

Making Paints from Minerals

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Pigment Powder

Grinding minerals is a time consuming process. However, the grinding process demonstrates the importance of hardness and streak versus color in choosing pigments for paint; some in-class mineral grinding is necessary to achieve the learning objectives. Mineral powders can be purchased from pottery supply stores (glaze ingredients) or from specialty retailers (www.earthpigments.com or www.naturalpigments.com). If you choose to grind the samples rather than purchase powders, the procedure is as follows:

- Grind the sample of the mineral pigment (e.g., hematite) using a mortar and pestle.
- Pour the powder into a beaker of water and mix well
- Wait 1 minute for the coarse grains to settle, then pour off the water and suspended pigment into another container
- Allow 2 days for the pigment to settle, then pour off the water
- Allow the sediment to dry, then powder it with mortar and pestle and store the pigment powder.

Gum Arabic Solution (Vehicle)

The vehicle must be made at least one day in advance to provide sufficient time for the gum to dissolve. Gum Arabic is a natural, water-soluble gum that is produced by acacia trees of the Middle East and northern Africa, and is available from art supply stores. Oil of clove can be purchased at a pharmacy.

- Place 1 part gum arabic powder or crystals in a saucepan.
- Heat 2 parts distilled water to a boil, remove from heat, and slowly pour over gum arabic, stirring to mix.
- Add one part glycerin per 5 parts gum Arabic solution.
- Add one part honey per 10 parts gum Arabic solution.
- If you intend to keep the paint for a while, you can add a few drops of oil of clove as a preservative
- Cover with cheesecloth and let stand for one day, stirring occasionally. (Some gum crystals may need longer to dissolve.)
- Strain the solution through several layers of cheesecloth to remove impurities and sediment.

Mixing Paint

- On the glass sheet, make a pile of about 1-1/2 tablespoons of pigment powder. For gouache (an opaque watercolor paint) add 1/4 tablespoon of calcite powder (whiting).
- Use the back of the measuring spoon to make a hollow in the center of the pile.
- Pour 1 teaspoon of gum Arabic solution into the hollow, and knead very slowly with the putty knife. As needed, add more gum arabic solution or distilled water until pigment forms a creamy paste.
- Use a muller/pestle to break apart and grind the pigment aggregates. You cannot overwork the paint. Add more vehicle or water as needed to counteract evaporation.
- Transfer paint mixture into containers. (Seven-day pill boxes from a drugstore serve as convenient and inexpensive paint boxes.)