

EXPERIMENT #1: "GOLDEN CITRINE" CRYSTALS

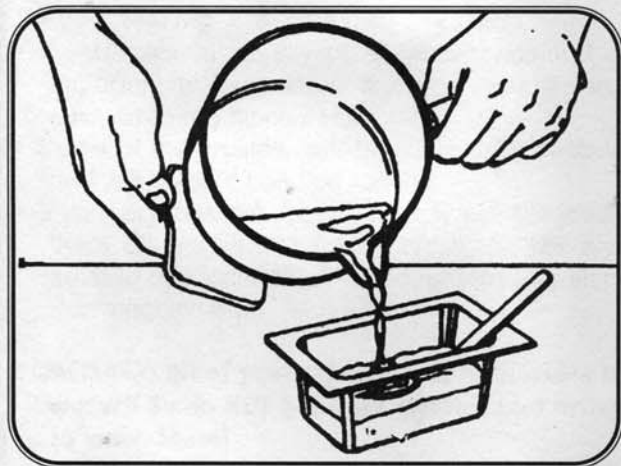
You will grow crystal clusters of a golden amber color on a base rock. The crystal growing chemical contains Monoammonium Phosphate and a concentrated food dye colorant.

You will need the following materials to complete this experiment:

- Safety goggles
- Bag #1 containing Giant "Golden Citrine" crystal growing chemical
- Size "C" plastic crystal growing cup
- Size "D" plastic crystal growing cup
- Size "D" plastic crystal growing cup lid
- Plastic graduated beaker (for measuring liquid & solid amounts)
- Wooden spatula (for stirring)
- Pan for boiling water
- Base Rock Piece
- Newspaper or plastic sheeting to cover your work area to reduce the hazard of spills on table or floor
- Flashlight
- Magnifying glass
- Small storage jar with lid for storing the excess solution for later steps or follow up experiments

Experiment Steps:

1. Open bag #1, the "Golden Citrine" crystal growing chemical and pour the contents into a size "C" plastic crystal growing cup.
2. Put about 1/8 teaspoon of them back into bag #1 for use as seed crystals.
3. Use the graduated measuring cup to measure out 68 milliliters (ml) of water and pour this water into a small pan.
4. Place the pan onto the stove and heat until water is boiling.
5. Pour the boiling water from the small pan into the size "C" plastic growing cup which contains the contents from bag #1.

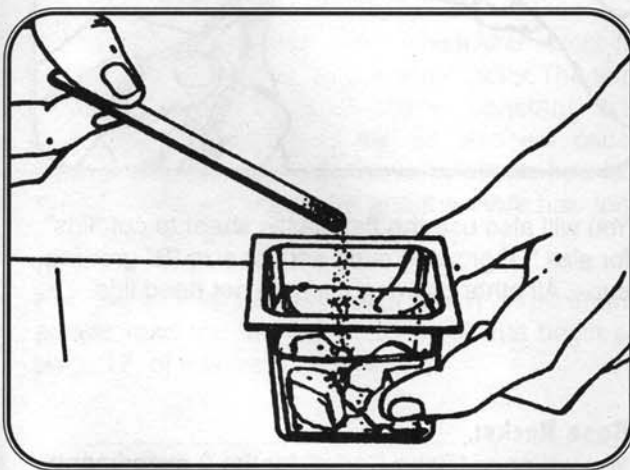


6. Stir this mixture with one of your wooden spatulas until all of the chemical grains have dissolved completely.

7. Place 1 or 2 broken Base Rock fragments in the bottom of the size "D" plastic growing cup. These "base rocks" should only come up from the bottom of the growing cup about 3/4" (or about 2 cm).

8. Pour the chemical/water solution from the size "C" plastic cup INTO the size "D" crystal growing cup. Pour right over the base rocks. The liquid should be poured in the cup so as to allow about one third of an inch (8 mm) of space between the top of the liquid and the rim of the cup. Let the solution cool until lukewarm.

9. From the bag, take a few "seed" crystals which you saved and carefully place these at different spots on the top of the rocks which are on the bottom of the size "D" plastic crystal growing cup.



10. Place the lid which fits the top of the size "D" cup on top of your crystal solution cup.

11. Set your "Golden Citrine" crystal growing cup in a place where it will not be disturbed by movement or changes in temperature.

Your crystals will start growing in just a few hours. You may use your flashlight to look through the sides of the cup and watch the process.

Allow the crystals to grow without being disturbed for three or four days. At that time you may remove your crystals from the solution OR you may take off the lid and let the solution evaporate for a few more days (to make larger crystals). If you remove the lid and let the solution evaporate, a crust of crystals may form at the top of the solution or at the top rim of the crystal growing cup. Remove your grown crystals BEFORE the top of your crystals are exposed through the surface of the solution.

When you are satisfied with the shape and size of your crystal mass specimen, set it aside on a piece of newspaper or paper towel and allow to dry completely for one day.

If the crystal mass and the "base rock" have formed a square shape due to the shape of the growing cup, you may want to break off excess crystals which form a square shape in order to make your crystal mass display look more geologically natural.