

Crystalline Glazes

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Welcome to the exciting world of crystalline glazes. To anyone considering getting into crystalline glazes, my recommendation to you is to reconsider unless you have an abundance of patience and time. After working with these glazes for 3 years, the only thing I am sure of is its unpredictability. Then again maybe this is what I am so drawn to. There is a kind of excitement in opening these kilns as you are never quite sure of your results. Each firing can have different results in crystalline formations, colors, etc. Crystalline glazes are perhaps the most sensitive of all the glazes as at any minute there is a change in the firing schedule, dramatic changes can occur in your results.

Some of the recipes (Base) I have used led themselves to a variety of results, from mat to very glossy glazes.

Recipes:

Cone 10

1/ Frit 3110- 50.00
Zinc----- 25.00
Flint----- 25.00
Titanium-- 6.00

To be fired in an electric kiln to make sure it is an oxidation atmosphere

2/ Frit 3110- 48.40
Zinc----- 24.35
E.P.K.----- 1.52
Flint----- 17.95
Titanium-- 7.78

3/ Frit 3110- 52.00
Zinc----- 24.00
Flint----- 24.00

These glazes should be mixed thoroughly by hand then screened. A variety of oxides and colorants can be added to the dry mixture before mixing. Any percentage from about .5-5% should be added. A mixture of more than one oxide at a time can cause interesting results. Some suggested oxides are:

Cobalt Carbonate or Oxide
Copper " "
Nikel Oxide
Manganese Carbonate or Oxide
Irone Oxide

The type of clay to use can either be a porcelain or a white stoneware. A variety of clays should be tried as the results will vary in crystal size, shape. Pieces can be slip casted but I found difficulties in

found difficulties in the rate of thermal expansion of the clay versus the glaze, causing the pieces to crack extensively. Clay bodies should also have enough strength to withstand high temperatures and long soak periods.

The glaze should be applied by brush. A thick coat of glaze will work best. Do not worry about uneven application as the glaze melts and leaves only a very thin coat. It is a very runny glaze. I have found that even splashing the glaze on works. Thick spots may even cause the crystals to be larger. I have not discovered a way of placing the glaze to have the crystals grow in any one certain place.

Since the glaze runs so much the piece should be fired on broken pieces of kiln shelves that are coated with kiln wash. The kiln shelf should also be coated with a good coat of kiln wash. After the firing the pieces can be tapped by the broken kiln shelve pieces and then grinded down. (Good Luck, this is where most of the breakage occurs).

My firing schedule is:

Fire to cone 10. (2345° F)

At 2345° F maintain kiln (soak) at that temp. for 5-30 min.

Slowly then allow kiln to cool to 2085° F. maintain temperature for 30 min. to 4 hrs.

Shut off kiln completely and allow to cool slowly.

When kiln cools to 300° F crack slowly or crazing will occur.

Crystalline glazes can be exciting and you can get a variety of results. Remember any change in your firing schedule can and will drastically alter your results. And you must maintain the electric kiln at the soak periods, by constantly turning your temperature knobs. Don't expect to reproduce a piece as each glaze firing will give you a little different result, causing each piece to be a one of a kind.

Well enjoy, give it a try and feel free to contact me at any time if you need greater explanations.

Marv A. Babba

Leon Bush - Calif.
potter

C/9-10 CRYSTAL GLAZE FORMULATION

	<u>FERRO 3110</u>	<u>PEMCO 283</u>
Frit	457 gm	684.2 gm
Zinc Oxide	275	241.3
Silica (Flint)	199	74.5
Kaolin (EPK)	13.5	-
Titanium Dioxide	<u>56.5</u>	=
	1000.0	1000.0

1. Above makes one quart, sufficient for spraying 12 pieces.
2. Sieve thru an 80-mesh screen, and mix well just prior to spraying.
3. Apply medium to thick, and check with needle tool.

OXIDE ADDITIONS

<u>Oxide</u>	<u>Amount</u>	<u>Color</u>
Cobalt Carbonate	<u>0.3</u> to 0.5%	Blue
Copper Carbonate	3.0 to <u>3.5</u> %	Green
Manganese Dioxide	<u>3.0</u> to 3.5%	Brown
Rutile	<u>3.0</u> to 4.0%	Gold
Red Iron Oxide	5.0%	Orange

Try combinations for unusual color effects.

C/9-10 MF-6 ~~Red~~

LRB-2/23/83

Custer Spar	249.4	Add: 1% Copper Carb 1% Iron Oxide 1% Tin Oxide
Frit 3124	108.4	
Silica	283.0	
Whiting	147.7	
EPK	46.0	
Ball Clay	53.7	
Soda Ash	68.6	
Bar. Carb	38.4	
White Leaf	4.8	