

## Chapter 3

# Burnishing with terra sigillata

Some potters think of terra sigillata as the easy way to burnish. Terra sigillata is relatively quick and easy to apply, but there are various potential disadvantages compared to stone polishing: it can crack or peel off after firing; it may be difficult to apply an absolutely smooth coat without brush marks or drips; it will reveal all texture on the surface it is being applied to, for good or ill; and it will never quite yield the mirror-like shine you can achieve by burnishing with a stone.

Which method of burnishing you choose will depend on the clay you are using, the way you are firing and your level of patience. The form you are trying to burnish may also dictate which method you can use – a smooth surface with no folds or creases, and no impressed, incised or sculpted details is ideal for burnishing with a stone. If your form has a textured surface, or corners and curves which a stone cannot get into, then you probably need to use terra sigillata.

The term terra sigillata, which means ‘sealed earth’, comes from the name of a type of Roman pottery mass-produced around the first century AD. This pottery was decorated with impressed or stamped decoration, which is what the word ‘sigillata’ refers to. (Think of the kind of stamp, or ‘seal’, which would

have been used to seal wax on a paper document.) These pots were coated with the same kind of very fine slip which Greek potters had been using for hundreds of years to create their famous black and red pottery. Though many books incorrectly refer to this slip as a ‘glaze’, it was not actually a glaze but the material we now call terra sigillata.

### **Making terra sigillata**

Terra sigillata, or ‘terra sig’ for short, is made by mixing a suitable clay with water and a deflocculant and leaving it to stand until the heavier particles of clay settle out. (Deflocculant weakens the electrical attraction between particles of clay, thus breaking up small clumps of clay and allowing the individual particles to float freely.) The deflocculant causes the finer particles to float in the water, which can then be decanted for use. In general it is not possible to buy terra sigillata, so if you want to use it, you must make your own.

To make terra sigillata, you will need a clear glass or plastic jar with a wide mouth, an accurate gram scale and a length of clear plastic tubing for siphoning. The only ingredients are water, dry clay and deflocculant. Many kinds and colours of clay can be used,



Step one, (left): Weigh out Darvan 7 or 811 and add it to the measured amount of water, making sure to get all the weighed material into the water. Helpful hint: If you always mix your terra sigillata in the same container,

including ball clay, kaolin, local clay or scraps of whatever clay body you usually work with. There are also many possible deflocculants, the most commonly used being sodium silicate, soda ash, Darvan 7 and Darvan 811. You might find recipes calling for Calgon water softener, but don't try those – unfortunately Calgon doesn't work since it was reformulated to eliminate phosphates. Lye can also be used as a deflocculant, and I have even experimented with using the waste water from washing wood ash.

Not all clays are equally suitable to make terra sig, and the proportions of water to clay to deflocculant will be different depending on what clay you use. It is a question of experimenting



place a permanent water-line on the side of the container so you don't have to measure the water every time.

Step two (right): Weigh out the dry clay and add it to the water. Stir or shake thoroughly.

with different types until you find something suitable. You can try substituting any dry clay, including scraps from your clay body, for the clays called for in the recipes which follow (see p.42). The process is simple, but a bit time-consuming. First, measure your water, and stir in the deflocculant. Weigh out your clay and add it to the water. For best results, be sure to weigh these materials precisely. If you have a ball mill, you can ball mill the mixture, otherwise, shake or stir it vigorously. Then place the jar, loosely covered, somewhere where it won't be disturbed for several hours to several days, depending on the recipe.

After the appropriate settling period, you will see a layer of dark sludge on the bottom of your jar, and if it has been a



This shows stripes down the side of the container as the heavier particles begin to settle.

long settling period you may see clear (or possibly dark-coloured) water on the top (this varies depending on the type of clay and length of settling). It's the part in the middle – hopefully, about half the mixture – which you need. Use a syringe to remove carefully as much of the water from the top as you can without taking any of the fine clay particles along. When clay starts getting into your syringe, it's time to siphon off the middle layer into a clean container, using the clear plastic tubing – or for a small batch, simply use the syringe. Don't be greedy. If you get some of the heavy sludge into your terra sig, it may never settle back out and you'll have gritty terra sigillata which won't shine up as well. It's a good idea when you get close



After settling (in this case, approx. 3 hours), siphon off the liquid layer from above the layer of sludge. Be careful not to get any of the settled sludge in your siphon!

to the layer of sludge to switch to a new container, so if some of the sludge gets in you don't contaminate the whole batch. You now have a batch of rather thin terra sigillata (along with a lot of sludge which can be discarded or used for some other purpose). It can be used as is, or allowed to settle and evaporate for a few days before using.

