

Technical Information

GL07

Performance Pigments and Colors

Selenium Red and Cadmium Yellow Glazes

Art ceramics cannot be imagined without intense colours. The brightest red, orange, and yellow colours in combination with brilliant surfaces can be achieved with cadmium and selenium glazes.

Yellow and red glazes based on the same system are intermiscible in any relation, thus individual mixed colours from red via orange to yellow are obtained.

An addition of 5 to 10 weight-% yellow to the red glaze is recommended, because the red becomes more stable and brighter. By adding 0.5 to 1.0 weight-% cobalt stain 220 946 to the glazes 43-9361800 or 43-765, intense green colours are obtained.

Application

The selenium red and cadmium yellow glazes are special glasses, whose application properties cannot be compared to other glazes. Constant processing conditions are mandatory for a satisfying result. Anti-settling agents and glues can be added, depending on the kind of application (see also Technical Information GL11).



The glazes should be wet milled in a separate ball mill, which is only used for Se/Cd glazes, in order to avoid contamination.

The prepared glaze slip should be sieved and processed through a magnetic separator. Also, only the amount of glaze needed for a few days should be prepared, because a long shelf-time can also affect the results.

Contamination of all kinds, especially metal abrasion from the equipment and containers (e.g. Fe, Cu, Cr, Zn a.s.o.) has to be avoided by all means, because this might cause black spots on the glaze surface.

The thermal expansion coefficient of the glazes is relatively high. We recommend the use of a special glaze (e.g. 40 134 F) on the inside of the ceramic piece, to avoid the destruction of the ceramic due to differences in expansion.

The safest and best solution for a perfect result without cracks or black spots on the glaze surface is the use of a special body with a high c.t.e. and without pyrite, copper pyrite, or metallic pieces.

Firing

The result after firing the Cd/Se glazes strongly depends on the firing time, and the kiln atmosphere. The best is a short firing cycle, a good air circulation in the kiln, and a big space between the ceramic pieces in the kiln. The kiln load should be only Cd/Se glazes, because fumes of other glazes (e.g. copper containing glazes) might influence the firing result negatively.

Lead and Cadmium

If applied properly, the glazes release only a very limited amount of lead and cadmium. But the release strongly depends on the firing conditions and other parameters, which are difficult to define. Therefore we cannot guarantee certain limits that are demanded by some regulations (DIN EN 1388.1 and 1388.2).

If the glazes are used for food containers, glazed ceramic pieces out of the production have to be analysed for lead and cadmium release.

Available products

Product no.	Surface	Colour	Temperature range	Lead weight-%	C.T.E. x10 ⁻⁷ /K
43-765 ¹	glossy	yellow	980 – 1020 °C	0*	82
43-9361800 ²	glossy	yellow	990 – 1030 °C	< 3	80
47-95573 ³	glossy	red	990 – 1020 °C	0*	76
47-9550900 ²	glossy	red	990 – 1020 °C	< 4	77

¹Hazards identification Xn, R phrases 20/21/22

²Hazards identification T, R phrases 61, 20/21/22, 33

³R phrases 52/53

*Lead free: PbO<0.5%. These products are technically lead free. In the production of these materials, we do not use raw materials with lead as a main or minor constituent. However, this does not exclude lead as trace constituent. Our production process is designed to avoid contamination with lead containing products. Chemical analysis show PbO contents significantly below 0.5 %, in general.

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