

Ceramic Material

Fusion Tests

This booklet is intended as a visual tool to help develop understanding of the appearance and properties of materials that are commonly used in clay body and glaze formulation. These samples were prepared by measuring out a tablespoon of each material and firing them to a variety of temperatures.

We've made it a priority to highlight the visible information and to avoid weighing this document down with excessive details. On the following pages, you will find limited labels indicating the common name of the material. Where it seems helpful, you will also find a concise mineral or chemical name. There are 4 images for each material, presented in the following sequence:

First a raw sample, followed by samples fired to pyrometric cone ^04, ^6, ^10.

There is some additional logic, though it is sometimes broken, as margins of conventional material categories are sometimes fuzzy. The categories are ordered as follows:

- 1) Clays are ordered by descending iron content
- 2) Other Common Alumina Sources
- 3) Mineral Plasticizers/Suspension Aides
- 4) Mineral Colorants
- 5) Mineral Fluxes

How is this information useful? In most instances, it is unlikely that one would use a single materials alone, instead, we would utilize it as an ingredient in a recipe. Still, much can be learned through careful observation of what is happening in these samples.

Look closely at how color develops or diminishes in the fired samples, or how much the material shrinks or expands. Does the material fuse and begin to melt or does it remain largely unaffected by the firing? Look closely at the perimeters where the sample makes contact with the ceramic tile. Does it create a blush or halo? Does the material melt into a glass uniformly or only where it touches the claytile?

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Alberta Slip Substitute
(Plainsman)

slip clay



Albany Slip Substitute
(Laguna)

slip clay



Sheffield Slip Clay

slip clay



Alfred Shale

red clay



Barnard Slip Substitute
(Laguna)

slip clay



Lizella

red clay



Newman Red Clay

red clay



Redart

red clay



Goldart

stoneware clay



Hawthorne Bond
50 Mesh

fire clay



New Foundry
Hill Creme

stoneware clay



Lincoln 60 Mesh

fire clay



XX Sagar

ball clay



C&C

ball clay



Tennessee #10

ball clay



Spinks Blend

ball clay



OM4

ball clay



Kentucky Stone

ball clay



New Zealand Kaolin

halloysite



Optikast

kaolin



Tile #6

kaolin





Pyrax
pyrophyllite



Macaloid
aluminum silicate plastisizer



Veegum T
magnesium silicate plastisizer



Bentolite L-10
calcium bentonite



Bentonite
aluminum silicate plastisizer



Nepheline Syenite
A-270
sodium feldspathoid



Minspar 200
sodium feldspar



Cornwall Stone

potassium feldspathoid



Plastic Vitrox

sodium feldspathoid



Custer Feldspar

potassium feldspar



Mahavir

potassium feldspar



Cobalt Carbonate



Cobalt Oxide



Chrome Oxide



Copper Carbonate



Copper Oxide



Red Iron Oxide



Black Iron Oxide



Granular Magnetite



Yellow Iron Oxide



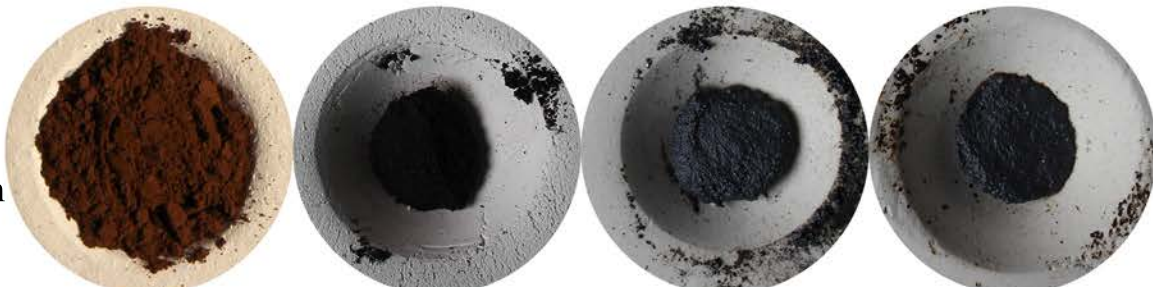
Yellow Ochre

iron rich earth



Burnt Umber

iron/manganese rich earth



Crocus Martis

anhydrous ferrous sulfate



Iron Chromate



Manganese Carbonate



Manganese Dioxide



Granular Manganese

manganese dioxide



Nickel Carbonate



Green Nickel Oxide



Black Nickel Oxide



Granular Ilmenite

titanium oxide with iron



Rutile

titanium oxide with iron



Granular Rutile



Titanium Dioxide



Vanadium Pentoxide



Tin Oxide



Zircopax Plus

zirconium silicate



Barium Carbonate



Bismuth Oxide



Bone Ash

dicalcium phosphate



Borax

sodium tetraborate



Boric Acid

hydrous boric oxide



Cryolite

sodium hexafluoroaluminate



Dolomite

calcium/magnesium
carbonate



Silica

silicon dioxide



Fluorspar

calcium flouride



Gerstley Borate

colemanite and ulexite



Gran-i-grit

coarse granite sand



Ground Granite

roasted and milled granite



Lithium Carbonate



Magnesium Carbonate



Pearl Ash

potassium carbonate



Petalite

lithium feldspathoid



Soda Ash

sodium carbonate



Sodium Bicarbonate



Spodumene

lithium feldspathoid



Strontium Carbonate



Talc (C-98)
magnesium silicate



Whiting
calcium carbonate



Wollastonite
calcium silicate



Hard Wood Ash



Zinc Oxide

