



EPOXY & CURATION

GLOBAL LEADER IN
PROVIDING FIBER OPTIC
INTERCONNECT SOLUTIONS
TO THE MEDICAL AND
TELECOM INDUSTRIES.

PRECISION FIBER PRODUCTS, INC / EPOXY & CURATION



EPOXY FOR FIBER OPTICS

EPOXY TECHNOLOGY'S OPTICAL LINE OF ADHESIVES
IS USED FOR BONDING AND PROTECTIVE COATINGS
IN VARIOUS FIBER OPTIC APPLICATIONS.

WE WILL LEARN ABOUT

EPOXY?

Why is it so important to know how to apply epoxy, does it really matter?

221

BUBBLE TROUBLE

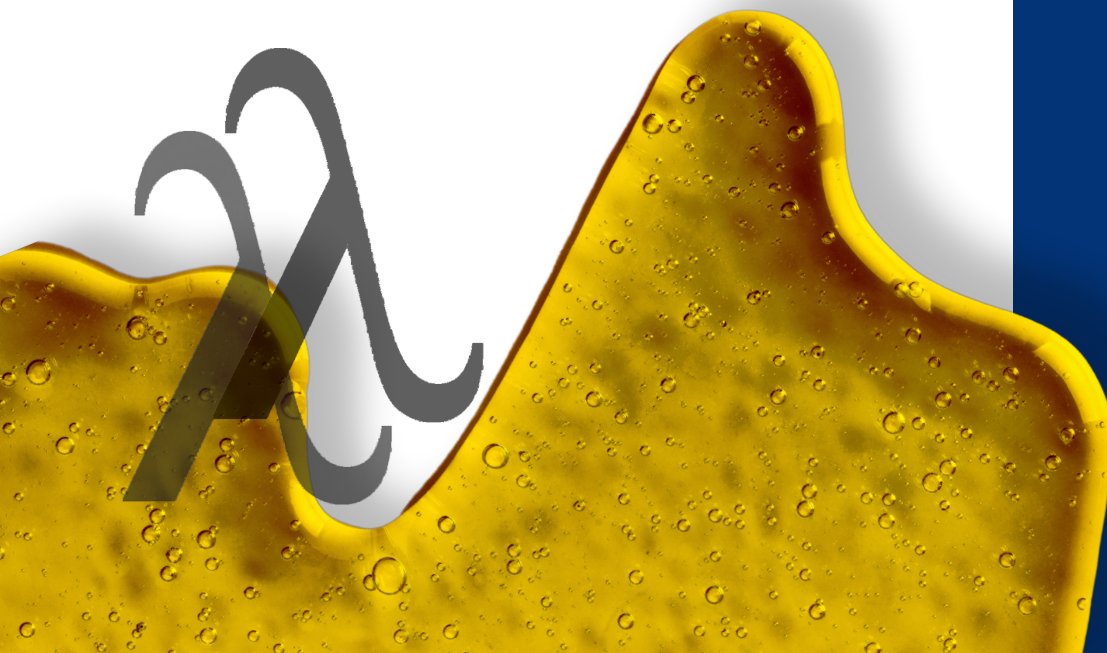
Removing Bubbles from Epoxy

HOW TO

Work properly with Epoxies. Step by Step Instructions

CRYSTAL- LIZATION

Why does this happen?
Does it affect my procedure?



EPOXY?

OUR EPOXY ADHESIVES ARE FREQUENTLY USED TO BUNDLE OPTICAL FIBERS AND BOND COMPONENTS IN OPTOELECTRONIC DEVICES.

Our Epoxy Technology adhesives have been tested in accordance with Telcordia Standard GR-1221, "Generic Reliability Assurance Requirement for Passive Optical Components". This testing helps to assure the practical, useful life for certain manufactured devices relating to long term (25 year) performance.

Although the use of epoxy in the ferrule is not given as much importance, it is of the utmost importance for reliability and wear and tear. A good application gives reliability to our assemblies and your projects. Thanks to our quality processes our epoxy comes in different presentations 8oz, 4gm and 2gm.

We are experts in the use of epoxy in the field of fiber optics, in this brochure we will answer some questions and provide clarifications about the use of epoxy.

We should not overlook the importance of controlling the amount of epoxy that remains **BEHIND** the ferrule (inside the ferrule holder) This is the area that contains the weakest part of the entire fiber length: the transition zone where the protective coating has been removed from the bare fiber. It is critical that this entire transition zone is completely encapsulated in epoxy. The epoxy provides strength to this zone, which is very weak and susceptible to fiber breakage.