## Applying terra sigillata

Terra sigillata can be applied in two ways, by brushing or spraying. Brushing is easier, but may leave noticeable brush-marks. On the other hand, spraying requires more equipment, and may leave a bit of a pebbly texture where the droplets land on the pot.



Centre a pot on the wheel upside-down, and while the wheel spins begin brushing on the terra sigillata from the foot. Apply two or three coats, until you cannot see the underlying clay colour clearly.

Before you apply terra sigillata, your pot must be smooth and dust-free. Terra sigillata is so fine that even if you cover a textured surface with several coats, the texture still shows. This is wonderful if you have a deliberately textured surface, and in fact, the only way to burnish a textured surface is with terra sig. However, if you have sanded the pot, the surface is likely to be covered with little scratches from the sandpaper, which will not be covered up by the terra sig. Even more important, if you have sanded your pot, you must carefully sponge off any dust. Dust will cause the terra sigillata to peel off after firing. Therefore, if you want to achieve a really smooth burnished surface using terra sig, it is most effective to apply it to a wheel-thrown pot which



Once you have applied enough terra sigillata to the lower portion of the pot, and it has soaked in so it is not glossy wet, use your fingertips to begin polishing the surface as you continue coating the pot with the other hand.

has been ribbed smooth after throwing or trimming, or if handbuilding, to smooth the entire surface at leatherhard stage with a rib.

Terra sigillata should be applied to a bone-dry or almost bone-dry pot. If you are brushing it on, you need to apply at least three coats. If you are putting white terra sigillata on white clay, three coats is probably plenty. The terra sigillata needs to soak into the clay, but should not be allowed to dry completely between coats. Once you have applied several coats, the surface should be buffed with your fingers, a cloth or chamois-leather before it dries completely. The pot is ready to buff when the surface looks waxy and grey but is no longer wet-looking. If it has lightened in colour, it has dried too



Turn the pot right-side up and finish coating it with terra sigillata. Apply just inside the lip; there is no need to coat the entire inside.

much and another coat of terra sigillata must be applied. For the greatest degree of sheen, apply three thin coats and buff after each coat.

Watch out for two things when you are brushing on terra sigillata: don't let it drip down your pot, because the drips will show; and don't allow your brush to lose hairs, as the hairs will make a permanent mark. Be sure to use a good-quality soft brush – a watercolour mop brush works well. If you are brushing terra sigillata onto a wheel-thrown pot, the simplest way to apply a nice even coat is to put the pot on the wheel and let the wheel do the work for you while you move the brush up and down. Once you have enough coats on part of the pot, you can start burnishing with the



Using the polishing material of your choice – a car-polishing mitt works well – bring the entire surface to a high sheen.

fingertips of one hand while you are still brushing the terra sigillata onto another part of the pot with the other hand. If you have a large pot you are almost required to do this to get a really good polish, or the terra sigillata may dry out too much before you finish brushing it on. Don't touch the surface until it has soaked in, though if the terra sigillata comes off on your fingers, it isn't ready to burnish yet, and you will mar the surface by touching it. After you have applied enough terra sigillata to the whole pot, and there are no wet patches, then you can start using a chamois-leather or a soft cloth, or even a thin plastic shopping bag, to bring the surface to a high gloss.

If you are applying terra sigillata to a handbuilt or sculptural piece, you may



Linda Dadisman sprays terra sigillata using an airbrush. Be sure to do this in a properly vented spray booth, and wear a respirator. She wears rubber gloves to avoid marking the pot with fingerprints.

find it impossible to use the wheel to help with the job. In that case, you can still brush it on, but be careful not to touch any wet spots. You may also want to experiment with pouring, or even dipping if you have a large enough batch of terra sigillata and a way to safely hold a delicate piece of greenware.

