

Waterproof sealing adhesive for fiber optic sensors

Article Overview

UV-curable epoxies, two-component optical epoxies, and moisture-resistant silicone adhesives are ideal for waterproof sealing of fiber optic sensors.

Recommended Adhesive Types

1. **UV-Curable Epoxy Adhesives** These adhesives cure quickly under UV light, providing high bond strength, optical clarity, and low shrinkage. They are suitable for sealing fiber optic components in active optical pathways and can withstand extreme temperatures and moisture exposure. Examples include EPO-TEK(R) OG142-87, which is a single-component, low-viscosity UV epoxy designed for adhesive sealing and encapsulation of fiber optic and optoelectronic devices (Meridian Adhesives) .

2. **Two-Component Optical Epoxies** Two-part epoxies offer superior chemical resistance, dimensional stability, and long-term durability. They are commonly used for bonding, potting, and sealing fibers into ferrules, connectors, or v-groove arrays. These adhesives maintain optical clarity and can endure harsh environmental conditions, including high humidity and temperature fluctuations (Master Bond, Kohesi Bond) .

3. **Moisture-Resistant Silicone Adhesives** Silicone-based adhesives, such as ASI 502 RTV silicone, provide flexible, non-curing, moisture-resistant sealing. They are ideal for applications requiring long-term stability over wide temperature ranges (-70°F to 400°F) and resistance to water ingress, making them suitable for outdoor or high-humidity environments (Meridian Adhesives) .

Key Properties to Consider

- o **Optical Clarity:** Essential to avoid signal loss in fiber optic sensors.
- o **Waterproofing and Moisture Resistance:** Prevents degradation in humid or wet environments.
- o **Thermal Stability:** Serviceable across wide temperature ranges (-80°F to +300°F for some epoxies).
- o **Low Shrinkage and Dimensional Stability:** Maintains alignment of optical components.
- o **Chemical Resistance:** Protects against corrosion and environmental contaminants.
- o **Adhesion to Glass, Metals, and Plastics:** Ensures reliable sealing across different sensor materials .

Application Tips

- o **Surface Preparation:** Clean and dry surfaces to maximize adhesion.
- o **Curing Method:** Use UV light for UV-curable adhesives or follow manufacturer instructions for two-component epoxies.
- o **Encapsulation:** For full waterproofing, consider potting the sensor in a low-viscosity epoxy or silicone compound.
- o **Environmental Testing:** Verify the adhesive's performance under expected temperature, humidity, and



Waterproof sealing adhesive for fiber optic sensors

mechanical stress conditions. By selecting adhesives with these properties, fiber optic sensors can achieve reliable waterproof sealing while maintaining optical performance and long-term durability in challenging environments.

Explore advanced adhesives for electronics sensors. Discover bonding, sealing, and potting solutions for smart, reliable, and durable

Optical adhesives are supporting advances in optical assemblies, collections of optical components and mechanical parts that

Lens bonding adhesive is a vital component in the field of optics, allowing for the joining of lenses or other optical components to

Browse this catalog on our line of epoxy, silicone and light curing compounds that meet the specific demands of the optical industry.

Optical and fiber optics assembly and manufacturing require fast setting UV adhesive or 2 component

Epoxy, anaerobic, UV adhesives such as Epotek 353ND, Tra-con BAF series, Loctite 648, 7649 primer, Hysol 608, and more.

NextGen Adhesives offers an extensive line of fiber optic adhesive technologies and a premier supplier for

The Roxtec multi-protection seal for fiber optic cables will meet the demand for protection against fire, water and

Optical transmission, the ability for light to be channeled through a material, is particularly important for

EPO-TEK®; optical adhesives offer precision and reliability for optical bonding in telecom, datacom, 5G, AI,

The table below lists a selection of adhesives that are suitable for joining, reinforcing and sealing fibre

Master Bond offers an extensive line of epoxies and UV curing systems for use in fiber optics devices. These products provide

Explore our IN-STOCK epoxy and adhesive materials for fiber optic components from top brands like Covestro, Dymax, Epo-Tek,



Waterproof sealing adhesive for fiber optic sensors

EPO-TEK®; optical epoxies offer precision bonding and sealing for components like sensors and fiber

EPO-TEK®; OG142-87 is a UV curable epoxy for adhesive sealing/encapsulating fiber optic &

Kohesi Bond's optical grade adhesives deliver precision bonding for fiber optic cables, camera modules, laser assemblies and

Web: <https://millstraining.co.za>