SHOULD NOT OVERLOOK THE IMPORTANCE OF CONTROLLING THE AMOUNT OF EPOXY THAT REMAINS



OUR EPOXY PRODUCTS

AVAILABLE AT:

PRECISIONFIBERPRODUCTS.COM

At **PFP** we offer different presentations to adapt to the needs of your project, all with the highest quality in epoxy products.

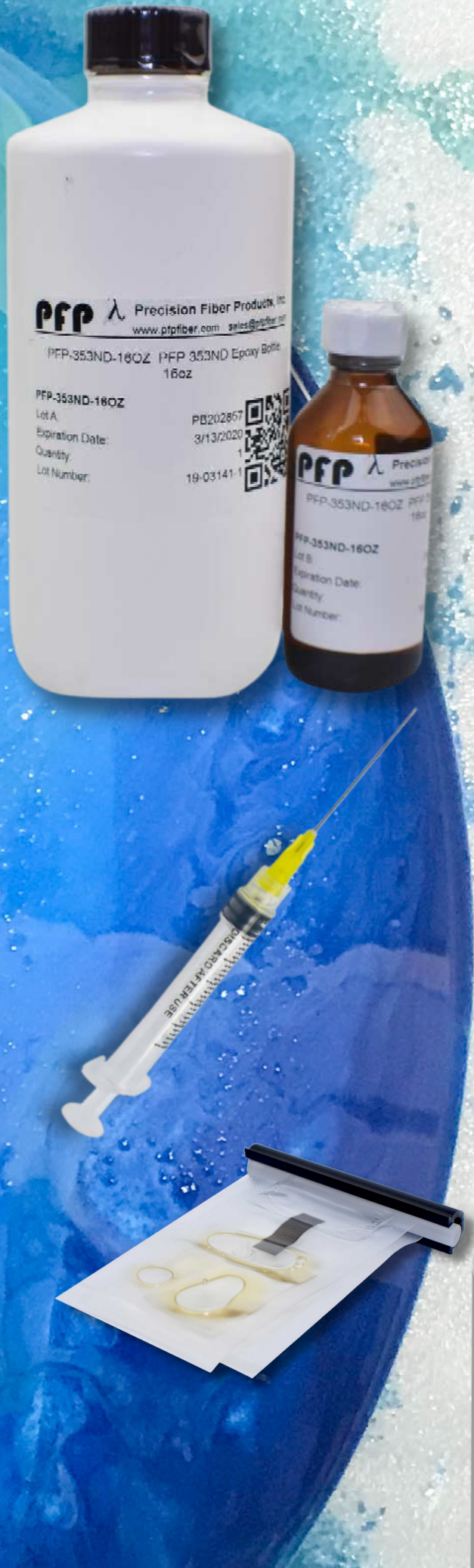
As experts in the field, we know the importance of quality in this important substance.



- **Bottle**
- **Syringe**
- **Packets**

8 oz., 4 Grams & 2 Grams

We will also provide you with extra help via frequently asked questions regarding: our epoxy, how air bubbles affect the product, what to do in case my product crystallizes, and other frequently asked questions.



