



EPO-TEK® MED-353ND-T

Technical Data Sheet
For Reference Only

Biocompatible/High Temperature Thixotropic Epoxy

ISO 10993 Tested/Fully Compliant

Date: October 2018
Rev: V
No. of Components: Two
Mix Ratio by Weight: 10 : 1
Specific Gravity: Part A: 1.12 Part B: 1.02
Pot Life: 3 Hours
Shelf Life- Bulk: One year at room temperature

Biocompatible Certified Cure: 150°C / 1.5 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**
- Component suppliers assure Epoxy that all components are supplied in compliance with ISO 22442. Sales of EPO-TEK® MED-353ND-T shall accordingly require Epoxy's Standard Specification document to be signed as a technical agreement thereunder.

Product Description: EPO-TEK® MED-353ND-T is a biocompatible, thixotropic formulated version of EPO-TEK® MED-353ND. It has non-flowing properties (paste/non-sagging) and high temperature resistance. Some additional characteristics are: built-in color change in curing, and high strength. It is designed in many medical devices where a high strength, non-flow adhesive is desired.

Typical Properties: Cure condition: 150°C / 1.5 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: Tan	Part B: Amber
* Consistency:	Smooth thixotropic paste	
* Viscosity (23°C) @ 20 rpm:	9,000-15,000	cPs
Thixotropic Index:	3.3	
* Glass Transition Temp:	≥ 90	°C (Dynamic Cure: 20-200°C/ISO 25 Min; Ramp -10-200°C @20°C/Min)
Coefficient of Thermal Expansion (CTE):		
Below Tg:	55	x 10 ⁻⁶ in/in°C
Above Tg:	136	x 10 ⁻⁶ in/in°C
Shore D Hardness:	80	
Lap Shear @ 23°C:	> 2,000	psi
Die Shear @ 23°C:	≥ 20	Kg 7,112 psi
Degradation Temp:	412	°C
Weight Loss:		
@ 200°C:	0.19	%
@ 250°C:	0.70	%
@ 300°C:	1.75	%
Suggested Operating Temperature:	< 350	°C (Intermittent)
Storage Modulus:	547,722	psi
* Particle Size:	≤ 20	microns

Epoxyes and Adhesives for Demanding Applications™

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

- 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

Imaging Technologies

- OCT using NIR laser for cardiac and ophthalmic imaging
- Endoscopy with camera and video interface
- Ultrasound 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 transducers, 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
- Widely used 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, 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 general, reconstructive and cosmetic surgery
- Dental device adhesive, lighting or hand instrument
- Adhesive for neurovascular surgical delivery systems and coils for treating aneurysms
- Fabrication of Rf Ablation catheters, electro-surgical tool for tissue removal
- Laser for peripheral artery disease (PAD); atherectomy technologies
- Occlusion balloon catheters

Biocompatibility Approvals

- EPO-TEK® MED-353ND-T cured at 150° for 1 hour has been tested and is ISO 10993 certified, meeting Hemolysis (10993-4), Cytotoxicity (10993-5), Implantation (10993-6), Intracutaneous (10993-10), Sensitization (10993-10) and Systemic Toxicity (10993-11) test protocols.

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-353ND-T 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-353ND-T for their given application.
- MED-353ND-T is generally capable of resisting hundreds of autoclave and Sterrad® sterilization cycles.
- MED-353ND-T is generally regarded for resisting few cycles of ETO and gamma radiation.

Packaging Availability

- EPO-TEK® MED-353ND-T 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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