

Knowledge Domain: Mechanical

Unit: Attachment

Skill: Epoxy

Tools and Parts Required:

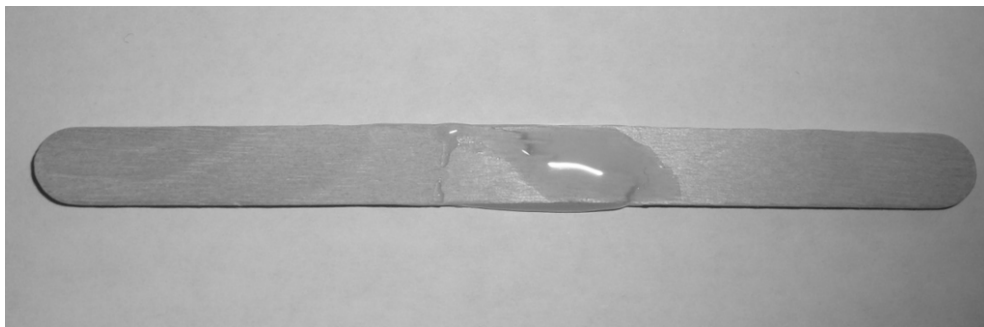
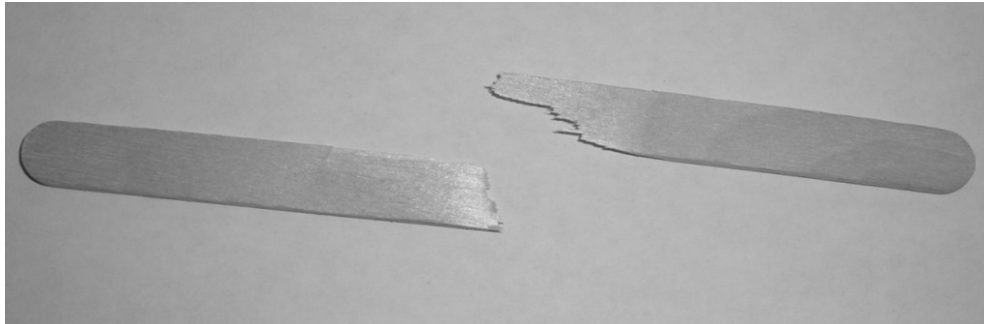
- 1) Broken plastic, metal, wood, and/or ceramic
(ex: plastic bottle, tongue depressors, popsicle sticks, vase, equipment parts etc)
- 2) Epoxy
- 3) Piece of metal or wood
- 4) Scrap paper
- 5) Small weight
- 6) String
- 7) Safety goggles
- 8) Work gloves

Introduction

Epoxy is strong glue. Use epoxy to reattach broken or cracked parts. Epoxy works well with steel, plastic, wood and ceramics. Epoxy is two liquids that must be mixed before use. Epoxy dries quickly. After mixing the two liquids, use epoxy immediately. Epoxy usually makes the broken piece stronger than before. Epoxy does not weaken in water.

Example

Below is a picture of a piece of wood before and after reattachment.

