Insect Preservation Techniques For Hands-On Outreach Projects

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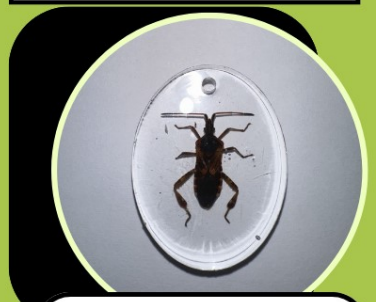
Resin Specimens



Western Conifer Seed Bug
(*Leptoglossus occidentalis*)

A durable way to present and preserve hard-bodied insects

Resin Materials

Resin and hardener epoxy
Resin mixing cups (disposable or silicon)
Popsicle stick or silicon stirring stick
Resin mold
Small Butane Torch
Forceps
Disposable Gloves
Insect specimen
Vacuum chamber (optional)
Label (optional)

Start-Up Cost

- Resin/hardener- $20-70 (Amazon)
- Resin mixing cups - $1-2 (Dollar Store)
- Popsicle sticks - $1-2 (Dollar Store)
- Resin Molds - $10-20 (Amazon)
- Small Butane Torch - $12-30 (Amazon)
- Forceps - $5-10 (Amazon)
- Disposable Gloves - $5-10 (Amazon)
- Vacuum Chamber - $75-200 (Amazon)

Average start-up cost can be anywhere from $130-350

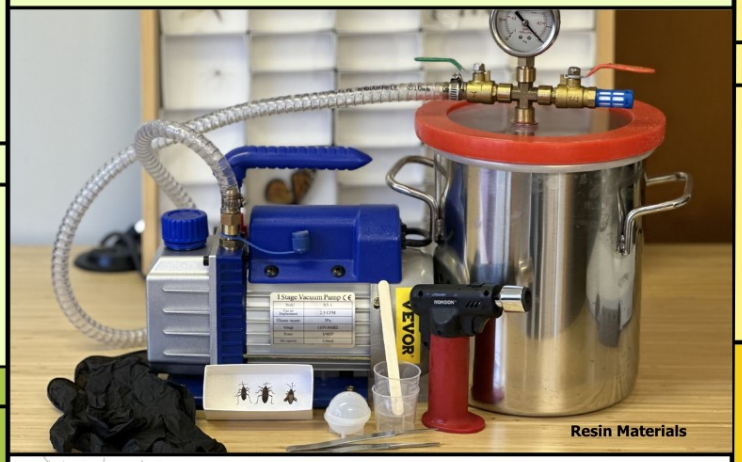
Tips and Tricks For Resin

- Complete in small batches
- Create in layers
- Stir resin slowly to reduce bubbles
- Dried specimens are recommended because they hold color and don't "cook" with the chemical reaction
- Use torch to pop bubbles instead of tweezers (be careful not to burn the resin)
- Become familiar with your resin and drying time before attempting to preserve a pristine specimen

Procedure for Resin Specimens

Hands-on Time: 20 mins-1 Hr Drying time: 36-48 Hrs

1. Mix resin and hardener thoroughly in a 1:1 ratio
2. Place resin mixture into vacuum chamber to remove bubbles (may take multiple sessions)
3. Pour a thin layer of resin into desired mold
4. Arrange the specimen to your liking and add label
5. Let harden for 4-5 hours or overnight
6. Repeat steps 1-2 and fill the mold with resin covering the insect and label completely
7. Use a torch to pop any remaining bubbles as they rise to the surface
8. Let harden for 24 hours



Resin Materials

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A special thank you to our Board of Trustees for their support with this project and others to engage and educate our community.

Procedure for Hand Sanitizer Vial Specimens

Hands-on Time: 15 mins-1 Hr

1. Use hand sanitizer to "clean" insect and minimize bubbles before preserving
2. Pour hand sanitizer in slowly to minimize bubbles
3. Fill vial ¾ before adding insect, then arrange before filling the last ¼
4. Use tweezers to tease out any remaining bubbles
5. Use super glue to secure lid
6. Labeled lab tape or printed label to identify

Start-Up Cost

- Clear hand sanitizer gel - $8-15 (CVS)
- Glass vials with screw on lid - $20-40 (Amazon)
- Super glue - $1-5 (Dollar Store)
- Forceps - $5-10 (Amazon)

Start-up cost for the hand sanitizer vials is relatively low ranging from $35 dollars to $70

Both Resin and Hand sanitizer vials are microscope friendly!

