



<p>Tech. Information Version: 28.Feb.2008</p>	<p>Unleaded Glass Colours Range "BG" Firing Range 580 – 620°C</p>	<p>Page: 1/5</p>
---	--	--------------------------------------

General information

The Colours of this series are manufactured without using compounds of lead, cadmium or lithium – except the 5 yellow-/red-tones of which the glaze stains contain cadmium

Those types of colours, which do not contain cadmium pigments, keep the limits of the EU packaging guidelines, having come into force on the 1st of July 1998.

Before starting a production of decorations, which consist of cadmium (Cd) pigmented colours or of a combination of the two pigment systems, you should check their compliance with the EU packing regulations.

„BG“ colours are suitable for the decoration of flat glass and hollow ware (drinking glasses, bottles, cosmetic pots, OPC points, inscription of ampoules).

The product range consists of 24 colour tones, of which 5 do contain cadmium. The cadmium concentration is approximate 10% (Cd).

Miscibility

The colours can be mixed among each other.
 Before intermixing Cd-containing colour types with cadmium-free ones, you should carry out advance tests under factory specific conditions

Resistance

The flux of the range BG based on zinc-boron-silicate. Therefore the colours of the palette „BG“ have a weak resistance against acids and alkali. That’s why the cadmium pigments inside of the 5 cadmium containing BG colours can be leached out.
 As an option we can offer the cadmium free yellow orange BG 7320.

Coefficient of Thermal Expansion (CTE)

Depending on the colour tone the coefficient of thermal expansion is at the average 20 – 400 ° C at 90 – 100 x 10⁻⁷

<p>Please Note: The informations in this leaflet are based on our current knowledge and experience. This description does not release the users from examinations and tests of their own because of uncountable possible influences, when using and applying the products in connection with every other material being involved in the production. It can not be deduced a legally obliged assurance for specific characteristics or for the aptitude of a definite usage purpose. The receiver of our products has to observe by his own responsibility probable protecting rights as well as existing laws, rules and regulations.</p>	<p>Rüger & Günzel GmbH Dornhofstrasse 71 D 63263 Neu-Isenburg Tel: +49(0)6102-812940 Fax: +49(0)6102-8129440 E-Mail: info@rgfarben.de</p>
---	--



<p>Tech. Information Version: 28.Feb.2008</p>	<p>Unleaded Glass Colours Range "BG" Firing Range 580 – 620°C</p>	<p>Page: 2/5</p>
---	--	--------------------------------------

Firing

The firing range of the colours is between 580 ° C and 620 ° C.

An oxidizing firing atmosphere is advantageous for the development of the colour shades.

The higher the firing temperature the more brilliant the colour surfaces will look.

The type of used firing aggregate (box kiln, continuous furnace) in combination with the entered firing parameters have an essential influence on the burning result und should be optimized by burning tests.

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 in fast firing at 620 – 660 ° C within a short residence time and at highest temperature, exfoliations might arise, because of stress differences being not annealed.

Processing

„BG“ colours are suitable for all current decorating procedures and offer excellent processing properties because their fine particle-size.

To achieve best results either for the direct or for the indirect screen process printing, the colour pastes should be homogenized in a three-roll mill. For a high gloss the colours should be applied in a thick layer.

The thickness of layers (films) and the appearances of shades of ceramic colours depend on different factors such as the thickness of the silk-screen, technique of the screen stencil, hardness of shore, angle of setting of the squeegee, composition of colours and so on.

Therefore the stated dates can only be considered as guide values und should be checked by tests of your own.

Please Note:

The informations in this leaflet are based on our current knowledge and experience. This description does not release the users from examinations and tests of their own because of uncountable possible influences, when using and applying the products in connection with every other material being involved in the production. It can not be deduced a legally obliged assurance for specific characteristics or for the aptitude of a definite usage purpose. The receiver of our products has to observe by his own responsibility probable protecting rights as well as existing laws, rules and regulations.