Some potters prefer to spray on terra sigillata for a more even coat with no brush-strokes. You can use a glaze spray gun or an airbrush, but of course the airbrush will produce a finer spray.

When spraying, you must take care not to hold the sprayer too close to the pot or the wet spray will collect and drip – but if you hold the sprayer too far away, the spray will dry too much before it lands and create a slightly pebbly texture. It



After two or three passes with the airbrush, Linda stops and polishes with a nylon stocking. After two or three more passes with the airbrush, Linda does a final polish with a chamois-leather.

will help to have the pressure fairly low, no more than 13.5 kg (30 lb). Once you have applied enough coats to create a waxy surface which doesn't dry too quickly, put down the spray gun and buff it with your fingers, a cloth or a chamois-leather. You may want to buff once or twice between coats, also. Be careful not to touch the surface of the pot while the terra sigillata is wet, and make sure your cloth or chamois-leather is very clean so it doesn't scratch the surface.

RIGHT Saggar-fired bottle form by Linda Dadisman, 2007. Ht: 25 cm (10 in.), W:10 cm (4 in.). Sprayed with terra sigillata. Saggar-fired with salt, copper carbonate, steel wool and pet bedding. Photo by Shelly Schreiber.



## Recipes

### *White terra sigillata*

2.1 kg (2.1 litres/3.7 pints) water  
1 kg (2.2 lb) OM4 Ball Clay  
25 g Darvan 7 or Darvan 811

### *Red terra sigillata*

2.2 kg (2.2 litres/3.9 pints) water  
1 kg (2.2 lb) Newman Red Clay  
30 g Darvan 7 or 811

- Measure water into a large glass or clear plastic jar with a wide mouth.
- Add Darvan and stir. Add clay and shake vigorously. Leave undisturbed to settle for three hours.
- You will see a dark layer of sludge at the bottom of the container. Siphon off the liquid portion above the layer of sludge. Be careful you don't pick up any of the sludge. Discard the bottom layer of sludge.
- Try the terra sigillata on a dry test tile. If it doesn't give an adequate shine or still feels gritty when you rub it with your fingers, let it sit for another 12 – 24 hours, siphon again and discard the new sludge. One sign that you have a bad batch of terra sigillata is if it soaks in and dries very quickly.
- If there are dark specks in the terra sigillata, put it through a 200-mesh sieve. Even if there aren't dark specks it won't hurt to screen it anyway. It should be about the right consistency to use right away (a specific gravity of 1.15) but if you want it thicker, let it evaporate for a day or two.
- Apply two or three coats to bone-dry ware, allow to dry just until the surface isn't wet, and burnish with fingers, a soft cloth, nylon stocking, chamois-leather, car-polishing mitt or

a plastic bag. Don't touch the wet surface and make sure your polishing cloth is very clean. For the greatest shine, apply three thin coats, polishing between coats.

- For colours, add oxides or stains after settling. If you add too much, the terra sigillata won't burnish as well because these materials have a larger particle size than terra sigillata.

### **Charles and Linda Riggs' recipe**

28 lb (16 litres/3½ gallons) water  
6.8 kg (15 lb) XX Saggar Clay or OM 4 Ball Clay  
1½ tablespoons Sodium Silicate  
1½ tablespoons Soda Ash

- Place the water in a 24-litre (5-gallon) pail and add soda ash and sodium silicate.
- Stir in clay – if you have a hydrometer, only add enough clay to get a specific gravity of 1.15.
- Let it settle for 10 minutes then pour off the liquid into a large clear container, discarding the sludge on the bottom of the original container.
- Let it settle for another 20 hours, then siphon the thin liquid from above the layer of sludge. As soon as you notice the liquid getting a little thicker, stop siphoning and discard the rest of the liquid along with the sludge.

### **Jan Lee's recipes**

#### *Ball clay terra sigillata*

28 lb (/16 litres/3½ gallons) water  
6.35 kg (14 lb) Ball Clay  
3.5 tablespoons Sodium Silicate

- Let settle 48 hours before decanting.