools

- High power laser optics for general, reconstructive and cosmetic surgery
- Fabrication of Rf Ablation catheters
- Single use microwave ablation probes for tumor removal
- Impregnating coil motors in orthopedic bone saws
- General catheter delivery and extraction tools
- Fiber Optic laser enabled biopsies

Biocompatibility Approvals

- EPO-TEK® MED-323LP cured at 150°C for 1 hour has been tested and is ISO 10993-5 certified (Cytotoxicity testing by MEM Elution methodology).

Sterilization Information

- Epoxy performance is most influenced by surface preparation and cleanliness, overall process and handling, and finally proper curing selection. While bulk samples of MED-323LP may resist sterilization technologies such as autoclave steam, gaseous technologies, gamma radiation as well as liquid disinfectants, the glue joints may differ. All users need to determine the suitability of MED-323LP for their given application.
- MED-323LP is generally capable of resisting hundreds of autoclave and Sterrad® sterilization cycles.
- MED-323LP is generally regarded for resisting few cycles of ETO and gamma radiation.
  See Technical Tip # 29: Gamma Sterilization for Medical Devices and its Effect on Epoxies for more information:
  http://www.epotek.com/site/files/Techtips/pdfs/techtips_29.pdf

Packaging Availability

- EPO-TEK® MED-323LP is available in specialty packaging such as Pre-Mixed Frozen Syringes (PMF), Bi-Paks, or bulk (A & B containers).
- A Bi-Pak video tutorial can be found here:
  http://www.epotek.com/site/technical-material/application-video-tutorials/117-effective-handling-and-mixing-of-epo-tek®-bi-packs.html
- A video tutorial on handling frozen syringes can be found here:
  http://www.epotek.com/site/technical-material/application-video-tutorials/231-proper-receiving-and-thawing.html

Medical Grade
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