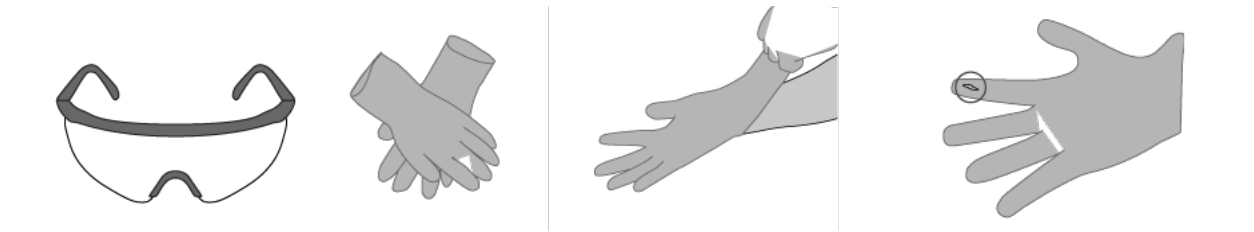


Identification and Diagnosis

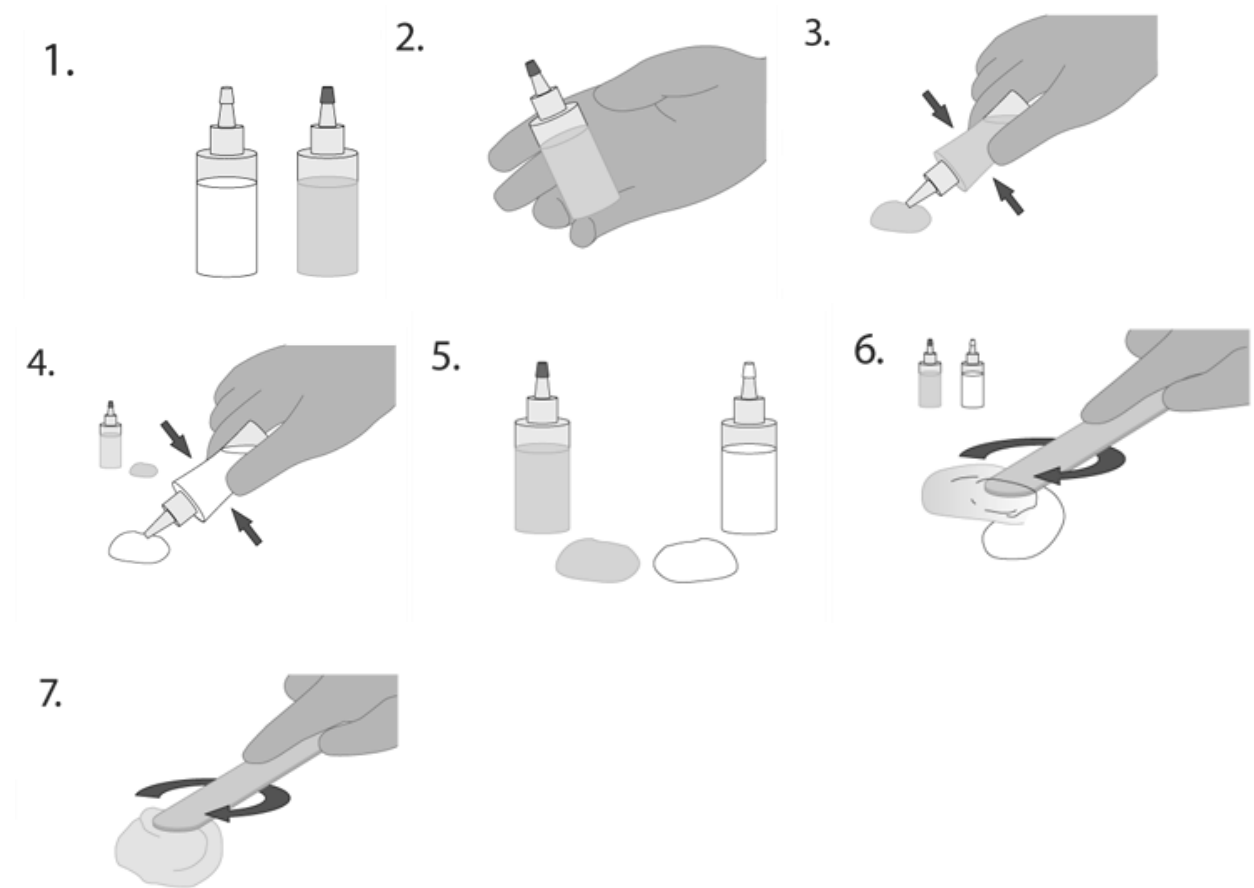
Use epoxy if the pieces cannot be attached using a nail, screw or welding. If the broken edge is smooth, roughen it using sand paper. Gaps can be filled using epoxy.

Procedure

Wear safety goggles and gloves. The fumes from epoxy can be dangerous. Avoid touching epoxy to skin.



Follow the directions on the epoxy container.



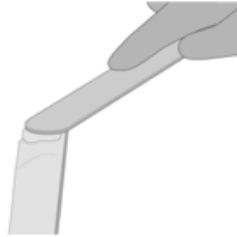
Mix the components on a piece of scrap paper. Use a scrap piece of metal or wood to mix the two liquids. Read the package for specific mixing instructions. Mix the two liquids thoroughly.

Spread excess epoxy on the edge of the broken part.

8.

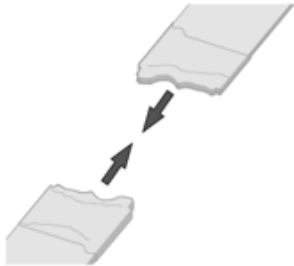


9.

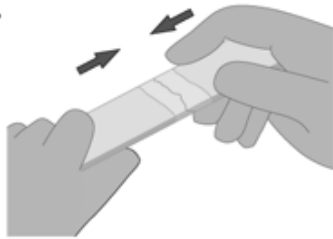


Gently push the two broken ends of plastic together. Hold until the glue is firm. Avoid gluing your glove or skin to the plastic. Wait at least 24 hours to use the part.

10.



11.



Exercise

Your instructor will give you a broken object. The object may be a piece of medical equipment from your hospital. Reattach the object using epoxy. Allow the epoxy to become firm. Different types of epoxy have different times to set. Read the package for instructions. Use string to attach a small weight to one end of the repaired object.

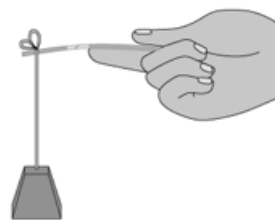
12.



13.



14.



Notice how the device is now stronger than before. It will deflect with the additional weight. Your instructor must verify your work before you continue. Try repairing other types of materials if there is time.

Preventative Maintenance and Calibration

Look for cracks or damage to plastic pieces. Reinforce the cracks if needed. Use epoxy to seal the cracks. Using epoxy to seal cracks can prevent the part from breaking. You may need to enlarge small cracks to help epoxy adhere to the object.

Always calibrate every medical device before returning it to use.