

# Resistant Onglaze Colors Series P 80

(Firing Temperature 780 – 900°C)

## General information

The onglaze colors of the Series P 80 have been developed especially for porcelain.

Firing range:

800°C – 900°C  
750°C – 880°C

Porcelain  
Bone China / Fine China

The colors show a high intensity, a homogenous color surface and a high level of gloss after firing. There is also a good mechanical and chemical resistance of fired decorations.

The maximum color value deviation  $\Delta E$  of 1,6 (Hunter) is a characteristic of high quality.

Usually we deliver our colors as powder. Standard unit: 5 kg

If the customer wishes, he can get the colors also ready for spraying, screen printing, tampon printing or in thermoplastic form.

## Characteristics of the powder colors

Particle size diameter is for 95% lower than 20 µm.

### Heavy metal content

The colors of this Series are containing lead, but are free from cadmium. That means their cadmium-content is lower than 100 ppm. The only exceptions are of course the colors marked with **Cd-**.

### Miscibility

P 80 colors are miscible within the Series.

Please note that the colors containing cadmium (**Cd-**) are an exception, as they are only to a certain extent miscible with cadmium-free colors.

The miscibility of the purple colors has to be tested individually.

## Characteristics of the fired colors / Resistance

The properties of the fired colors depend significantly on the glaze into which the color is burnt. Therefore the information given in this technical data sheet has to be seen only as guideline. The tests for resistance have to be carried out by each customer in dependence on the glaze.

### Heavy metal release

All colors of the Series P 80 comply with the limit values of DIN EN 1388-1-2.

### Resistance to acids

The fired decoration is exposed to a vinegar suspension for 24 hours. After that the stability of the decal's gloss and color are tested. P 80 colors are for the most part stable concerning gloss and color intensity. This, however, depends on layer thickness, firing conditions and glaze.

### Dishwasher durability

The colors / decorations show a good durability in industrial dishwashers. As there is a variety of test conditions (dishwasher types and washing-up liquids as well as firing conditions and glaze) it is always necessary to carry out an individual test.

### Printing conditions

The following details are only a recommendation. The exact ratio has to be adjusted by the printer himself, depending on the medium and the kind of decoration.

The existing sample decals have been produced under the following conditions:

Pasting ratio:      Color powder      10 parts  
                              Medium                    6,5 - 8 parts

Screen fabric:      Steel screens      200 mesh/inch

In principle all media and cover coats are applicable in combination with the colors.

As flux for overprinting we recommend: P 80 100

As flux for overprinting and mixing Cd-colors we recommend: P 80 100

Concerning the color layer a maximum thickness of 25 µm has to be observed before firing to avoid cracks and chips.

### Four-color process

	With Cd-colors	Without Cd-colors
<b>Yellow</b>	P 80 276 Cd-Yellow	P 80 261 Intensive-Yellow
<b>Purple</b>		P 80 677 Magenta
<b>Red</b>	P 80 374 Cd-Red	
<b>Cyan</b>	P 80 561 Azure, P 80 591 Cyan	P 80 561 Azure, P 80 591 Cyan
<b>Black</b>	P 80 956 Black	P 80 956 Black
<b>Flux</b>	P 80 100 Flux	P 80 100 Flux

### Firing conditions

The colors can be fired at temperatures between 780°C and 900°C.

Firing temperature and firing time have to be adjusted to the substrate material, the glaze and the kiln.

## Storage

The color powders have to be stored in a dry place, in sealed containers. When they are processed with oily media the powders have to be completely dry. If powders have absorbed humidity this leads to cheesy pastes that cannot be processed perfectly.

## Safety

Ceramic colors are chemical products. Special safety guidelines of the Ordinance on Hazardous Substances and the pictographs on packaging and safety data sheets have to be observed.

## Information

The information of this publication is based on our current knowledge and experience. In view of the variety of factors that may influence the processing and application of our products, this information does not release the processors from the responsibility of carrying out their own tests and experiments. Neither does it imply any legally binding assurance of certain properties or of suitability for a special purpose. It is the responsibility of those to whom we supply our products to ensure that any proprietary rights and existing laws and legislation are observed.

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