Natural Paint Recipes

CLAY PAINT

Things You'll Need:
You will need several large buckets, water, a large bag of white flour, a smaller bag of colored clay or white kaolin clay with pigments, and mica flakes or fine chopped straw if desired. Brushes and

1. Prepare the Starch Paste
Add 1 quart white flour to 2 quarts cold water, and set aside.

2. Cook the Paste
Boil 1 1/2 quarts water. When boiling, add the mixture of flour and cold water. Turn heat to low, and continue to cook until the mixture thickens. Continually stir the bottom to prevent burning.

3. Make the Paint
For every quart of starch paste, dilute with 2 quarts of water (for 4 quarts of starch paste, dilute with 8 quarts of water). This makes the paste liquid enough to add the other ingredients. Next, add enough colored clay, or white kaolin clay with pigments, to achieve a consistency that will spread easily with a brush, like thick cream.

4. Add Special Effects
Add mica for a subtle, glittery sheen. Fine (screened) chopped straw can also be added. If adding either or both, use a little less clay, as the mica and straw will thicken the mix.

5. Application and Polishing
Apply with a brush, and when the paint has set but is still moist, use a damp (not wet) tile sponge to polish the surface, remove excess dust and reveal the straw and mica. A plastic lid with the edges cut off can also be used as a flexible scraper to further polish the surface to a burnished glow. You may wish to apply a second coat and repeat the process.

CASEIN PAINT (Milk Paint)

Instructions to make casein paint:
Take one liter non-fat or 2% milk and mix with two teaspoons of low-fat sour cream. Whip this well and set in a warm place for a day or two until it thickens (mine thickened overnight). Once the milk has thickened, warm it up or add lemon juice or vinegar to make it curdle. Separate the curds from the whey by pouring the mixture through a cheesecloth placed in a colander. The remaining curds are known as the *quark*.

(A word about the curds: Heating works very quickly and makes large curds which drain very quickly through the cheesecloth, but need to be blended afterward to make a smooth mixture. Vinegar or lemon juice create smaller curds which drain slowly through the cheesecloth, but combine with the borax without the aid of a blender.)

Once the quark is ready, dissolve one tablespoon of ammonium carbonate (or 20 Mule Team Borax) in 3/4 cup of warm water. Add this mixture to the quark. This resulting mixture is the binder for the casein paint. Once prepared this quark mixture will lose its strength fairly quickly, and must be kept refrigerated. Pigment and extenders are added to the binder (quark mixture) in the ratio of 25% binder to 75% coloring agent. For the final paint mixture, first make a paste of the extender and pigment with water, then add the binder. The paint is now ready to use. To achieve a "glazed" effect, the paint may be thinned with water.

Priming and Painting the Wall

If the paint is sucked in right away and you want a glazed effect, it will be necessary to prime the wall first with a thin mixture of the binder and water and allow it to dry. Water should be absorbed, but not immediately. While casein primer is preferred, the wall may also be primed with alum, which is especially appropriate for gypsum plastered walls.

If the paint dusts off the wall, there is not enough binder or the wall isn't primed properly. Too much binder makes it a glassy surface which can flake off. A casein spackle can be made by adding whiting to the casein and kneading it.

Adding Oil to Casein Paints

Linseed oil is the preferred oil to add to casein paints, with boiled linseed oil drying faster than non-boiled linseed oil. Stand oil refers to the process of letting oil be exposed to the sun and air for some time to make it thicker. Water would be added to this oil so that it wouldn't form a hard film on top. Using this oil in the casein paint makes the paint more waterproof. Other oils can be used as well. Tung oil treated to make a stand oil would make the paint dry more quickly. Sunflower oil can work in paint, but isn't preferred, while poppyseed oil is good and doesn't yellow the paint when dry.

To make an oil-based paint, add the oil slowly to the quark while whipping, as one would make mayonnaise. The usual ratio of oil added to the paint is 25%. First make an emulsion of oil and quark, then add pigment, then dilute to the proper consistency. Extender is not used. With oil added, the paint will no longer dry opaque and will darken a clay surface.

To obtain a colored wall, it is best to start with an opaque coat of white paint, then apply a thin glaze (or several) of colored oil-based casein paint. The brushes used for glazing are big, thick and wide. Painting in this fashion allows the pigment to stretch farther. For glazes, very little binder is used, with only 10% binder added

to the mixture. When using glazes, the more coats the better, with casein binder allowing thinner layers than any other sort. Oil in casein makes a better mix for glazes because subsequent layers do not dissolve the ones beneath. Beautiful effects may be achieved by putting one color over another. It takes two to three hours for each coat of glaze to dry before the next one can be applied. Some pigments are better for glazes than others because of inherent qualities of opacity or transparency. (Ralph Meyer's *The Artist's Handbook* is very informative about pigments.) Borax added to glazes and other paints changes the pH, with lemon juice, vinegar or urea doing the same. Urea particularly makes the paint or glaze very water resistant.

