Terra Sigillata vessels, Gallo-Roman, museum Golden Court í Metz, France.

Two day's course with Katrin V. Karlsdottir making

TERRA SIGILLATA

The Seal of The Earth

Terra Sigillata “The Seal of Earth”

Is a term from Greek language used for special Greek and Roman pottery as early as the first Century.

Actually there is confusion about the name Terra Sigillata. It can be translated in two ways. Archeologists use the term for “stamped earth” to describe the method of making stamped reliefs on Roman wessels made between the first and third century. These vessels were made waterproofed by applying a very thin slip of the finest particles of clay and that slip is what modern ceramicist call Terra Sigillata “The Seal of Earth”. The method got lost but was rediscovered in the 19th century by ceramic chemist Henrich Schumann who was fascinated by the surface of the archaeology pottery findings from the Roman era.

A Mediterranean red-gloss ceramic ware with relief decoration, produced in the beginning of 1st century BCE. The finest examples of terra sigillata, known as Arretine ware, were manufactured in the Roman town of Arretium (modern Arezzo, Italy).

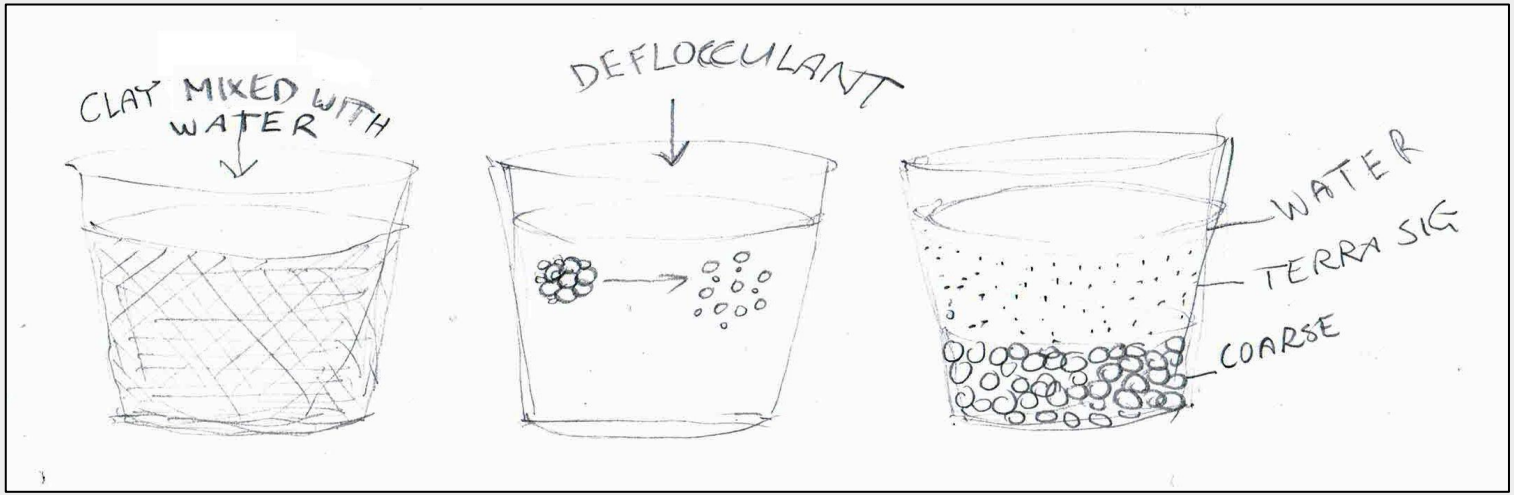
Fragment of a terra sigillata plate with graffito of a Roman warship (liburna), found at the ancient site of Fectio (Vechten), 25-50 AD, Centraal Museum, Utrecht

How to make Terra Sigillata?

To make Terra Sigillata you need clay and deflocculant.

Almost any clay will do but china clay or porcelain are less suitable. It is best to use the same clay for the Terra Sigillata and the work it will be applied to or at least have the same or as close as possible shrinkage percent.

Deflocculants are materials that weaken the electrical attraction between the particles of the clay. It breaks up the clay allowing the individual particles to float freely. Then the bigger and heavier particles sink to the bottom but the finer ones floats on the surface and that is the Terra Sigillata.



Deflocculants

There are many deflocculants that can be used. The most common are sodium silicate (Glass Water), soda ash, Darvan 7 and Darvan 811.

For some reason it gives better result if sodium silicate and soda ash are used together. Only very small amount of soda ash and sodium silicate is needed. 0.25% for each of the dry clay used.

