

What are the 3 basic constituents of a glaze?

What is the major glass-former in glaze?

Name the 3 alkaline fluxes

Name the 2 metallic fluxes

Name the 4 alkaline earth fluxes

Name the element that functions as both a flux and a viscosity agent

Name 2 alkaline fluxes that behave very similarly in most glazes and produce glossy glazes

Name a flux with a high coefficient of expansion

Name a flux with a low coefficient of expansion

Shorthand for any combination of sodium (Na_2O) or potassium (K_2O)

Flux group that produces soft glazes easily abraded or attacked by acids, bright color response, begins to melt at lowfire temperatures

Flux that is active at lowfire temperatures, promotes brilliant color response, produces a weak glaze, promotes matt, crystalline surfaces

Colorant that makes turquoise with alkaline fluxes



Colorant that is plum with alkaline fluxes

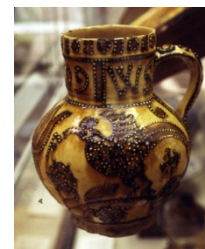
Colorant that makes ultramarine blue with alkaline fluxes



Color of small amounts of chrome with alkaline fluxes

Flux that melts at lowfire temperatures, volatilizes at cone 6, blisters in reduction, is toxic, makes a soft glaze that may be leached by acids

Colorant that makes amber with lead



Colorant that makes transparent grass green with lead



Color of chrome with lead

Colorant that is plum with lead



Sodium, potassium, lithium

silica

Flux, viscosity agent, glass-former

boron

Calcium, strontium, barium, magnesium

Lead, zinc

lithium

Potassium and sodium

Sodium and potassium

lithium

Alkaline fluxes

KNaO

cobalt

manganese

copper

iron





lead

Chartreuse

manganese

orange

Copper

<p>Glaze fault where the body shrinks more than the glaze, causing the glaze to buckle and pop off. One cause of this is an excess of low-expansion glaze flux.</p>	<p>Flux that is a active mid-high temperatures, promotes crystals, in high amounts opacifies and matts. Excess can cause crawling. Good for making blue colors. Volatilized at cone 10.</p>	<p>Flux active at high temperatures, forms eutectics (often in small amts.), makes a hard glaze, good for celadon greens in reduction, not good for copper reds. Excess will matt.</p>
<p>Flux not very active, works at high temperatures, toxic raw, may leach from glaze in high amounts, matts (but will not matt w/boron), hardens glaze</p>	<p>Colorant that makes robin's-egg blue matt glazes in oxidation or reduction with barium</p>	<p>Flux that is active at high temperatures, makes buttery matts, pastels colorants, hardens glaze.</p>
<p>Colorant that makes matt purple with magnesium</p>	<p>Flux active at high temperatures, used as a non-toxic replacement for barium</p>	<p>Classified as a flux AND a viscosity agent, make high-gloss glaze, active low-high temperatures, boils at high temperatures, may cause crawling in excess, may leach slip color, inhibits crystal growth, may make opalescence in high amounts.</p>
<p>Man- made flux that uses soluble and/or toxic materials melted into a glass, then powdered.</p>	<p>Colorant that is the source of color in red clays</p>	<p>4 Colorants that begin to flux at low temperatures</p>
<p>Name 3 refractory colorants</p>	<p>Colorant that makes reds in reduction (a.k.a. oxblood, peach bloom, and flambé glazes)</p> 	<p>Colorant that in small amounts in reduction firing makes celadon</p> 
<p>Colorant that makes "tomato" reds in oxidation or reduction</p> 	<p>Colorant that makes tan, rust, brown, and black in oxidation</p>	<p>Colorant that produces transparent blue-greens in oxidation, melts at low temperature, produces robin's-egg blues with barium and strontium, overload makes metallic pewter surfaces.</p>
<p>Colorant that usually makes transparent blue colors, melts at low temperatures</p> 	<p>Colorant that makes green, crystalline surface with titanium or rutile</p> 	<p>Common color of manganese with many fluxes</p>

Calcium**Zinc****shivering****magnesium****copper****barium****boron****strontium****cobalt****Cobalt, iron, copper, or manganese****iron****frit****iron****copper****rutile, chrome, nickel****Copper****iron****iron****brown****cobalt****Cobalt**

Refractory colorant that usually gives opaque dense green, may fume



Color of chrome + zinc

Color of chrome + lead

Color of small amounts of chrome, or chrome fuming, in glazes with
 ➤ 5% tin oxide

2 colorants used to make opaque teal colors in slips or glazes

Refractory colorant that gives broken or mottled color and/or crystalline surfaces, may produce blues and pink-purple pearly colors in reduction. As a wash w/flux = golden crystalline surfaces or rusty orange. Green w/cobalt.

2 colorants used in granular form to create specking in clay bodies or glazes

Refractory colorant that is often grey, but gives varied colors under very specific conditions: yellow, blue, purple, brown, green

Colorant used to make warm yellow commercial stains. Seldom used in its oxide form. Works at all temperatures, but will be faded or grayed in reduction.

Toxic colorant that is unstable above low temperatures unless encapsulated. Makes bright reds, orange, and yellow colors. Now offered in "inclusion" stains.



Colorant that produces transparent light pink (8-10% in glazes). Lavender in the presence of iron traces in reduction.



Weak colorant used mostly to make a pale yellow stain (color toward yellow-green). Stable to cone 10, but better on oxidation than reduction. Unaffected by glaze composition.

Colorant that makes low-temperature reds, oranges, and yellows. Largely unavailable for casual use. Oxidation only. Responsible for "radioactive orange" Fiesta ware.

Colorant seldom used except with lead to make Naples yellow, or with rutile and titanium for a body stain. Used in the brick industry to bleach clay surface to buff color.

Opacifier that is strong, may make pink w/small amounts of chrome and when used >5% , makes buttery gloss surfaces, may cause crawling in high amounts. Traditional majolica opacifier.



Opacifier that makes semi-opaque white, hard glaze, somewhat shinier surface than other opacifiers. Requires 1.5% the amount of the stronger opacifier.

Trade names for commercial zirconium opacifiers

Opacifier that produces ivory-white mottled, broken color and/or crystalline surfaces. Refractory. Makes copper reds go toward purple.

Temperature where cristobalite inversion occurs - and too much stress at this point in cooling may cause dunting - cracks through the body and glaze

Temperature where quartz inversion occurs and silica changes in size 2%. Uneven heating or cooling at this point may cause dunting - cracks through the body and glaze.

If you dip your hand into a glaze for dipping application, and it runs off your hand to show skin, in spite of being an adequate thickness, what can you do to correct this?



Red, orange

Brown

chrome

Rutile

Cobalt + chrome

pink

Vanadium

Nickel

Ilmenite, rutile

praeseodymium

Erbium

Cup by David Pier. See <http://davidpier.com/> for article on rare earth oxides.

cadmium

tin

antimony

Uranium

Titanium

Zircopax, Superpax, Opax, Ultrox

zirconium

Flocculate with a saturated solution of Epsom Salts.

1000 degrees F – red heat

451 degrees F (actually 439, but 451 is where paper burns, and a good indicator).