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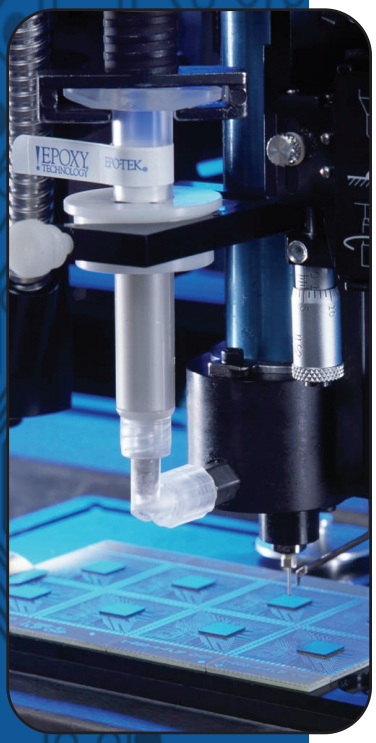
Tech Tip 2

Handling Procedures for Premixed & Frozen Materials

What > Handling Premixed & Frozen Materials

Why > Touching the barrel of a frozen syringe without gloves will result in the product pulling away from the barrel and cause freeze thaw voids.



Commonly, customers will purchase two component epoxies premixed and frozen in syringes for automated dispensing. This removes the weighing step and ensures that material has already been properly mixed for two component systems.

Here are some quick tips on how to properly handle these materials:

1. Materials are shipped in dry ice to keep them frozen at -40°C. Once the package is received, the syringes should be moved into a freezer at -40°C as soon as possible.

Note: Freezer temperature should remain within ± 3°C of the recommended storage temperature of -40°C.

2. When handling frozen syringes, take special care to handle the product by either the needle tip or flange of the syringe only. Insulating gloves may also be worn to facilitate handling. Touching the barrel of a frozen syringe without gloves will result in the product pulling away from the barrel and cause freeze thaw voids. It can also introduce air and moisture into the epoxy that can result in dispensing and curing issues.

3. After removing from the freezer, the syringe should be placed into a test tube rack or something similar to keep the syringe in the vertical position while thawing. The flange end should be facing up and the needle end pointing down. Do not place syringes on their sides. Allow the product to thaw using the following suggested thaw times:

Syringe Size	Thaw Time
1-3 cc	15 min
5 cc	30 min
10 cc	40-60 min

ALWAYS remove syringe end cap before removing the luer lock tip cap.

4. Once the product has been thawed, the product is now dispensable and the syringe can be handled by the barrel without gloves. If the product seems too thick, wait longer for the epoxy to thaw more before continuing with dispensing.

5. The pot life of the syringe packaged material will be similar to the pot life listed on the datasheet for the product. Keep in mind the time needed to thaw the product as well as for packaging. The user should be conservative with the syringe pot life so as not to affect the performance of the adhesive by dispensing too close to the end of the recommended pot life.

6. Do not refreeze the product in syringe. This will cause moisture to be trapped in the syringe and can cause freeze thaw voids. The addition of air and moisture into a syringe reduces the epoxy's usability and can cause cure problems. It is strongly suggested that the epoxy be packaged in a way that will reduce the need to refreeze product (ex: ordering 1cc of material in a 3cc syringe instead of 3cc of material in a 3cc syringe if only 1cc of product is used a day).

Note: In some cases, a "stepped thaw" may be preferred in thawing syringes. This is done by placing a previously frozen syringe (-40°C) into a standard freezer (0°C) for 30-60 minutes, ***before*** thawing at room temperature to complete the thaw.

Using this interim step can aid in reducing potential Freeze-Thaw Voids (FTV) that may occur in some products due to a CTE mismatch between the barrel and the adhesive.

Frozen syringe barrels can be brittle and will fracture easily. Careful handling is always recommended.

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