

LA MERIDIANA

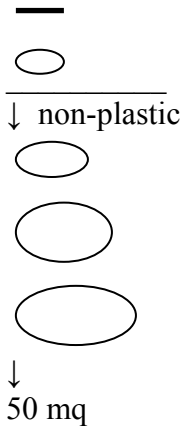
INTERNATIONAL SCHOOL OF CERAMIC ART IN TUSCANY



Notes on terra sigillata

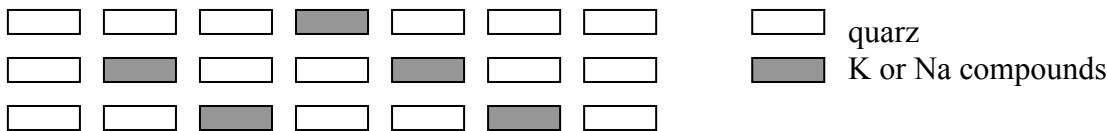
BASIC NOTIONS

The particles that form a clay body, with the due differentiations, can be thought as in the following graphic.



The flat and very fine particles of the first type have a little positive and negative electric charge and in a suspension of demineralised water (rainy water) they attract each other easily, growing on weight and precipitating at various speed.

These particles seen at the microscope look like a sandwich made essentially of quartz but with the intrusion of some sodium or potassium compound.



Some can have a ratio quartz to sodium of 9 to 1, others 5 to 5 and so on. The higher the proportion of quartz in the particle, the more this is heavy and the quicker it will precipitate.

The finer particles and those with the highest content of sodium and potassium will be the last to drop. Sodium and potassium (flux), having a low melting point, it follows that these particles have a low point of sintering (start of fusion) of around 900 -1.000 °C (1600 – 1800 °F) and firing them to these temperatures forms almost a glass which makes the object practically non-porous.

In some clays the electric charge of the particles is too high and the strong attraction make them precipitate too rapidly. The addition of a deflocculant inhibit this electric attraction and the decantation will be prolonged with the result of a better separation of the diverse types of particles.

PREPARATION

1. Add 200 gm. of dry clay to a litre of water (preferably rainy water). Wait 20-30 minutes until the water have well dissolved the clay.
2. Mix well and pour in a plastic bottle (mineral water bottles are perfect).
3. Wait 2-3 hours. The sands and the non-plastic parts will have deposited on the ground creating an evident layer. Moving towards the top the water will be more and more clear. Observe if on the top part you have clean water or if it remains misty.
4. If it remains misty it means that the electric charges are not strong enough to make the particles precipitate fast and therefore you leave the clay to sediment even for one or two weeks.
5. On the contrary, if the water is clean, it means that precipitation is too fast and you have to intervene with a deflocculant (inhibitor of electrical charges). You arrive at the right quantity of deflocculant only by trials, in other words introducing in the bottle small quantities at a time to the point where sedimentation is slowed to a proper speed.
6. After a time, dependent on the size of the particulate acceptable (first layer applied to object requires larger particles), you put the bottle in a bowl and perforate it at a chosen level so as to decant the terra sigillata particulate size you want.
7. If the terra sigillata is too watery you can use some Calgon or muriatic acid (for a flocculant effect that will increase the electric charges) in order to separate the water that with the above mentioned technique can be taken out of the bottle.
8. Apply the terra sigillata in different thicknesses on dry clay with a brush or by immersion. Before it gets dry rub gently for more shine. It is recommended that this test is carry out on three test tiles so that it can be tried at three different temperatures of 950, 970 e 1.000°C (1740, 1780 and 1820 °F).

APPLICATION

Terra sigillata is applied on dry clay. Before applying the terra sigillata is good practice to prepare the surface of the piece with successive layers as follows:

1. One brush stroke of distilled or rain water. A first layer of white slip is brushed on (two coats) in order to “anchor” the terra sigillata to the piece and for preparing the ground to colour. This first slip should be made of white ball clay with about a larger proportion of non plastic particles, (decanted after 10 to 30 minutes).
2. The second layer, of only white clay, should be decanted after up to one to two weeks so all the particles are plastic. Apply with a brush (three coats and then burnished with fingers) and stop until completely dry.
3. At this point you apply the terra sigillata. Before it dries rub vigorously with foam inside a fine plastic wrap.

FIRING

Make the biscuit at 970°C (1780°F) and soak for about 30 minutes.

In Raku Dolce the terra sigillata that have sintered in the biscuit will not take the smoke remaining therefore remain the iron red colour. Those slightly refractory, being open and very fine (therefore ideal for the absorption of smoke) will become black.

Playing on this phenomena you can obtain beautiful contrasts and patterns.

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