

Figure 7, mixing liquid form enamel in table-spoon.

the drain. When the drain stops, count the drops ... one ... two ... three." Less than three drops the enamel is too heavy, more than three drops, it is too thin.

The final step of mixing is straining the enamel, Figure 6. A tea strainer is quite adequate. Liquid Form Brushable Enamels will normally be too thick for screening. This is not critical because the manner of formulating reduces the possibility of coarse particles.

Figure 7 has been included to show the versatility of this method; a tablespoon, eye dropper, and something for stirring.

Rough Measurements

1/3 cup is equivalent to 78 ml.
1/2 cup is equivalent to 118 ml.
"Half way" between is 98 ml.

The amount of water required for 8 oz. of powder usually falls between the "half way" mark and 1/2 cup. It is safe to start with 1/3 cup and adjust with additional water.

Because of the different methods of application, the consistency of the two types of enamel should be different. Liquid Form Brushable Enamel should be quite thick, similar to cookie dough. Liquid Form Enamels –

Water Base should be closer to paint consistency.

When working with thinner suspensions, we may see an unusual principle of nature, which is quite alarming. We will see contamination – dirty streaks while stirring, dirty black specks and dirty agglomerations floating on top of the enamel. This is colloidal size bubbles which coalesce and rise to the top. For some reason which we do not understand, they appear grey to black for the larger bubbles. **THESE BREAK AND DISSIPATE WHEN FIRED WITHOUT CAUSING DISCOLORATION.** This phenomenon is more prevalent with BC 969A and BC 303L where colloidal silica has been substituted for clay.

Mixtures not used immediately should be stored in a closed container. Over night, the consistency will normally increase slightly. The Liquid Form Enamel – Water Base enamel will settle, leaving some clear liquid on top. It is good practice to carefully pour this liquid into another container, stir the enamel and check the consistency. It should be too thick. Add back the liquid which was poured off, a little at a time. Probably all of the poured-off liquid will be required, plus a little new water, to obtain the desired consistency. If the enamel sets two or three weeks, it may not take all of the poured off water to obtain the desired consistency.

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Liquid Form Enamels – Water Base & Liquid Form Brushable Enamels

The powder you have received contains a workable blend of glass, clay and electrolytes (Liquid Form Brushable Enamel also contains a polymer resin). You need to add only water. How much? The amount varies some. Later, we will give you some rough measurements, but first, we will lead you through a simple method requiring no measuring or weighing.

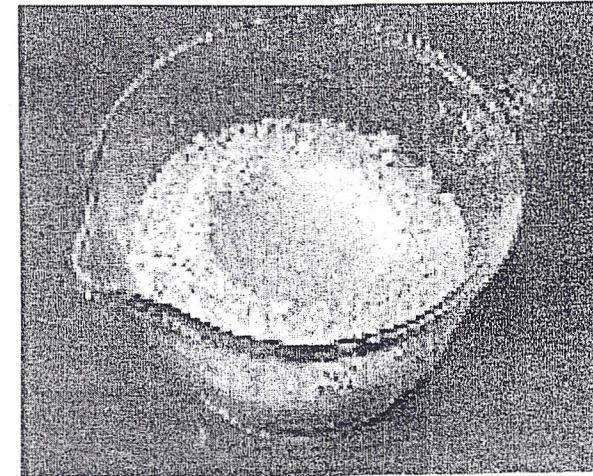


Figure 1.

Place some powder into a container, as in Figure 1. A glass measuring cup is suitable. The cavity in the center was made with the large end of an ear syringe, shown in Figure 2, being used to add water. Adding water in this manner provides more control than pouring from a coffee cup. Fill the cavity almost full, stop, and allow the water to soak into the powder. Add a little more water, again

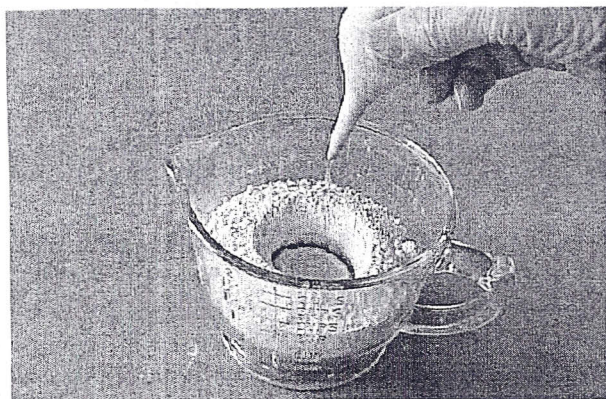


Figure 2, adding water to cavity in powder using an ear syringe.

stop and give it time. Soon, there is an interesting erosion pattern. The water is forming its own container within the measuring cup, Figure 3. A palette knife is ideal for pulling the dry powder into the center without disturbing the wall of the inside container. Very little additional water will be required to make the entire top surface appear moist. Now, stir slowly with the palette knife. Check the thickness of the coating on the knife. The consistency may be about right for Liquid Form Brushable Enamel. Check by brushing a little on a piece of clean metal. If needed, add a lit-

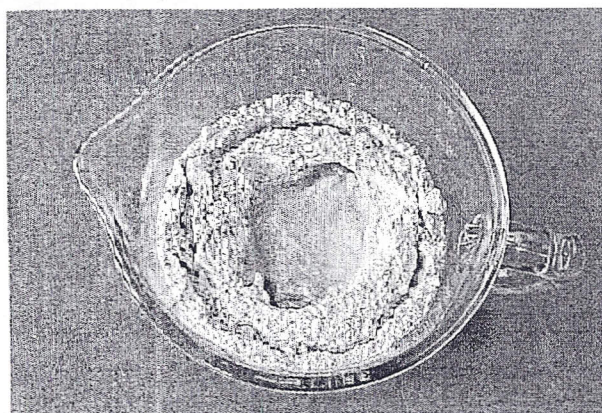


Figure 3, showing water forming it's own 'container' within the powder.

tle water and stir slowly. Continue, to obtain the desired consistency.