The Darvans are specially made for and used in liquid clay for mould casting but works also well as deflocculant for Terra Sigillata. Most recipes use about 30 gr of Darvan for 1 kg of dry clay.

Smoke fired eggs (2018) and a bowl (2015) with Terra Sigillata, all made of the same clay.

Katrín V. Karlsdóttir

How to use Terra Sigillata?

Terra Sigillata is used on greenware to seal it and give it shine. Modern ceramicist commonly use it on wares that are bound for smoke firing where glazes can not be used. It enhances the colors made by the smoke. But it is also used in electric or gas kilns to achieve the soft finish it can give.

Smokefired Bowl and spoon with Terra Sigillata made of White Grogged Earthenware / Stoneware 1000-1280°C from Potterycraft.
Katrín V. Karlsdóttir 2018

Detail of smoke fired bowl with White Terra Sigillata
Katrín V. Karlsdóttir 2018

Glass withTerra Sigillata fired in an electric kiln.
Katrín V. Karlsdóttir 2010

How to use Terra Sigillata?

The Terra Sigillata must be thin when applied on the ware. Around 1.15 on hydrometer (like full fat milk) It can be applied by dipping or spraying but most usually it is painted on with soft brush, 3-5 coatings depending on the thickness of the mixture. If the mixture is too thick it can result in a cracked and flaked surface after firing. Care must be taken not to touch the surface before the clay has absorbed the Terra Sigillata and no wet spot can be seen. It must be brushed on in a dust free environment and the ware must also be dust free. If the ware has been sanded down with sandpaper it is necessary to wipe it clean with a wet sponge to make sure it is dust free. If applied on dust it can cause the Terra Sigillata to flake off after firing as when it is applied too thick.

The Terra Sigillata mixture ready to apply

Painting the Terra Sigillata on with soft brush

Flaked and cracked Terra Sigillata after firing

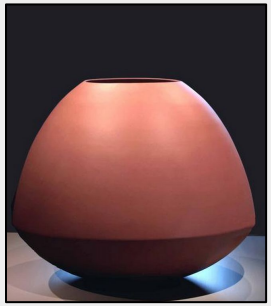
How to use Terra Sigillata?

The Terra Sigillata can be applied to the ware in parts to create different textures, used in the sgraffito technique where patterns or pictures are cut through it. The Terra Sigillata has the natural color of the clay it is made of.
It is possible to add color to it with oxides, carbonates or stains but it can change the appearance of the Terra Sigillata mixture because the colorants particles are bigger than in the Terra Sigillata's. 24 hour spin in a ball mill can fix that. (or even in stone polishing tumbler with glass marbles).

Mead cup with Terra Sigillata inside and on decoration outside. Fired in electric kiln.
Katrin V. Karlsdottir, 2017

Cup with thinly applied gray Terra Sigillata and sgraffito. Fired in an electric kiln. Katrín V. Karlsdóttir 2018

Container shape from series of 99 with colored Terra Sigillata, 1993, Geert Lap



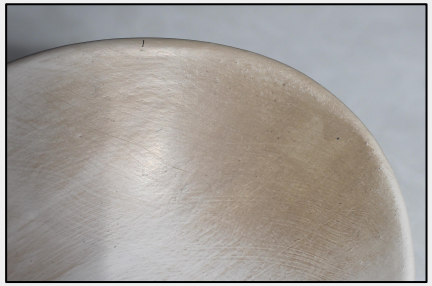
Vase with bulging belly, with colored Terra Sigillata. 1990-2000, Geert Lap

How to use Terra Sigillata?

After applying the Terra Sigillata to the surface it is polished with soft cloth, plastic bag or even the fingers while still moist but not wet to the touch. That causes the particles to lay flat on the surface and increases the shine. Good Terra Sigillata can give satin shine without polishing and glossy with polishing. It is possible to enhance the gloss even further by rubbing some oil on the dry Terra Sigillata surface and give it a good buff when the oil is no longer wet to the touch.

Many ceramicists polish the finished product with beeswax after firing, especially the smoke fired wares to enhance the colors and provide some protection. Smoke fired wares are low fired and fragile.

Terra Sigillata polished with plastic bag



The shine on the terra after polishing, it is still damp

Small flower pots with Terra Sigillata. Fired in blackware iron pot firing.
Katrin V. Karlsdottir
2018

Recipes

Many different Terra Sigillata recipes can be found on the internet with all kinds of clays, deflocculants and colors. Some recommend using a hydrometer to get accurate gravity, others use a special amount of water to special amount of dry clay. Some let the mixture set for a few hours while others wait for weeks for the Terra Sigillata to settle. It can be worthwhile to experiment with different kinds to find the best result for your work.