BUBBLE TROUBLE

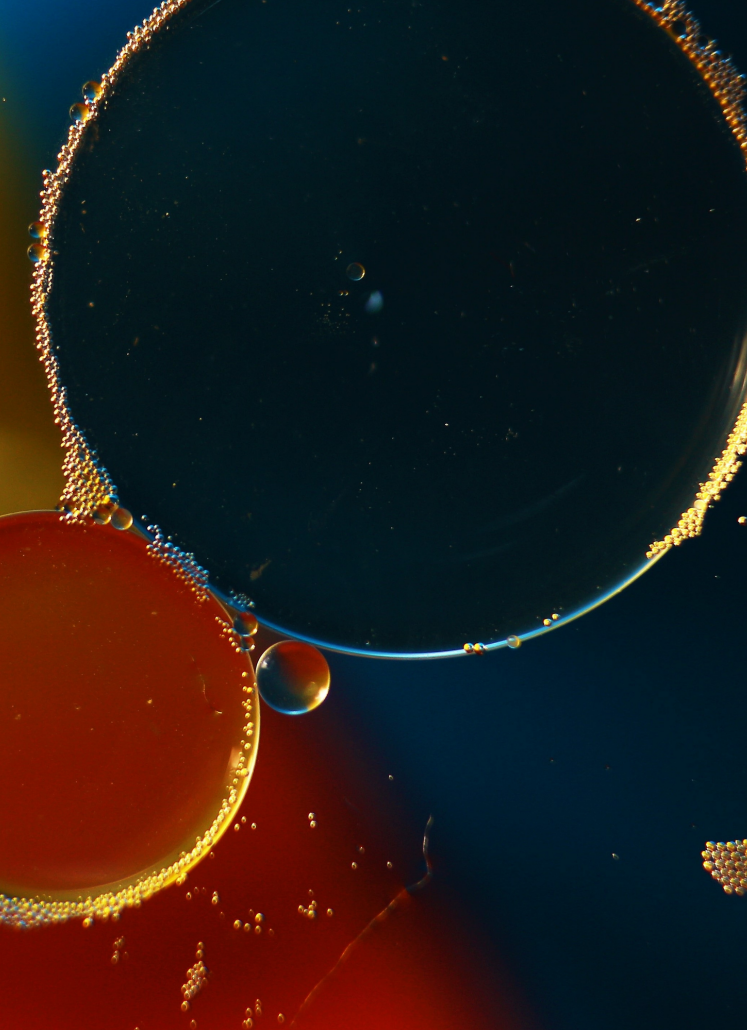
REMOVING BUBBLES FROM EPOXY

Air entrapment is an inevitable occurrence when any product, regardless of its rheology, is mixed. This tip discusses three techniques for removing and reducing this entrapped air. Pre-mixed and frozen syringes are a convenient way to apply adhesive and can assist in reducing any potential errors that can occur when weighing out each component on a gram scale and hand mixing. Occasionally, there may be a small amount of air entrapped within the syringe after it has been packaged. Air can also become entrapped within a hand mix of material in an open container. The following are three simple ways to remove bubbles from epoxy before applying it to your parts: Vacuum Degas, Centrifuge, and Heat.

What > Removing Bubbles from Epoxy

Why> Removing bubbles ensures optimal adhesive performance by providing a good continuous bond.

Heat: Heat is a simple and efficient way to remove bubbles from epoxy. The key to this technique is to keep the product in a wide container that has large amounts of epoxy in the X and Y dimension, but little in the Z dimension. This gives the maximum amount of surface area for the bubbles to escape. This method should only be used for epoxy in an open container. The wide container should be placed into an oven that has been pre-heated to 35°C - 40°C for approximately ten minutes. If there are still large amounts of bubbles in the epoxy, the product can be kept in the oven a bit longer. Be sure to keep track of the pot life of the product and remember that heat can act as a catalyst and speed up the cure. Sometimes it is necessary to lightly brush the top surface of the material with a spatula to break the surface tension on any bubbles that are not able to get to the surface easily



EPOXY CRYSTALLIZATION

WHAT IS EPOXY RESIN CRYSTALLIZATION?

It can often come as a surprise, but crystallization is more of an inconvenience rather than a problem. Frequently, a jar, bottle, bucket or container looks cloudy, turbid or even solid upon inspection. By definition, it is referred to as a phase change from a liquid resin to a solid format. It can be viewed similarly to water turning from liquid into ice and vice versa. Crystallization of epoxy resins is completely reversible, like freeze/thaw cycles of ice and water. As water remains unchanged from repeated cycles, so do the original properties of epoxy resin.

Why Does Crystallization Occur?

Many plastic resins are super-cooled liquids, including epoxy resins. They are solids in form at room temperature but remain in a liquid state below their freezing temperature. Liquids super-cool because crystallization can be too slow of a process or the seed crystals are not readily formed. In general, supercooled liquid resins have a natural tendency to crystallize at low temperatures. Other factors such as extreme cold, fluctuation in ambient temperatures and thermal cycling can cause seed crystal growth and may induce materials to revert back to their natural, solid state.

How to solve this?

As stated earlier on, crystallization of epoxy resins is more of an inconvenience rather than a problem. Subjecting the resin to a temperature of 40-50°C for a few hours is generally sufficient for re-melting the crystals. It is important to be certain that all of the crystals have been melted away and can no longer act as seeds before cooling to room temperature. This can be done by closely examining the container sides, bottom and areas around the caps for any signs of crystallization that could nucleate additional growth. If possible, it is recommended to clean the bottle caps and bottle neck with solvent (isopropyl alcohol – IPA, or acetone) after each use in order to prevent seeds from developing. The same applies for spigots, spouts, pumps, piping and valves. Controlling and monitoring shipping and storage temperatures is a good way to prevent crystallization from fluctuations in temperature. Good housekeeping is also a great way of preventing this.



WE ADHERE TO YOUR NEEDS

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