



EPO-TEK® MED-302-3M-R

Technical Data Sheet
For Reference Only

Biocompatible/High Temperature, Optical Epoxy
ISO 10993-5 Tested/Compliant

Date: February 2021
Rev: VII
No. of Components: Two
Mix Ratio by Weight: 100 : 33
Specific Gravity: Part A: 1.21 Part B: 0.98
Pot Life: 2.5 Hours
Shelf Life- Bulk: One year at room temperature

Recommended Cure: 80°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.
- Syringe packaging will impact initial viscosity and effective pot life, potentially beyond stated parameters.
- **TOTAL MASS SHOULD NOT EXCEED 25 GRAMS**

Product Description: EPO-TEK® MED-302-3M-R is a biocompatible, clear and colorless, low viscosity epoxy designed to meet European Regulatory Requirements. It has high moisture and chemical resistance and is room temperature curing. Additional characteristics are: can be used in the optical pathway with transmission in the VIS/NIR range from 350-1550nm easily wicks into fiber bundles for endoscopes and light guides, and has excellent adhesion to SST, ceramic, titanium and most plastics.

Typical Properties: Cure condition: 80°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/Slight yellow	Part B: Clear/Yellow/Orange	
* Consistency:	Pourable liquid		
Viscosity (23°C) @ 100 rpm:	300 - 900	cPs	
Thixotropic Index:	N/A		
Glass Transition Temp:	≥ 45	°C (Dynamic Cure: 20-200°C/ISO 25 Min; Ramp -10-200°C @20°C/Min)	
Coefficient of Thermal Expansion (CTE):	Below Tg:	62	x 10 ⁻⁶ in/in°C
	Above Tg:	213	x 10 ⁻⁶ in/in°C
Shore D Hardness:	82		
Lap Shear @ 23°C:	> 2,000	psi	
Die Shear @ 23°C:	≥ 20	Kg	7,112 psi
Degradation Temp:	376	°C	
Weight Loss:	@ 200°C:	0.09	%
	@ 250°C:	0.41	%
	@ 300°C:	1.07	%
Suggested Operating Temperature:	< 300	°C (Intermittent)	
Storage Modulus @ 23°C:	385,257	psi	
* Particle Size:	N/A		

OPTICAL PROPERTIES @ 23°C:		
Spectral Transmission:	≥ 94% @ 800-1400	nm
	≥ 80% @ 400-700	nm
Refractive Index:	1.5458 @ 589	nm

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This information is based on data and tests believed to be accurate. Epoxy Technology, Inc. makes no warranties (expressed or implied) as to its accuracy and assumes no liability in connection with any use of this product.

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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, bronchoscopes and micro ophthalmoscopes; healthcare optics for colonoscopy, urology, and otolaryngology
- Endoscopy with camera and video interface

Imaging Technologies

- OCT using NIR laser for cardiac and ophthalmic imaging
- Capsule endoscopes for GI tract viewing and monitoring
- 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 transducer; ultrasound probe repair adhesive

Life Sciences and MicroFluidics

- DNA and gene sequencers, readers and amplification circuits
- Potting, over-coating and weather proofing, fitness style wrist watches and wearable devices

Device and Diagnostics

- Sensor integration and subcomponents for respiratory, anesthesia, vapor and suction; gas and liquid flow monitoring
- SpO₂ patient monitoring; capnography, gas and blood glucose analyzers and flow meters
- Adhesive for pressure and pH monitoring catheters

Implantable Devices

- Subcomponents for Ventricular Assist Devices (VAD) fabrication including pumps, coils and magnets
- Adhesive for ophthalmic implants; plastic bonding in intraocular lens (IOL). Micro sensors for intraocular pressure
- Hearing aids and implants; acoustic circuits and structural assembly
- Enabling neurostimulator technologies used for sleep apnea and bladder control
- Adhesive for pacemakers, ICDs and IPGs
- Neurovascular implants treating aneurysm, stroke, epilepsy and Parkinson's Disease

Surgical Tools

- High power laser optics for surgery
- Dental device adhesive, lighting or hand instrument and camera
- Adhesive for neurovascular surgical delivery systems and coils for treating aneurysms
- Fabrication of Rf Ablation catheters, electro-surgical tool for urological tissue removal
- Laser for peripheral artery disease (PAD); atherectomy technologies
- Dental crown/post

Biocompatibility Approvals

- EPO-TEK® MED-302-3M-R cured at 80°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-302-3M-R 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-302-3M-R for their given application.
 - Gamma Radiation/ion beam will discolor MED-302-3M-R, thus altering its appearance.
 - MED-302-3M-R is generally capable of resisting hundreds of autoclave and Sterrad® sterilization cycles.
 - MED-302-3M-R 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-302-3M-R 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>



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