

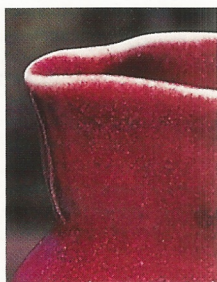
More Electric Kiln Copper Reds

by Robert S. Pearson and Beatrice I. Pearson

In the November 1997 issue of *Ceramics Monthly*, we described a series of copper red glazes produced in an electric kiln with local reduction from silicon carbide. These glazes worked well on a Cone 5 stoneware body, but crazed badly on a Cone 6 porcelain body. As noted in the earlier article, stoneware bodies, even those described as "white" firing, are never white enough to produce the best reds, and it is often necessary to coat the body with a white slip for optimum results. The use of a porcelain body avoids this problem. The glazes listed below were developed to fit the Cone 6 porcelain body.

Copper Red Base Glaze 9 (Cone 6)

Gerstley Borate	6.0 %
Custer Feldspar	22.0
Frit 146 (General Color)	26.0
Flint	46.0
	100.0 %
Add: Color Mixture 4	3.1 %



Copper Red Base Glaze 9 applied to wheel-thrown porcelain bisqueware (dipped in glaze batch for three seconds), fired to Cone 6 in an electric kiln.

The previously described glazes needed macaloid to aid application; however, the inclusion of Gerstley borate made it unnecessary to add macaloid to this glaze. As before, the frits were obtained from General Color and Chemical, Post Office Box 7, Minerva, Ohio 44657. Also, they now supply the Ultrafine 10 silicon carbide used to prepare color mixtures, as well as some prepared color mixtures.

The composition of the color mixture used here is:

Color Mixture 4

Copper Carbonate	5.0 %
Tin Oxide	50.0
Custer Feldspar	39.4
Ultrafine 10 Silicon Carbide	5.6
	100.0 %

Copper Red Base Glaze 9 gives a very nice red. When prepared with 100 milliliters water for each 100 grams glaze, it is suitable for dipping, provided the bisqueware (fired to Cone 04) is held in the glaze suspension for a few seconds. The intensity of the red color varies with the submergence time of the ware: we have found three to four seconds to be about right for porcelain bisqueware. Each user will need to run a few trials to establish optimum submergence time.

Copper Red Base Glaze 10 (Cone 6)

Frit 114 (General Color)	34.0 %
Frit 154 (General Color)	6.0
Frit 156 (General Color)	4.0
Gerstley Borate	5.0
Flint	51.0
	100.0 %
Add: Color Mixture 4	3.3 %

A nice red. To use it as a dip glaze, we added 105 milliliters water to each 100 grams glaze and kept the ware in the glaze suspension for about two or three seconds.

Copper Red Base Glaze 11 (Cone 6)

Frit 114 (General Color)	38.0 %
Frit 154 (General Color)	3.0
Gerstley Borate	9.0
Flint	50.0
	100.0 %
Add: Color Mixture 4	3.1 %

Base Glaze 11 yields a very good red. To use it as a dip glaze, we added 120 milliliters water to each 100 grams glaze and kept the ware submerged for about six seconds.



Cone 04 bisqued porcelain dipped in Copper Red Base Glaze 11 for six seconds, then fired to Cone 6 in an electric kiln; dipping time will vary according to clay body.

Copper Red Base Glaze 12 (Cone 6)

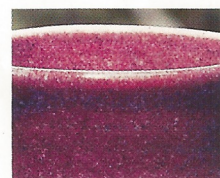
Frit 146 (General Color)	30.0 %
Frit 154 (General Color)	10.0
Custer Feldspar	19.0
Whiting	2.0
Flint	39.0
	100.0 %
Add: Macaloid	1.0 %
Color Mixture 4	3.1 %
Soda Ash	1.0 %

When mixed with 100 milliliters of water for each 100 grams of glaze, a dip of approximately ten seconds gives a nice red.

Base Glaze 13 (Cone 6)

Frit 114 (General Color)	24.0 %
Frit 154 (General Color)	16.0
Gerstley Borate	10.0
Flint	50.0
	100.0 %
Add: Color Mixture 3	3.1 %

Lavender-purple rather than red. Mix 110 milliliters water with each 100 grams glaze and dip for about three seconds.



Base Glaze 13 applied to wheel-thrown porcelain bisqueware, fired to Cone 6 in an electric kiln.

Color Mixture 3

Copper Carbonate	6 %
Tin Oxide	47
Flint	40
Ultrafine 10 Silicon Carbide	7
	100 %

Applied to stoneware, the lavender-purple is somewhat blued, but over stoneware coated with white slip is more red. Our stoneware and porcelain clays absorb glaze at different rates, so the stoneware requires a longer dip time, typically 10 or even 15 seconds, as compared to 3 to 6 seconds for porcelain. Clearly, a few time trials are needed to determine the best dipping time for any given clay. When using a brush, it is usually necessary to apply four coats to develop good color. ▲