FERRO
Where innovation delivers performance™

# Technical Information

Performance Colors & Glass

## 731 Series Lead-Free and Cadmium-Free Onglaze Metallic Ceramic Colors for the Decoration of Porcelain, Bone China, Vitreous China and Earthenware

**Product Codes and Color Shades**

| Product No. | Color | Product No. | Color |
|---|---|---|---|
| **137311** | Light gold yellow | **157314** | Silver white |
| **137312** | Gold yellow | **157315** | Silver grey |
| **137314** | Intensive gold yellow | **167311** | Yellow brown |
| **157311** | Silver white | **167312** | Red brown |
| **157312** | Silver grey | **177312** | Iron red |

**Heavy Metal Release**
Colors in this Series are controlled lead-free and Cadmium-free with controls in place to maintain upper limits of 600 ppm lead and 100 ppm cadmium. Ferro maintains and manages the heavy metal limit through careful monitoring of raw materials combined with accurate processing and continuous precise quality control. All colors in the 731 Series meet the limits for heavy metal release in accordance with California Prop. 65 if fired correctly.

**Application**
Colors in this Series have excellent processing properties in all conventional decorating methods including direct and indirect screen printing, and hand painting/brushing application.

**Screen Printing**
For screen printing, we recommend polyester screens with 70-105 threads/cm (180-270 mesh/inch).

**Spraying**
Color suspensions for spraying can be made with water-soluble or oil-based medium.

**Machine Lining and Banding**
Color suspensions applied via brushes, steel- or neoprene-rollers are generally based on water-soluble media.

**Miscibility**
731 Series colors are intermixable, providing a large palette of tones if mixed with 781 series colors. Testing is recommended under individual conditions before batch printing.

**Firing**
The best firing temperature is related to glaze. We recommend 760-800℃ except 157314 and 157315 which requires a little higher temperature about 780-830℃ to get better color stabilities.

**Color Deposit**
The maximum color deposit after firing, depending on the glaze and the firing temperature etc.
Too thick color deposit may cause blistering. We recommend the customer to do the trials prior to production.

**Chemical Resistance**

The chemical resistance of the fired color layers is influenced by the color deposit, the firing conditions and the glaze etc.

The colors do not show a visible attack with 4% acetic acid solution (22±2℃,24h) as well as with 5% sodium carbonate solution (60±2℃,32h).

**Storage**

The colors should be stored in a dry place. Opened containers should be closed carefully. To ensure that the colors have not absorbed any humidity, we recommend drying the color powder at approx.130℃ prior to pasting.