

ART 186 - INTRO TO CERAMICS

SOURCES OF COLOR IN GLAZE

A **BASE GLAZE** is a glaze that contains sources of the three essential components of a glaze, (**SILICA, FLUX AND ALUMINA**) and that contains no added color. Accordingly, it will be white or clear when fired.

To achieve colored glazes, first a satisfactory **BASE GLAZE** is found which "fits" the clay body being used, and then tests are run adding various blends of the following metallic oxide colorants:

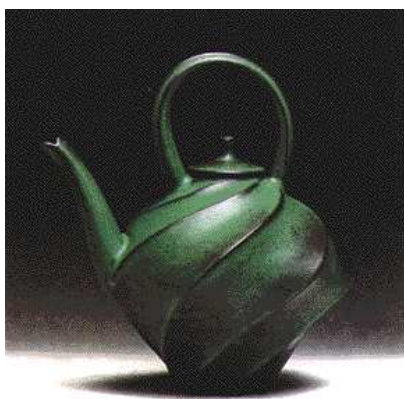
METALLIC OXIDE	%	TYPE OF FIRING	RESULTANT COLOR
cobalt oxide	1/2-2%	gas (reduction)	blue, blue-violet
cobalt oxide	1/2-3%	electric (oxidation)	blue, blue-violet
iron oxide	1/2-2%	gas (reduction)	jade green celadon
iron oxide	2-3%	gas (reduction)	iron yellows
iron oxide	3-4%	gas (reduction)	golden-orange
iron oxide	4-5%	gas (reduction)	brick red (khaki)
iron oxide	5-6%	gas (reduction)	brown-black (temmoku)
iron oxide	1/2-6%	electric (oxidation)	amber-greenish browns
manganese dioxide	5-10%	gas (reduction)	honey browns
manganese dioxide	5-10%	electric (oxidation)	purple, eggplant
chrome oxide	2-3%	gas (reduction)	greens
chrome oxide	2-3%	electric (oxidation)	browns, pinks, reds
copper oxide	2-3%	gas (reduction)	reds, purples
copper oxide	2-3%	electric (oxidation)	turquoise blues, greens
vanadium pentoxide	5-10%	gas (reduction)	grays
vanadium pentoxide	5-10%	electric (oxidation)	yellows

These metallic oxides are added in the amounts indicated to suitable base glazes to achieve colored glazes. Note that the type of firing employed will have a great influence on the color achieved in the glaze. To read more about the effects of firing atmosphere on glaze color go to [KILNS](#).

Here is an example of a typical base glaze formula and some possible oxide additions:

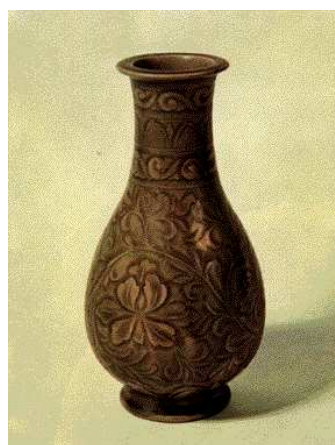
HIGH ALUMINA MAT

Feldspar	48.9g
Kaolin	25.1g
Dolomite	22.4g
Whiting	3.6g
	100.0g
add 1% cobalt oxide	1.0g glaze color is now blue
OR add 3% chrome oxide	3.0g glaze color is now green
OR add 1% cobalt oxide	1.0g
AND 3% chrome oxide	3.0g glaze color is now blue green



TEAPOT, JIM CONNEL, USA

**Glazed with a chrome oxide green
glaze fired in a reduction atmosphere**



NORTHERN SONG DYNASTY VASE

**Olive green glaze from iron oxide fired
in an oxidizing atmosphere**

