

# Preparation of Test Panels

## by Marjolijn Bol

### Time needed (rough estimate)

- Preparation: 2.5 hours
- Application: 10 hours

### Suggested reading

- Cennini's chapters on grounds for panel painting (CXIII–CXXI). Consult, for instance:
  - Cennino Cennini, *The Craftsman's Handbook*, trans. Daniel V. Thompson, (New York: Dover, 1954 [1933]).
  - *Cennino Cennini's Il Libro dell'Arte: A New English Translation and Commentary with Italian Transcription*, trans. Lara Broecke (London: Archetype Publications Ltd, 2015).
- Max Doerner, "The Gypsum (Gesso) Ground," in *The Materials of the Artist and Their Use in Painting with Notes on the Techniques of the Old Masters* (New York: Harcourt Brace, 1949), 37–39.
- NOTE: relevant excerpts from Cennini and BnF Ms. Fr. 640 are included below

### Materials

- MDF or HDF panel (a-historical, but a good smooth base for the application of the ground layers)
- Rabbit Skin Glue (RSG)
- Champagne Chalk (calcium carbonate)
- Water
- Digital scale
- Thermometer
- Hot plate
- Pot (for *bain marie*)
- Quart-size wide mouth mason jar with lid or similar (for *bain marie* and storage)
- Small sieve
- Hoghair brush
- Sandpaper of fine grade (600 and 800) or dried horsetail plant (historically authentic and available from Kremer Pigments)
- Masking tape (thin, e.g., 0.5")

NOTE: Whatever preparations of size and gesso you have left over can be kept in the fridge for some time. Make sure to label your jars so you know what ratio of RSG to water is in the jar and the date when you prepared it.

NOTE: Students should work in groups. The quantities given in the step-by-step instructions below should be sufficient for four students, but the ratios are simple (1:5, 1:10, and 1:15 RSG:water) and can easily be adapted.

### ***Sizing your panels to prevent warping***

#### **Step 1: soaking the RSG** (to prepare the day before)

Soak 50 grams of RSG in 250 ml of water (1:5 = 20% concentration)

#### **Step 2: making the size**

We need a solution of 1:10 RSG:water for sizing (10% concentration). Add 250 ml water to the solution you prepared earlier (50 grams of RSG+250 ml). See also Doerner, p. 37 for more info. Heat the solution in a *bain marie* until about 40–60 degrees Celsius on a hot plate. Do not allow to boil! It will ruin your glue.

Apply the size to your panel (front, back and the sides—this prevents the panel from warping) at least twice, letting it dry and lightly sanding it with 600 grit sandpaper in between layers.

#### **!! IMPORTANT !!**

Before turning the remaining size into gesso in the next step, reserve approx. 55 g of this 1:10 solution. You will use it to make your isolation layer, which is applied over the gesso ground in a later step.

### ***Applying the gesso ground***

#### **Step 1: make the gesso out of champagne chalk.**

Warm the 10% RSG solution that you used for sizing to 40–60 degrees Celsius (*bain marie* on hot plate). When warm, **slowly** sieve chalk into the glue solution until it is saturated and slightly heaped on the top. Do not stir! leave it for a bit, and then it will be ready.

NOTE: this process takes patience, as it takes a long time to saturate the glue.

#### **From BnF Ms Fr 640, fol. 68r: Casting**

I have tried four kinds of sand for lead & tin: chalk, pestled glass, tripoli & burnt linen, all 4 excellent. But as for the chalk, it needs to be of the softest kind you can find, like the Champagne one that painters use.

#### **Step 2: Application of the ground**

While using the gesso, keep it on the heat source in its *bain marie* at a steady 40 degrees Celsius. When you apply the ground layers, be sure to also wet the back of the panel with a hoghair brush (again to avoid warping). Prop the boards up against the wall as they are drying. Apply a thin

layer of gesso with strokes in vertical direction. Make sure that your brushstrokes do not overlap! Wait until dry and then lightly sand with 600 grit sandpaper. Apply the second layer of gesso with strokes in horizontal direction. Sand in between (with 600 grit). Repeat this about 8 times.