Grab a handout for detailed step by-step resin instructions!

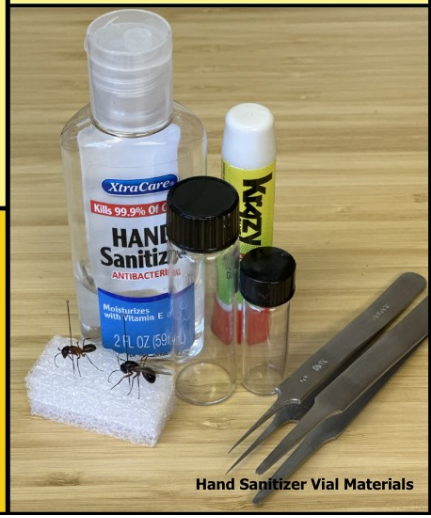
Hand Sanitizer Vial Specimens

Southern Black Widow
(*Lactrodectus mactans*)

Insects in hand sanitizer are suspended and won't move after being positioned, making them hardy and kid-friendly!

Hand Sanitizer Vial Materials

Clear hand sanitizer gel (without bubbles)
Glass vial with screw on lid
Super glue
Forceps
Insect specimen
Label (optional)



Hand Sanitizer Vial Materials

Resin Specimen Step-By-Step Instructions

1. Gather materials:
    - Resin and hardener
    - Resin mold
    - Disposable or silicon mixing cup
    - Popsicle stick or silicon stirring spatula
    - Forceps
    - Small butane torch
    - Vacuum chamber
    - Insect specimen
    - Label (printed or pencil)
    - Disposable gloves
    - Paper towels for clean up (optional)
2. Your resin specimen project will be constructed in layers: a thin primary layer of resin, an insect and a label, followed by a final layer of resin. Start by setting out supplies and laying down paper towels or brown butcher paper to protect whatever surface you're working on. Have your insect specimen out and ready; it saves time and ensures the resin will not harden while preparing the insect. The amount of time you will have with your resin before hardening greatly depends on the brand you are using. I would suggest doing a test run or two to become familiar with your particular resin before using an insect specimen you really care about.
3. Measure out the resin in one small cup and the hardener in another, or if your cups have measurements on the side you can pour them directly together. Having the correct ratio is very important. Remember the first layer is thin, so mix amounts according to the mold size to reduce waste. Combine resin and hardener into one cup, making sure to scrape the sides to keep the ratio even. Mix very thoroughly for about two minutes until a clear liquid is formed without any cloudiness or separation. Mixing introduces air bubbles into the resin but the vacuum chamber will extract them. If you don’t have a chamber, mix slowly to reduce the amount of bubbles created.
4. Take the resin mixture and place it into the vacuum chamber. Close the relief valve and turn on the pump. Increase the pressure in the chamber according to the specific pump you have and watch the bubbles rise in the resin cup, being careful not to spill over. Turn off the pump and let the resin rest in the pressurized chamber for five minutes or until the bubbles have stopped rising and have popped. Release the pressure and repeat the process until the resin is clear and bubble free.
5. Select the mold you want to use for your specimen, and clean it thoroughly with alcohol. Once it is clean and dry, slowly pour a thin layer of resin to cover the bottom. Use the torch lightly over the resin to pop any bubbles that may have risen. After the insect is placed, the torch cannot be used to pop bubbles without risk of burning the specimen.
6. Secure the insect specimen. Soft bodied insects (such as spiders with a large abdomen, caterpillars, larvae, worms, etc.) are not ideal for resin. The heat from the chemical reaction “cooks” them causing them to burst and lose form as well as coloring. I would suggest drying larger specimens before putting them into resin.
7. Place the insect (and label) onto the thin layer of resin in the mold, using the forceps to position them to your liking. Check your insect periodically over the next two hours to make sure the position has held, adjusting until the resin begins to really set and hold the insect in place.
8. Let harden for at least four hours or preferably overnight.
9. Discard any unused resin.
10. After the first layer has hardened, repeat steps three and four to make another batch of resin to encase the insect specimen.
11. Slowly pour resin over the insect until it is completely encased and the resin is flush with the mold. Use the torch to pop any emerging bubbles. Periodically check the project over the next hour or two for bubbles then let it harden for 24-48 hours. The exact drying time will vary depending on the brand of resin. After the appropriate amount of time has passed, pop it out of the mold and it's ready to go!