



EPO-TEK® MED-302-3M Black

Technical Data Sheet
For Reference Only

Biocompatible/Optically Opaque Epoxy
ISO 10993-5 Tested/Compliant

Date: December 2021
Rev: III
No. of Components: Two
Mix Ratio by Weight: 100 : 45
Specific Gravity: Part A: 1.21 Part B: 0.97
Pot Life: < 1 Hour
Shelf Life- Bulk: One year at room temperature

Biocompatible Certified Cure: 60°C / 2 Hours

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**
- Black color is cosmetic only, and not intended to be photonic, spectral, or lampblack. All users need to confirm its opacity versus wavelength.
- Contact techserv@epotek.com for alternatives designed to meet European regulatory requirements

Product Description: EPO-TEK® MED-302-3M Black is a biocompatible, black, opaque, medium viscosity epoxy. Additional characteristics are: high moisture and chemical resistance and is capable of low temperature curing. It has excellent adhesion to SST, ceramic, titanium and most plastics.

Typical Properties: Cure condition: 60°C / 2 Hours 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: Black	Part B: Clear/Yellow tint
* Consistency:	Pourable liquid	
* Viscosity (23°C) @ 20 rpm:	800-1,600	cPs
Thixotropic Index:	N/A	
* Glass Transition Temp:	≥ 55	°C (Dynamic Cure: 20-200°C/ISO 25 Min; Ramp -10-200°C @20°C/Min)
Coefficient of Thermal Expansion (CTE):		
Below Tg:	67	x 10 ⁻⁶ in/in°C
Above Tg:	167	x 10 ⁻⁶ in/in°C
Shore D Hardness:	75	
Lap Shear @ 23°C:	> 2,000	psi
Die Shear @ 23°C:	≥ 10	Kg 3,556 psi
Degradation Temp:	354	°C
Weight Loss:		
@ 200°C:	0.87	%
@ 250°C:	2.26	%
@ 300°C:	4.31	%
Suggested Operating Temperature:	< 275	°C (Intermittent)
Storage Modulus:	555,525	psi
* Particle Size:	≤ 20	microns

ELECTRICAL AND THERMAL PROPERTIES:

Thermal Conductivity:	N/A
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OPTICAL PROPERTIES @ 23°C:

Spectral Transmission:	< 2% @ 300-1320	nm
Refractive Index:	N/A	

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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.

EPOXY TECHNOLOGY, INC.

14 FORTUNE DRIVE, BILLERICA, MA 01821 (978) 667-3805, FAX (978) 663-9782

www.epotek.com

Fiber and Electro-Optics

- 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

- 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
- 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 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
- Enabling neurostimulator technologies used for sleep apnea, bladder control and other conditions
- 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
- Fabrication of Rf Ablation catheters, electro-surgical tool for tissue removal
- Dental crown/post

Biocompatibility Approvals

- EPO-TEK® MED-302-3M Black cured at 60°C for 2 hours 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 Black 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 for their given application.
 - Gamma Radiation/ion beam will discolor MED-302-3M Black, thus altering its appearance.
 - MED-302-3M Black is regarded for resisting hundreds of autoclave and Sterrad® sterilization cycles.
 - MED-302-3M Black 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 Black is available in specialty packaging such as 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>



Epoxy Technology Inc.
 14 Fortune Drive • Billerica, MA 01821
 phone 978-667-3805 fax 978-663-9782
med@epotek.com