

Technical Information



721 Series Low Metal Release Resistant Onglaze Ceramic Colors for the Decoration of Porcelain, Bone China, Vitreous China Earthenware

Product Codes and Color Shades

Product No.	Color Shade	Pantone® Code ¹
117211*	yellow green	376C
117213*	Christmas green	356C
117214	dark green	328C
127210	blue	2905C
127211	cyan	314C
127213	cobalt blue	293C
137210	light yellow	106C
137211*	cadmium yellow	116C
137212*	orange yellow	151C
147211	black	419C
157211	grey	430C
167211	ochre	1385C
167212	brown	174C
167213	dark brown	476C
177210	pink	203C
177211*	orange red	021C
177212*	light red	1788C
177213*	red	1795C
177214*	dark red	200C
177215*	dark red	201C
177217*	light red	1788C
177218*	red	1795C
177218M*	red	185C
177219*	dark red	200C
177216	iron red	484C
777170	pink	182C
777221	pink	1905C
777222	pink	210C
777223	pink	183C
777171	peach	189C
777171A	Peach	190C
777172	pink	204C
777173	purple	205C
777174	purple	207C
777175	dark purple	202C

727211	purple blue	2756C
107211	mixing flux	
197211	mixing white	
197212	opacity white	
197213	opacity white	

*Denotes cadmium-containing colors

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¹ The above mentioned **Pantone®** code is only a guideline for the color shade

Heavy Metal Release

All colors of the 721 Series fulfill the heavy metal release limits of QB/T2455-2011 under proper testing conditions. The release of heavy metals is primarily influenced by the glaze composition, the firing conditions, and the color deposit etc. Heavy metal release might be increased if layers are too thin, if the firing temperature is too high or if the firing cycle at peak temperature is too long. It is recommended that metal release testing to be conducted according to the relevant standard procedures for all products manufactured under this technical production conditions.

Application

Colors in the 721 Series have excellent processing properties in all conventional decorating methods including direct and indirect screen printing and hand painting/brush application

Screen Printing

Cadmium containing yellow and red colors:

We recommend polyester screen 195-270 mesh/inch.

For purple colors:

We recommend polyester screen 270-355mesh/inch

Other colors:

We recommend polyester screen 195-300mesh/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

All 721 Series colors with the exception of the cadmium containing colors are generally intermixable. The cadmium containing colors can only be mixed with one another, but not with cadmium free colors

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or with a flux. In any case, we recommend to test mixtures under the specific processing conditions prior to use.

The new cadmium red 177217,177218,177219 have wider firing range and more stable color shade than that of 177212,177213,177214.

Opacity white 197213 is more suitable as under-layer for cadmium containing colors.

Firing

The best firing temperature is related to glaze and firing cycle etc. We recommend as follows:

Porcelain, Stoneware: 780-830°C/60-90min with soaking time 10min.

Bone China, Earthenware and Vitreous China: 750-800°C/60-90min with soaking time.10min.

Bone China for fast firing: 850-900°C/25-40min.

Tile: 830-900°C/25-40min. Based on glaze composition and size of tiles etc..

Color Deposit

The maximum color deposit after firing, depending on the glaze and the firing temperature. 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°C,24h) as well as with 5% sodium carbonate solution (60±2°C,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°C prior to pasting.