**From BnF Ms. Fr. 640, fol. 6r: For laying down and seating burnished gold and giving red or green or blue**

Therefore for burnished gold take good chalk, quite white, well ground, & tempered with distemper glue, & make four layers of it, one after the other, on the wood. And once the last is dry, rub it with *prele*, which is a plant otherwise called horsetail, to render it well polished.

**Step 3: Making final layer perfectly smooth**

In the fifteenth century, a panel would have been scraped with a metal scraping tool (see the excerpt below from Cennini's *il Libro dell'Arte*). As the use of a metal scraper is difficult, and requires a reconstruction of the tool itself, we will use sandpaper of two grades instead. Start with 600 grit and proceed to 800 grit. Take your time. Your panel is ready when it is perfectly smooth and almost shines, or as Cennini writes, until it is "like ivory" and "white as milk."

**From Cennini: How You Should Start to Scrape down an Ancona Flat Gessoed with Gesso Sottile (Chapter CXX)**

When you have finished the gessoing, which must be finished in one day [and, if necessary, put in part of the night at it, just so you allow your required intervals], let it dry without sun for at least two days and two nights: the longer you let it dry, the better it is. Take a rag and some ground-up charcoal, done up like a little ball, and dust over the gesso of this ancona. Then with a bunch of hen or goose feathers sweep and spread out this black powder over the gesso. This is because the flat cannot be scraped down too perfectly; and, since the tool with which you scrape the gesso has a straight edge, wherever you take any off it will be as white as milk. Then you will see clearly where it is still necessary to scrape it down.

**From BnF Ms. Fr. 640, fol. 6r:**

Therefore for burnished gold take good chalk, quite white, well ground, & tempered with distemper glue, & make four layers of it, one after the other, on the wood. And once the last is dry, rub it with *prele*, which is a plant otherwise called horsetail, to render it well polished.

**From BnF Ms. Fr. 640, fol. 60r: First whitening of a panel**

One layers two or three times with chalk tempered with distemper glue on the panel, not with a paintbrush but with a brush in such a way as if you wanted to pounce, & leave to dry. And reiterate up to two or three times, then even out the last ground well with a knife, then give a coat of glue on top, upon which you will next be able to make your *imprimatura* and then paint. But make sure that your first white is not too thick for it would break easily. Flemish painters have such panels made by the dozen.

### ***Applying the isolation layer***

NOTE: Painters would have used oil or glue size to seal the ground layer thus created. Since size dries faster, we will use size for the isolation layer on our test panel.

#### **Step 1: diluting the reserved RSG solution**

For this, we take the reserved 1:10 solution of RSG + water, and we turn it into a 1:15 solution. Since we reserved 55 grams of the solution, we need to add 25 ml water to dilute it to 1:15.

- 50 g RSG + 500 ml water = 550 g solution (1:10 ratio)
  - Thus, our reserved 55 g = 5 g RSG + 50 ml water
- To turn this into a 1:15 solution, we need to add 25 ml water
  - 5 g RSG + 75 ml water (initial 50 ml + 25 ml) = 80 g solution (1:15 ratio)

#### **Step 2: applying the size**

Apply the 1:15 size solution very thinly to your entire panel (unless you would like an un-sized area to do experiments with different isolation layers. In this case, leave an area unsized).

#### **From 4n FMs. Fr. 640, fol. 60r: First whitening of a panel**

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### ***Creating a schema for the test panel***

#### **Step 1: Application of masking tape to make a working schema**

Apply masking tape horizontally and vertically to frame small squares and number them alphabetically and numerically. You can put this schema in word or excel and use the codes to keep track of your experiments. For instance, A1: cold-pressed linseed oil ground with copper green applied on 10-10-2015 etc. B3.... C7...

	a	b	c	d etc.
1				
2				
3 etc.				