

**ENGOBES**

- ✓ Engobes, or slips, are a layer of coloured clay applied to the surface of the clay to change its colour or add a decorative element.
- ✓ Engobes usually contain 15 - 30% Flint to lessen shrinkage and add hardness.
- ✓ Often a colourant is simply added to the existing clay body to make the engobe. If so, the engobe needs to be applied to a still wet clay body, otherwise it shrinks at a different rate than the clay body and can fall off the surface.
- ✓ Most engobes will have a flux added to them to adjust for the shrinkage differences and can be applied on dry or fired clay bodies.
  - ✓ Cone Δ1 - Δ14 Add Feldspar as flux
  - ✓ Under Cone Δ1 - add Leadless Frits, in combination with talc or small amounts of whiting.
  - ✓ Borax can add toughness to the coating for handling.
  - ✓ Zirconium for opacity.

**BASIC ENGOBE RECIPE (OR USE YOUR OWN CLAY BODY FOR SLIP)Δ6 - Δ11**

Use on Leatherhard Clay - If applying the above to greenware or bisque, experiment by substituting increasing amounts of calcined kaolin.

INGREDIENT	PERCENTAGE
Kaolin	25%
Ball Clay	25%
Potash Feldspar	20%
Flint/Silica	20%
Zircopax	5%
Borax	5%

**COLORANT % TO ADD to DRY INGREDIENTS (adjust for wet)**

INGREDIENT	COLOR	PERCENTAGE
Iron Oxide	Rust	2.0%
Cobalt Oxide	Blue	2.0%
Nickel Oxide	Gray/Silver	2.0%
Manganese Dioxide	Black	3.0%
Cobalt Oxide	Dark Blue	1.5%
Copper Oxide	Mid Green	3.0%
Yellow Ochre	Ochre	4.5%
Iron Oxide	Mid Tan	3.0%
Rutile	Creamy Tan	6.0%
Iron Chromate	Dark Gray	3.0%
Manganese Dioxide	Purple Brown	6.0%

**TERRA SIGILATA**

Similar to engobes, never glazed, but fired to a low temperature, usually below Δ08.

Dense, waxy surface achieved by burnishing the surface.

Applied by dipping, spraying or painting, *thinly* applied in each case

- ✓ Prepare a slip, add a deflocculent such as 0.3% sodium hydroxide, mix thoroughly and allow to settle for a few days.
- ✓ Decant the free water from the surface, careful not to mix or disturb the settled clay.
- ✓ Skim off the top 1/3 of the settled clay for use, and discard the rest. The top layer will be composed of finer, smaller particles. The larger particles will have settled to the bottom of the container.