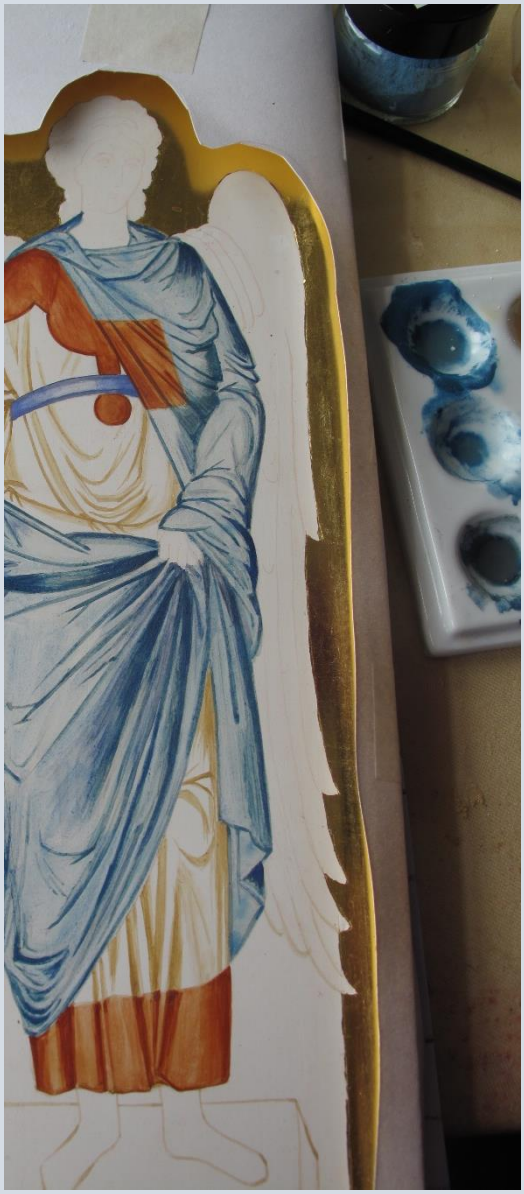


Grinding Azurite to make pigment for painting with egg tempera or gum Arabic.

Some practical guidelines

by Ronnie Cruwys

Grinding Pigments from Minerals for Painting with Egg Tempera or Gum Arabic

Grinding pigments to make your own colours from raw minerals is a wonderfully rewarding process! Taking the semi-precious stone Azurite as an example – I'd like to demonstrate how to turn the rock into pigment in three stages.

You will need:
Mineral to grind such as azurite or malachite.
Pestle and mortar.
Slab and muller, plastic palette knife and soft large mop brush.
Bottle of distilled water
Jug and at least half a dozen jam jars, a few plates and small jars to store pigment.

1. The Grinding Process

I had a small piece of Azurite which I bought from the Lapidary Shop in Burslem, Staffordshire. This is a bright blue copper based mineral, closely associated with the green mineral malachite.

Here it is after being crushed with a few hammer blows.

Before I began to grind it with a pestle and mortar, I picked out some of the grey/green pieces which I ground up separately (they later made a soft earth green colour).

Azurite ground to a consistency of fine salt

Using a heavy stoneware pestle and mortar, grind the crushed mineral to a consistency as fine as salt.

Make sure all the large pieces are all crushed before transferring a spoon full of pigment on to the slab and muller.

Add about a tablespoon of distilled water to the pigment and using a circular movement grind the pigment paste with the muller over the slab.

At first it makes abrasive scratching sounds but keep grinding and adding a splash of water as you go along to counteract evaporation.

Keep grinding until it is really smooth, anything from 5 to 10 minutes per teaspoon of pigment using a firm rotating movement.

Use a plastic palette knife to scoop the mix back to the middle.

When the pigment is smooth and fine, use a spatula and a mop paintbrush to scoop up the mix and drop into a jug of distilled water.

2. Levigation Process

Levigation is the process which separates the different sizes of particles in water. The smaller and lighter weight particles float at the top of the water and take longer to settle. The smaller particles are also lighter in colour.

Have at least six jam jars to hand, numbered. Placing all the finely ground paste into a jug full of distilled water, stir it up and let it settle for a few minutes. Then, pour off the top few centimetres of water into the first jar, set aside and let that settle.

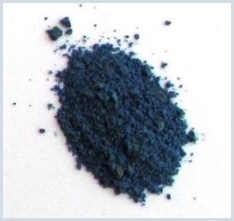
Stir the remaining liquid in the jug and again let it settle for a minute or so. Pour off a few centimetres of the lighter liquid from the top into jar number 2. Repeat this process until the jug is empty.

Have another jar of water to rinse your brush in between batches and you will collect more pigment as you go along. Eventually, the liquid in the jars will settle and you can pour the clear liquid off into another jar - it's all useful.

3. **Drying and Storing**

Finally, pour the mix from the bottom of the jars onto plates as it dries out much faster. Use a soft brush to get out all the pigment.

When it's fully dried, use a stiff brush to lift the powdered pigment off the plate and gather it into a small screw top jars. You can store it as a paste in water but it can go mouldy so I prefer to store the pigment in small jars – little jam pots are perfect for this.



Here's two examples of the different colours which can be made by levigating the pigment.

That's it all done – your own paint which you can mix up to a watercolour with gum Arabic, or egg stock for egg tempera.

To see Aidan Hart , (tutor at the Prince's School of Traditional Arts, London) demonstrating this process in one of the icon diploma classes, please have a look at the You Tube video Aidan Hart demonstrates grinding azurite pigment