LIME PAINT

Traditionally, lime whitewash was put over a plaster of fresh lime, white cement and sand plaster mixed at a 1:1:6 ratio. Volcanic ash (as opposed to sand) can make lime plasters exceedingly strong. The whitewash consisted of only lime and water, with slaked lime being preferred. Slaked lime used to be aged from 5 to 20 years and gets very creamy with time. Now, one can make do with type "S" lime slaked in water for a week. With casein added, lime whitewash becomes stronger and bonds better to damp plaster. On dry plaster, linseed oil, blood or egg whites added to the casein and put in the whitewash is recommended.

To make lime paints, the water resulting from the slaking process is used: Add 20% casein without borax to lime water, or 5% linseed oil can be used instead of casein. Lime paints with linseed oil should be the consistency of water, and should be applied in very thin coats: one layer with linseed oil added, three without, one with, etc. However, casein lime wash is harder and better than that with linseed oil.

To use lime paints on mud plaster, add marble dust to the last coat of mud. This causes the lime paint to adhere to the plaster better. Preparing the surface with a very thin coat of lime water will also help the lime paint to adhere.

Lime casein paint is made with five parts casein powder to one part lime. Don't add borax to this because in this case the lime takes the place of borax. Casein lime paints can be used in the fresco technique by painting onto a wet lime plaster. They can be also used on dry plaster, with the result known as "fresco seco" or "plaster seco."

Silica Paint or "Waterglass" Paint

Waterglass refers to potassium silicate, not sodium silicate. It must be stored in plastic containers. It is suitable for use on lime, cement or mud plasters, but is inappropriate for gypsum plaster. Paint containing waterglass binds to the silica in the wall, both chemically and mechanically. Silica sand must be added to the plasters in order for these paints to adhere well. Waterglass paint can be made with half quartz dust and half pigment added to the waterglass. It is important, however,

that only natural mineral or earth pigments are used. Avoid chrome, lead, or cobalt pigments.
To use waterglass paint, first prime the wall with a thin solution (1:5) of waterglass and water. If this primer stays on the wall for only a moment and is then absorbed, it is a proper mixture. This paint can be used on exterior mud walls. Once walls are painted, additional waterglass can be painted on as a sealer. It is important to cover all glass or metal when painting with this material. A waterproof caulk appropriate for use in a shower or sink application can be made by mixing waterglass with quartz sand.

Oil Based Paints for Wood or Metal
For paints on wood or metal, linseed oil is used as a binder with pigments added. Dryers or stand oil can help the paint to dry more quickly, while solvents can thin the paint to make it more workable. Heating linseed oil using a double boiler thins it, making it more workable. An alternative is to add solvents such as a citrus thinner. Turpentine is not recommended, as it can cause "painter's disease," except for the kind derived from one type of tree in Portugal. A glycerine ester added to these paints makes them dry harder. These paints are not recommended for use on adobe.

Procedure for Painting Wood
Before painting, the wood is sanded, wet with hot water, then sanded again. Any sap is removed as well. Once wood turns a silvery color, it is inadvisable to paint it, but this weathering is a kind of protection in itself. Several thin coats of paint work better than one thick coat. Coats are applied "lean to fat" with less thinner in each subsequent coat. The first coat of paint is half linseed oil, half thinner. Warm the oil first so that it penetrates farther. Let dry for 24 hours. The second coat should have 20% pigment added to the mixture, with less thinner used. Subsequent coats should have even more pigment and less thinner. Different pigments require more or less oil. A final coat can be of pure warmed linseed oil.
Other products can be made using linseed oil. Linseed oil and very fine metal filings make an excellent metal paint. When painting metal apply several very thin coats. Linseed oil can be combined with whiting, kneaded to a consistency which can be rolled into a snake shape, and used as glazing compound. This mixture can also be used as a spackle. Kaolin can be used instead of whiting.

Wax for Furniture and Floors
First apply a thin coat of linseed oil and remove the excess with steel wool (not appropriate for oak). Then beeswax is melted and mixed with 50% to 90% thinner. Once this is cool, apply as a paste wax. For floors, a hard wax like carnuba works better, but for adobe floors an effective wax can be made from mixing beeswax and carnuba wax together. To remove old wax use an ammonia solution.

Other Natural Painting Techniques
To strip wood use 50% lime putty and 50% caustic soda (sodium hydroxide). Paint this mixture on and wait. Repeat the process several times.
A mixture of half ammonia and half methyl (wood) alcohol can be used as a shellac, which can help to achieve certain paint effects.

[Editor's note: always protect eyes and hands when creating paints and finishes, especially those with powdered lime.]
Reto Messmer is a painter and consultant on natural paints and other finishes, which he learned about from his Swiss father. Carole Crews compiled these notes from Reto's presentation at the 1997 Colloquium. The two are neighbors in Taos. PO Box 1245, El Prado NM 87529; bettinam@laplaza.org

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