Cone 6 Shino Tests 2011 at the Santa Cruz Mountains Art Center www.MountainArtCenter.org

OBJECTIVE: In the last year, the Art Center Ceramics group has been involved in developing Cone 6 glazes that can be used in both Oxidation and Reduction firing. **Trying to come up with a good Shino which allows carbon trapping** is one of our last glaze development hurdles.

PROCESS: We collected a number of glaze recipes to trial in 200 gm. batches. We noticed that some of the more "orange" or toasty Shinos used Red Art Clay in their makeup. With that in mind, we used the Cherry Blossom Shino, and a "John's Shino", and substituted some Red Art Clay for the some of the clay in the recipes. The "Orange Carbon Trap" recipe already called for a modest amount of Red Art.

Test tile matrix:
John's Shino
- JS 1(-1 & -2)
- JS-2(-1 & -2) (Red-Art added)

Cherry Blossom Shino
- CBS – 1 (-1 & -2)
- CBS – 2 (-1 & -2) (Red Art added)

Orange Carbon Trap
- OCT (-1 & -2)

For all: - 1 = 1 dip / immediate wax resist brush stroke splash
- 2 = 2 dips / immediate wax resist brush stroke splash
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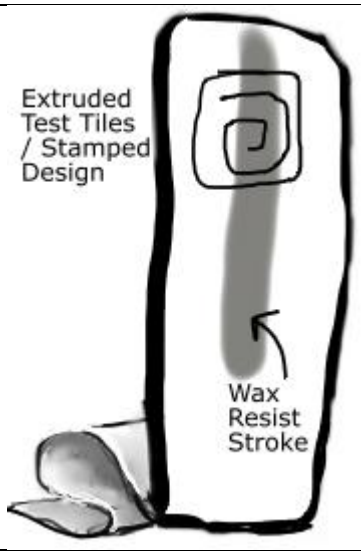
Notes: Only the OCT showed any immediate 'scumming'.



The glazing was done quickly, with a brush of wax resist applied immediately, not waiting for the glaze to dry on the surface of the tile.
All were fired to a Cone 6 reduction in a gas updraft kiln, with a heavy sooty reduction induced at Cone 014 for 30 minutes. The remainder of the firing was consistent with our regular Cone 6 Reduction firing schedule. The test tiles were all placed in a central location in the kiln, in a group. Sorry, we don't have an oxygen meter for our kiln.

RESULTS & RECOMMENDATIONS

The only glaze which showed ANY carbon trapping was the OCT. This was also the one glaze that showed any "scumming" almost immediately after glazing. The scumming effect in which a glaze component material separates out and "rises" to the glazed surface during drying, is normally considered undesirable, however, in a Shino glaze, the surface scum results allow carbon to be trapped in the surface of the glaze when exposed to a low reduction sooty atmosphere. In the OCT sample which was the only sample showing any carbon trapping, it is believed the scum results from calcium wicking up to the surface while the glaze dries…moisture is being wicked into the bisque body, and oxygen is available at the surface. The OCT glaze contains a small amount of Whiting (Calcium Carbonate).

The varied % additions of the Red Art Clay (3%, 4%, 6%) into a glaze definitely provides an increasing orange tone to the overall glaze.

Recommendations:

1. Use the Orange Carbon Trap recipe. Try another test iteration (200 gram batch) and increase the amount of Red Art Clay addition to 6% while reducing the OM4 Ball clay by 3%.
2. Use the Cherry Blossom Red Art recipe, increase the Red Art to 6%, add 1% Whiting, reduce Spodumene to 35% EPK to 8%

John's Shino

Ingredients	%
Gerstley Borate	4.9
Soda Ash	2.9
Nephylene Syenite	54.5
Spodumene	22.8
OM4 Ball Clay	4
ADD:	

Reduction Tile Samples JS 1 -1 & -2


Notes: This glaze showed significant crazing, indicating a misfit with our Cone 6 white clay body. No carbon trapping evident.

John's Shino / Red Art Variation

Ingredients	%
Gerstley Borate	4.9
Soda Ash	2.9
Nephylene Syenite	54.5
Spodumene	20.8
OM4 Ball Clay	0
Red Art Clay	6
Add:	

Reduction Tile Samples JS 2 -1 & -2


Notes: The Red Art Clay addition still shows some crazing, but nice color. No carbon trapping evident.

Cherry Blossom Shino

Ingredients	%
Soda Ash	10
Nephylene Syenite	40
Spodumene	40
EPK	10
ADD:	

Reduction Tile Samples CBS 1 -1 & -2

Lost CBS-1-1

Notes: Nice coverage, and gloss, but no carbon trapping.

Cherry Blossom Shino / Red Art Variation

Ingredients	%
Soda Ash	10
Nephylene Syenite	40
Spodumene	37
EPK	9
Red Art Clay	4
ADD:	

Reduction Tile Samples CBS 2 -1 & -2

Notes: A nice bit of orange added to the glaze, but no carbon trapping.

Orange Carbon Trap

Ingredients	%
Nephylene Syenite	40
Soda Ash	12
OM-4 Ball Clay	15
Custer Spar	17
EPK	8
Spodumene	9
Red Art Clay	3
Whiting	1

Reduction Tile Samples OCT -1 & -2

Flip side of tile

Notes The only Shino that carbon trapped. The thicker application tended to “bubble”, pinhole a bit where thickest: somewhat similar to our old Cone 10 ”Shino Crack” glaze. Unless one specifically wants this effect, recommend a thin application.