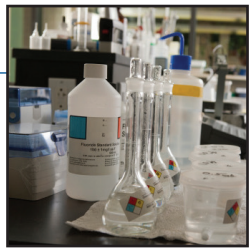
How to Work Properly with Epoxies

Step By Step Instructions

Receiving

- Upon receipt of the material, review the Technical Data Sheet (attached to the packing slip) for specific product information.
- Read and follow the SDS (Safety Data Sheet) to insure proper chemical hygiene (safety precautions) of the EPO-TEK® material (also attached to packing slip).
- Material shipped in dry ice should **Immediately** be moved to a -40˚C freezer upon receipt.

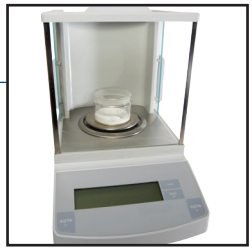


Storing

- Most two component adhesives should be stored at room temperature between (23˚C-27˚C), with humidity control (40-60% RH) and in a closed container.
- One component materials are typically stored in a freezer at -40˚C. The material should always be brought back to room temperature prior to use. Proper thawing procedures should always be followed to avoid any potential adverse effects on the adhesive, such as Freeze Thaw Voids (FTV) or moisture contamination (see *EPO-TEK Tech Tip 2*). **Consult us if you have any specific questions.**

Handling

- Epoxies should be handled carefully, in the same manner as other chemical products.
- Work in a well ventilated area or under an exhaust hood. Latex or Nitrile gloves are also required in order to reduce any dermal exposure (dermatitis can usually be avoided by use of proper equipment, safety handling techniques and proper chemical hygiene).
- Gloves should be replaced often and work spaces should be kept clean of contaminants.
- Often, goggles and protective clothing may also be required.
- Wash hands thoroughly with soap and water when finished.



Mixing

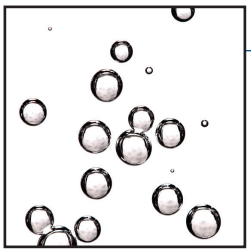
- Calculate the amount of A and B needed based on the mix ratio by weight (see Technical Data Sheet for mix ratio and follow exactly). Minimum batch size is 2-3 grams.
- Some products have a maximum batch size limit as well. It is important to read the entire Technical Data Sheet before using the epoxy.
- Using a metal or glass stirrer, mix separately part A, then part B, ensuring each part is homogeneous before weighing the material to be used in the final mixture. Wipe stirrer between mixes.
- To measure the correct amount of Part A and Part B, use a gram scale (preferred method). An alternate method is measuring by volume and taking into account the specific gravity of each component (see *EPO-TEK Tech Tip 11*).
- After taring an empty container, weigh the appropriate amount of part A (pre-determined by your desired end quantity of adhesive).
- Add the pre-determined quantity of part B to the part A. Be sure to use a clean stirrer to avoid contamination.
- Mix slowly 1-2 minute(s) clockwise in a swirling manner, followed by 1-2 minute(s) counter-clockwise, to ensure a homogenous mixture.
- Be careful NOT to vigorously mix the materials as this can introduce entrapped air/bubbles into the adhesive; potentially causing voids in the adhesive bond line.

Special Considerations

- Containers made out of paper or cardboard are NOT recommended as they are often coated and can contaminate the product being mixed.
- Do NOT use wood stir sticks as wood may also contaminate the adhesive.
- Be sure to use a stainless steel, glass, or a plastic device to mix.

Surface Preparation

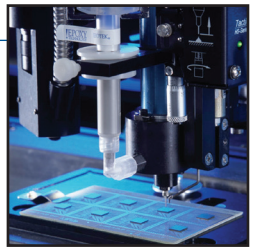
- Prepare the bonding surface by applying acetone or isopropyl alcohol to a clean Kim-Wipe® (single use cloth) and wipe the surface until clean.
- Be sure the surface is dry before applying the adhesive.
- For more detailed information on substrate specific surface preparation techniques see *EPO-TEK Tech Tip 13: Surface Preparation.*



Bubble Removal (if necessary)

- If an adhesive contains entrapped air, it should be removed in order to apply the epoxy uniformly.
- Three common methods to remove bubbles are: vacuum degassing, centrifugation and heat — depending on your packaging type (syringe or jar container) and application method.
- See *EPO-TEK Tech Tip 4: Bubble Removal* for specific information on degas methods that are best for your material and packaging.

Applying the Epoxy



Depending on your application, some common methods of applying adhesives include:

- syringe dispensing
- screen printing
- spraying
- stamping
- roll coating
- jetting

Proper Curing

- The material should be cured according to the cure condition found above the "Typical Properties" box on the Technical Data Sheet. Often there are minimum alternate cure schedules available. For the most appropriate cure, see "Recommended Cure" listed at the top right side of the datasheet.
- As a general rule, curing time is typically **extended** in order to ensure the bond line reaches the proper cure temperature.
- See *EPO-TEK Tech Tip 6: Minimum Bond Line* and *Cure Matters* for additional information.

Important Note

★ Curing time can **never** be too long however, when it is too short, poor cross-linking can result. Shortened cure time often leads to low adhesive strength as well as less than optimal properties.

Please consult our Technical Services Experts at Epoxy Technology for any questions or assistance you may need in working with our EPO-TEK® adhesives.

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EPOXY TECHNOLOGY

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