



**Version: 28.Feb. 2008**

**Semi Resistant Glass  
Colours Serie "W"**

Firing Range: 540 – 600°C

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**General Information**

The colours of series „W“ are suitable for outside decorating of:

Drinking glasses (For drinking glasses, it is necessary to keep 20 mm of lip and rim area free of decoration),  
printed labels for single-trip bottles (for example cosmetic phials),  
packaging glasses (for instance ampoules)

which allow a firing temperature of 540 – 600 ° C.

The semi resistant glass colour range has a higher resistance to detergents compared with the Universal Glass Colors.

The thermal extension coefficient (COE) is:  $80 - 90 \times 10^{-7} / K$ .

On glasses, with a COE smaller than  $60 \times 10^{-7}/K$ , the colours tend to cracking or flake off.

The colours contain Lithium – they should not be used for the decoration of bottles with are filled with liquids under pressure (Carbondioxide containing drinks).

**Resistance**

Important for the resistance is a fired surface with a fully gloss finish.

The colours have little resistance to acid  
(DIN 51 031 – 4 % acetic acid 22 ° +/- 2 ° C - 24 hours).

Consider a release of lead of 40 – 400 mg per dm<sup>2</sup> per colour surface.

To detergents the colours prove a medium resistance  
(test in a 1 % Tri-Sodium-Phosphate-dilution at 100 ° C - 30 minutes).  
The colours will be obviously matted, however, not deeply destroyed.

The colours are sensitive to hydrogen sulphide coming from the environmental air or from packing material.

**Miscibility**

The colours of series „W“ are widely intermiscible among each other.

It is possible to mix the cadmium containing colours with the cadmium-free colours, but that does not develop ideal appearances.

**Please Note:**

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For the process of intermixing the colours from the two different groups, it is absolutely required to make tests before starting production.

### **Firing**

The colours can be fired within the range of temperature of 540 – 600 ° C.

The firing temperature and the firing-time have to be adjusted to the particular object to be decorated and to the type of kiln.

In each case you have to adjust the firing temperature, object temperature and firing cycle to the items to be decorated and to the type of kiln.

In the temperature up to about 450 ° C – in which organic media and covercoats decompose – the kiln should exhaust very effective. A fast increase of temperature, short peak time and a slow cooling down is advantageous to the glasses.

### **Processing**

The following decorating auxiliaries are suitable:

#### **Application by Brush:**

a)

Turpentine oil and 0000/3 Dammar Laquer or 21 new Bodied oil

Mixed with 0405 Screen printing medium

(here used as painting oil), addition according to the need

b)

Paste for screen printing (based on oil 0405)

to be thinned with turpentine oil until you reach a paintable consistency, addition according to the need

c)

0509 Screen printing medium, compatible with water:

Pasting ratio:

Colour powder: 65 – 70 weight units

Oil: 35 – 30 weight units

has to be thinned with water

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**Lining:**

0513 Lining medium, compatible with water

Orientation recipe:

Colour: 100 g  
Oil 0513: 32 g  
Water: 60 g

**Spraying:**

0000/2 Spraying oil

Preparation:

Colour powder: 60 – 70 weight units

Spraying oil: 40 – 30 weight units

Grinding, for instance in a ball mill.

For preparing colours for spraying, the colour powder has to be completely dry.

Even little moisture having been attracted during storage, will lead to „cheesy“ pastes, which can no longer be processed perfectly. Therefore – before preparing them - we recommend to dry the colour powders at 120 ° C.

**Direct Screen Print Process:**

a)

0405 Screen printing medium

Ratio of pasting:

Colour powder: 65 – 70 weight units

Oil: 35 – 30 weight units

b)

0509 Screen printing medium, compatible with water

Ratio of pasting:

Colour powder: 70 – 75 weight units

Oil: 30 – 25 weight units

c)

0492 Thermoplastic medium

Pasted ready for screen printing

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Recommended screens:

Polyester: 77 – 120 threads/ cm

Steel: 165 – 250 mesh

according to the decoration and colour

**Indirect Screen Print Process (decals)**

a)

0465 Screen printing oil for transfers

for manual and semi-automatically processing

b)

0782 and 0782 thix Screen printing medium, fluid or thixotropic, for transfers

for fully automatically process printing

c)

0728 Screen printing medium, fluid

For manual and automatic printing

Ratio of pasting:

Colour powder: 65 – 70 weight units

Oil: 35 – 30 weight units

Recommended screen:

Polyester 77 – 120 threads/cm

Steel: 220 – 300 mesh

according to the decoration and colour

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**Covercoats:**

a)

0433 Covercoat

for manual and semi-automatically process printing

b)

0601 and 0601 thix Covercoat

for fully automatic printing

c)

0506 Antiblock covercoat

Recommended screen:

Polyester 30 threads/cm (HD)

**Forms of Delivery**

Powder: Minimum purchase quantity per colour shade: 5 kg

Pastes for screen printing: Minimum purchase quantity per colour shade: 5 kg

Thermoplastic pasted: Minimum purchase quantity per colour shade: 25 kg

**Storage**

Colour powder grants the advantage of unlimited durability, if stored in dry condition. The powders are a little bit hygroscopic.

Before being processed with oily media, they should by all means be dried at a temperature of about 120 ° C, because a content of little more than 0,1 % water will lead to „cheesy“ pastes. In this case they can no longer be perfectly printed, because they become thick.

Please take care to disperse the colour powder with the medium homogenously.

In mixing the powder with the medium, small colour lumps will still remain. Therefore please use a three roll mill or dissolver.

Even in closed vessels the pastes for screen process printing have only a limited shelf-life. We advice to store the pastes in cool and dry environment.

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**Security Advices**

Because ceramic colours are chemical products, for processing them you have to consider specific security advices according to the danger substance decree.

The informing stickers give notice about the respective dangers („R“- and „S“-sentences). The colours are lead-containing.

While processing it is most important to obey the hygienic precautions such as:

- Do not eat, drink or smoke while being at work.
- Do not inhale dust.
- Keep it away from food-stuff, beverage and fodder.
- In case of contact with skin: Wash off and rinse with water and soap.
- If having inhaled: Rinse mouth with cold water.

For more information please contact us or ask for a Material Safety Data Sheet. (MSDS).

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