Color suggestions to 1 cup liquid terra sig:

white = + 1 tsp. Zircopax or tin
off white = + 1 tsp. titanium dioxide
green = + 1/2 tsp. chrome oxide
blue = + 1/2 tsp. cobalt carbonate
black = + 1 tsp. black stain
purple = + 1 tsp. crocus martis, ferrous sulphate (FeSo4) and is also known as calcined copperas.

Oberhausmuseum (Passau). Fragment of Terra sigillata (2nd century AD) made by the Ancient Roman potter Helenius from Rheinzabern (Germany), showing godess Venus between gladiators.

Recipes

The recipe we will be using originates from Vince Pitelka. He has spent a lot of time experimenting to find Terra Sigillata that compares with the ones on the old Roman vessels and came up with this recipe. You can find detailed explanation on his method on his webside. https://sites.tntech.edu/wpitelka/terra-sigillata/

- **1 kg. dry clay mixed thoroughly with water until it has gravity reading 1.20 (1.15 for ball clay) on appropriate hydrometers that measure specific gravity from 1.00 to 1.20 (similar to skimmed milk).**
- **Dissolve 2.5 gr. soda ash and 2.5 gr. sodium silicate in warm water (0.25% of each deflocculant of the dry clay used) and blend well in the watered clay mixture.**
- **Pour the mixture in see through containers that are placed on raised tables and do not disturb for 20 hours.**
- **After 20 hours siphon with a racking tube ⅔ of the mixture to another container. Be very careful not to agitate the mixture while you siphon or you will ruin the Terra Sigillata and will have to start over.**

Vince Pitelka, bird Effigy vessel, 2012, Coil built, dry-sanded, polished Terra Sigillata. Blackware fired in a bonfire.

Vince Pitelka, Tripod Vessel, 2011. Coil built, dry-sanded, polished Terra Sigillata. Blackware fired in a bonfire.

Links

Link to video showing decoration technique with Terra Sigillata and wax resist.
YouTube, Jesus Minguez
Sep 3, 2016
https://www.youtube.com/watch?v=2obgKI5zjXk

Link to article about Terra Sigillata by Eve Carrobourg for La Meridiana International School of Ceramics October 2017
http://www.lameridiana.fi.it/pdf/MAIN-PAPER-TERRA-SIG-FINAL-VERSION.pdf

Link á How to Mix and Apply Terra Sigillata for Burnishing Pottery | Sumi von Dassow, YouTube, Ceramic Arts Daily, Feb 22, 2016
https://www.youtube.com/watch?v=6Uqco3QKLPQ

Link to Digitalfire.com eftir Vince Pitelka. He describes his method of preparing a Terra Sigillata slip.
https://digitalfire.com/4sight/education/super-refined_terra_sigillata_274.html

Link to Ceramicartsnetworks.com Terra Sigillata 101: How to Make, Apply, and Troubleshoot Terra Sig. Sumi von Dassow covers everything you've ever wanted to know about terra sigillata!
https://ceramicartsnetwork.org/daily/pottery-making-techniques/ceramic-decorating-techniques/terra-sigillata-101-make-apply-troubleshoot-terra-sig/

Link to Digitalfire.com about the Darvan materials, Deflocculant you can use to makeTerra Sigillata
https://digitalfire.com/4sight/material/darvan_260.html

Link to Wikipedia. About the history of Terra Sigillata.
https://en.wikipedia.org/wiki/Terra_sigillata

Link to video showing Marcia Selsor make easy Terra Sigillata. YouTube, Ceramic Arts Daily Published on Apr 19, 2017
https://www.youtube.com/watch?time_continue=24&v=btZqkI0z8-U

Links to ceramicist who use Terra Sigillata

Link for Alison Kay
http://www.alisonkay.ie/Gallery.php

Link for Russel Fouts
http://users.skynet.be/russel.fouts/index.html

Link for Paula Shalan
http://www.paulashalan.com/terra-sigillata.html

Link for Nadine Lebas
http://nadine-lebas-ceramique.odexpo.com/default.asp?page=8372&lg=

Link for Rebecca Zweibel
http://rrzceramics.com/ceramic.html

Link for Mark Arnold
http://www.markarnoldceramics.com/

Link for Duncan Ross
https://www.duncanrossceramics.co.uk/

Link for Shamai Gibsh
https://www.shamaigibsh.com/

Link for Rhonda Willers
http://www.rhondawillers.com/index.html

Link for Judith Motzkin
http://www.motzkin.com/

Link for John Hull
http://www.johnhullstudio.com/index.html

Link for Silvia Mc Louchlin
http://www.kunstkeramikk.no/index.php