



Carriage House Paper

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DIRECTIONS FOR GELATIN SIZING

There are two methods of using gelatin for the sizing of paper, namely, use as internal sizing and as surface sizing. Used internally, the sizing is added to the pulp before sheets are formed. In external sizing, the sheets of paper are formed, pressed and dried before the application of the gelatin. In both methods, the initial preparation of the gelatin is the same; only the proportions differ. We are using 6% gelatin for internal sizing and 2% gelatin for external sizing.

1. Internal sizing: for 450 grams (1 pound) of pulp, use 27 grams (a little less than 1 ounce) of gelatin to 1 liter (approx. 1 quart) of cold water. Mix the gelatin with the water, and let it stand overnight. The gelatin will swell. Heat the gelatin in the top of a double boiler to a temperature of about 120 degrees fahrenheit. Add this mixture to the pulp in the beater at the end of the beating cycle, that is, after you have raised the roll or lowered the bedplate; then run the beater about 5 minutes longer. Or you can add the gelatin/water mixture to the pulp in a hydro-pulper or other mixing device. If you are adding other substances, such as retention agent and pigment, add these first, and add the gelatin at the end. After the sheets of paper are formed and pressed, each sheet must be hung up separately on a line to dry.

2. External sizing: prepare the gelatin the same way, but use this proportion: for 450 grams of pulp, use 9 grams (1/3 of an ounce) of gelatin to 1 liter of water. The hot gelatin mixture must be in a pan large enough to accommodate the sheets of paper you are sizing. Dip each sheet of dry paper into the sizing, or immerse 5 or 6 sheets together, being sure to separate the sheets sufficiently in the gelatin bath so that all surfaces receive a coating of gelatin. Let the excess gelatin drip back into the pan, and hang each sheet to dry. Alternatively, you can brush the gelatin on each sheet, rather than dipping the sheet.

Warning: gelatin behaves like glue at this point. Whether you are using the gelatin internally in the sheet, or externally, each sheet must be air dried separately. Do not put these sheets in a drying box at this point, or brush them onto another surface to dry.

The sheets may dry in a few hours or longer, depending upon their thickness and the drying conditions. However, it is a good idea to let the gelatin really harden properly in or on the paper, and we recommend waiting at least 2 to 3 days before doing anything else to the paper.

The paper will undoubtedly have cockled during the air drying. To flatten the paper: soak the paper in a pan of water until the entire sheet has been wetted. Place the sheet on a damp felt, and gently flatten it out. Make a stack of such papers, with interleaving felts. Wait several hours, allowing the paper to relax. Put the post of papers in a press, with a reasonable amount of pressure. Now the paper may be put into a drying box until completely dry; or the blotter exchange method of drying can be used. At this point, the gelatin should have hardened sufficiently, so that the paper will not adhere to the blotters. You should do a test run, and be sure, so that you do not ruin your blotters. If there seems to be a problem, you could use a sheet of wax paper as a buffer between the paper and the blotter.

Carriage House experiences with gelatin sizing:

We have found that after gelatin sizing, the paper can be left to soak in water for hours. To dry the paper after its immersion in water, we have very successfully used a photographic dryer, and we have used a drying box. In both cases, the paper has dried perfectly flat.

It is entirely possible to use both an internal sizing and an external sizing. Through our research, which was helped by the Kodak Company, we have learned that photographic paper is sizing both internally and externally. We cannot duplicate (nor do we wish to) the photographic paper made commercially, but we have used their ideas. For instance, we have had great success using our usual Carriage House Sizing internally, and then surface sizing with gelatin. The final drying of the paper handmade paper. This had the effect of giving the handmade sheet an extremely smooth surface.