



INSTRUCTIONS FOR APPLYING TRADITIONAL RABBIT SKIN GLUE GESSO

The traditional glue gesso panel has a history going back to medieval times. A gesso ground (gesso is Italian for gypsum) provides a velvet smooth absorbent ground that is excellent for egg tempera and encaustic paint. For oil paint, the ground should be sized with a dilute solution of shellac or rabbit-skin glue to cut the absorbency. If sizing with glue, use 1 ounce (by wt.) to 1 quart water.

The preparation of the gesso ground on a rigid, preferably wood, panel is a time consuming and elaborate process. Because of the number of steps involved, it is best to make several panels at once. Untempered (or standard) masonite is recommended because it is a consistent material throughout. Never use tempered masonite. Masonite comes 1/8" and 1/4" thick. Plywood can be used, but its plies are joined with glues that are not archival and thus risk separating due to the effects of age, heat, or moisture. In the case of cheaper plywoods, the top veneer can curl if it separates. Hardwood veneers (such as birch) are closer grained and therefore less absorbent than pine which makes them less receptive to a ground, nor are the glues in these more expensive plywoods necessarily of any higher quality.

MATERIALS NEEDED

- (amounts are based on making about eight 8" x 10" panels with 9 coats of gesso)
- Untempered masonite: 1/4" is preferable to 1/8"
- 1 x 2 pine strips (kiln dried will deter warping, but they are more expensive)
- Rabbit-skin glue: approximately 4 oz. (by wt.) divided
- Whiting or precipitated chalk: approximately 3 lbs. Have more in reserve.
- Titanium white or zinc oxide pigment: approximately 1/2 lb.
- NOTE: Whiting and Titanium White (referred later on as "filler") can be purchased premixed from R&F
- Enamel double boiler: 1½ quart
- #120 and #220 garnet sandpaper (Don't use expensive sandpaper, for the sandpaper will fill up with chalk before it wears out.)
- denatured alcohol or acetone
- wood glue
- Bristle brush 3 - 5½" wide (not too wide to fit in double boiler)
- 3" C-clamps

PREPARATION OF PANEL AND GLUE

Masonite comes either smooth on both sides or smooth on one side and rough on the other. Use smooth side for painting surface.

1. It is best to brace the back of the panel, especially if working large, with the 1" side of the 1 x 2 pine strips. Glue and clamp only -- never use screws or nails as they will loosen and work up through the gesso.
2. When clamping use a thin wood strip on the surface of panel to prevent clamp from denting it. If center braces are used, join by weighting panel down. It is a good precaution not to join braces to each other with nails or screws at the corners. Thus, if any of the braces warps, it will not affect the others.
3. Roughen the surface with #120 garnet paper, then clean with a rag dampened with alcohol or acetone. It is a good idea to bevel the edges to prevent their breaking off.
4. Soak 2 oz. (wt.) of glue in 1 quart of water for at least 4 hours. Have 2 oz. soaking in reserve.
5. Heat the soaked glue in an enamel double boiler until it has dissolved. DO NOT BOIL THE GLUE! Boiling will destroy the glue's adhesive properties.
6. Size the panel with a hot solution of glue. Size the back if you have not braced it.
7. Allow panel to dry 24 hours. Lightly sand off fuzz with #220 garnet paper.

PREPARATION OF GESSO

1. Sometime during the 24 hour drying period, test the strength of the glue. This is not essential for sizing panels, but it is crucial for making gesso. Mix a small amount of the glue with some filler to a consistency of light cream. Brush it onto a scrap of wood. When it dries (1-2 hours), rub it several times with the garnet paper. If the sandpaper fills up immediately the gesso will be too soft and more glue should be added to the water -- use small amounts. If it is difficult to sand smooth, the gesso will be too hard. To reduce the glue strength, add more water -- but again, a little at a time.
2. Warm the prepared glue solution in the double boiler.
3. Prepare the filler by mixing 6 parts (by wt.) whiting or precipitated chalk to 1 part white pigment. Precipitated chalk is finer and more uniform but trickier to work with than whiting. The results are not greatly different.
4. Slowly sprinkle in the filler, stirring gently and infrequently to avoid forming air bubbles. Add just enough filler to reach the consistency of light cream.
5. Stretch two layers of cheese cloth over another pot and strain the gesso. Wash the original gesso pot and pour the strained gesso back in. If the gesso has gelled, warm it until it returns to the proper consistency.

APPLYING GESSO TO PANEL

1. Remove the gesso pot from the hot water and thinly stipple the first coat onto the panel. Work it over with your fingers to keep out pinholes. This is imperative -- if there are pinholes in the first coat, they will be impossible to avoid in subsequent coats. Applying gesso cool, but not gelled, also helps to avoid them. Coat edge of panel on all layers.
2. When the gesso has become matte (about 15 minutes, longer on later coats), apply the second coat in one direction. When it is dry, apply the third coat at right angles to the last. The remaining coats should be

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applied in this manner. The more coats applied, the more absorbent the gesso will be. If you have the patience, 12-15 coats will provide a better structural ground and working surface than 6 coats. Waiting for only minimum drying between coats allows them to interlock with each other. Keep the coats thin. If they are too thick, or they have not had enough drying time between applications, the gesso will become waterlogged. The whiteness and opacity will increase with each layer. If the back of the panel has not been braced, apply one coat of gesso for every five coats on the front to prevent warping.

3. During the later coats the gesso will lose water and thicken. Add small amounts of water, then filler, then more water to regain consistency. For structural purposes, the glue strength should be strongest at lower layers and weaker on top layers. The addition of filler and water will serve this purpose. There is no need, however, to be finicky about this gradation.
4. Allow to dry thoroughly. After 2 - 3 days, sand smooth with #220 garnet paper. The paper will fill easily, so have plenty on hand.

SOURCES

The above instructions are derived from the following books and our own extensive experience:

Daniel Thompson, *The Practice of Tempera Painting, Materials and Methods*; Ralph Mayer, *The Artist's Handbook of Materials and Techniques*; Max Doerner, *The Materials of the Artist and their Use in Painting*; Kurt Wehlte, *The Materials and Techniques of Painting*; Robert Massey, *Formulas for Painters*; Reed Kay, *The Painter's Guide to Studio Methods and Materials*.