Liquid Form Enamel – Water Base Enamels are normally used for dipping or spraying. A thinner consistency will be desired. Continuing from above, add small quantities of water with slow stirring and checking the consistency each time before adding additional water. A spoon is good for stirring the thinner enamel and it is ideal for checking the consistency.

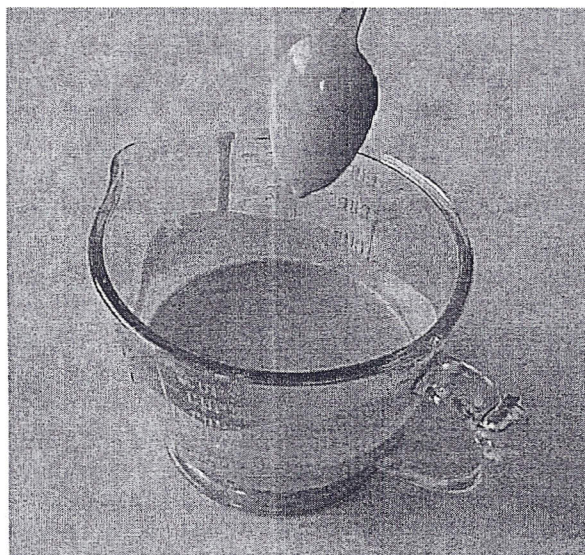


Figure 4, draining liquid enamel from spoon.

Wash the spoon, dry it thoroughly, dip it into the mix, move it through the mix, then straight up and out with a continuous movement, holding it vertical while the enamel runs off, as in Figure 4. When draining has ceased, raise the spoon as shown in Figure 5. The coating should be smooth, and show no signs of beginning to drain again (second drain) after raising the spoon to the Figure 5 position. The ultimate test is to dip a small test piece, dry and fire.

In Glass on Metal Magazine, Vol. 21, No. 5, December 2002, p. 109, photos 5 & 6, Bill

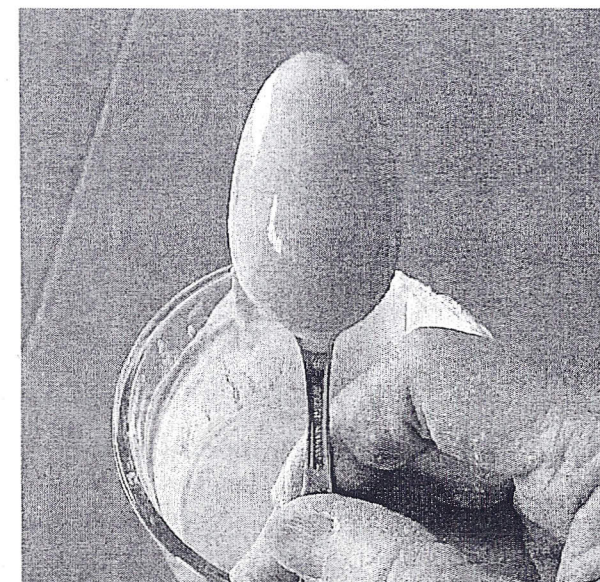


Figure 5, correct coating of spoon.

Helwig describes his test for enamel to be applied by the pouring method. "A dry first finger is plunged into the liquid up to the second joint and instantly removed. The finger is held straight down over the container. Watch

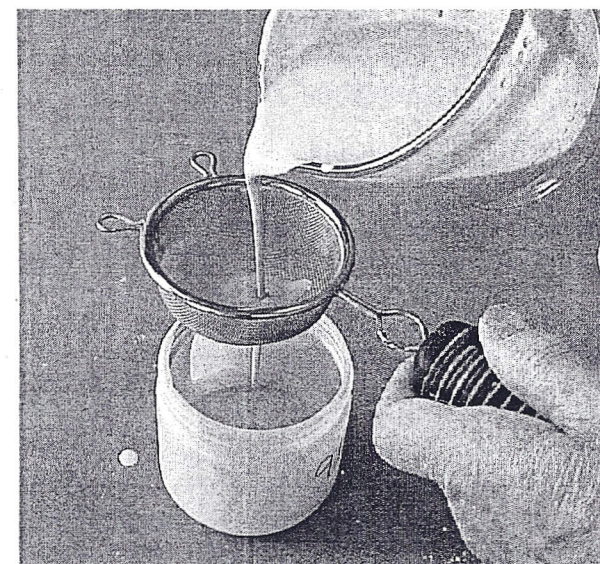


Figure 6, straining liquid enamel.