Rüger & Günzel GmbH
 Dornhofstrasse 71
 D 63263 Neu-Isenburg
 Tel: +49(0)6102-812940
 Fax: +49(0)6102-8129440
 E-Mail: info@rgfarben.de



<p>Tech. Information Version: 28.Feb.2008</p>	<p align="center">Unleaded Glass Colours Range "BG" Firing Range 580 – 620°C</p>	<p align="right">Page: 3/5</p>
---	---	---

The following decorating auxiliaries are suitable for application:

Direct Screen Print Process:

- a)
0405 Screen printing medium
0480 Screen printing medium
(for example: OPC points)

Ratio of pasting:

Colour powder: 60 – 65 weight units
Oil: 40 – 35 weight units

- b)
0492 Thermoplastic medium

Pasted in wax medium ready for screen process printing

Indirect Screen Print Process (decals):

- a)
0782 and 0782 thix Screen printing medium, fluid and thixotropic

Ratio of pasting:

Colour powder: 55 – 60 weight units
Oil: 45 – 40 weight units

- b)
0728 Screen printing medium, fluid

Ratio of pasting:

Colour powder: 55 – 60 weight units
Oil: 45 – 40 weight units

Recommended screens:

Polyester: 43 – 90 threads/ cm
Steel VA: 220 – 300 mesh

According to the decoration and colour

Please Note:

The informations in this leaflet are based on our current knowledge and experience. This description does not release the users from examinations and tests of their own because of uncountable possible influences, when using and applying the products in connection with every other material being involved in the production. It can not be deduced a legally obliged assurance for specific characteristics or for the aptitude of a definite usage purpose. The receiver of our products has to observe by his own responsibility probable protecting rights as well as existing laws, rules and regulations.

Rüger & Günzel GmbH
Dornhofstrasse 71
D 63263 Neu-Isenburg
Tel: +49(0)6102-812940
Fax: +49(0)6102-8129440
E-Mail: info@rgfarben.de



<p>Tech. Information Version: 28.Feb.2008</p>	<p align="center">Unleaded Glass Colours Range "BG" Firing Range 580 – 620°C</p>	<p align="right">Page: 4/5</p>
---	---	---

Covercoats:

0601 or 0601 thix Covercoat

Recommended screen:

Polyester 30 threads/ cm

Forms of Delivery

Colours in powder form: Minimum purchase quantity per colour shade: 5 kg

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

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

Security Advices

Because ceramic colours are chemical products, for processing them you have to consider specific security advices.

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 rerinse 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).

Storage

Colour powder grants the advantage of unlimited durability, if stored in dry condition.

The powders are a little bit of water-attracting (hygroscopic).

Before being processed with oily media, they should absolutely be dried at a temperature of about 120°C, because a content of little more than 0,1 % moistness leads 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.

<p>Please Note: The informations in this leaflet are based on our current knowledge and experience. This description does not release the users from examinations and tests of their own because of uncountable possible influences, when using and applying the products in connection with every other material being involved in the production. It can not be deduced a legally obliged assurance for specific characteristics or for the aptitude of a definite usage purpose. The receiver of our products has to observe by his own responsibility probable protecting rights as well as existing laws, rules and regulations.</p>	<p>Rüger & Günzel GmbH Dornhofstrasse 71 D 63263 Neu-Isenburg Tel: +49(0)6102-812940 Fax: +49(0)6102-8129440 E-Mail: info@rgfarben.de</p>
--	---



Rüger & Günzel GmbH
Keramische Farben•Lacke•Siebdruckmedien
Ceramic Color-Covercoats-Printing-Media

Cabro
Edelmetallchemie
Precious Metals Chemistry



Tech. Information Version: 28.Feb.2008	Unleaded Glass Colours Range "BG" Firing Range 580 – 620°C	Page: 5/5
--	--	---------------------

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 you to store the pastes under cool conditions.

Colour Samples

For the purpose of tests please request samples from us.

Please Note:

The informations in this leaflet are based on our current knowledge and experience. This description does not release the users from examinations and tests of their own because of uncountable possible influences, when using and applying the products in connection with every other material being involved in the production. It can not be deduced a legally obliged assurance for specific characteristics or for the aptitude of a definite usage purpose. The receiver of our products has to observe by his own responsibility probable protecting rights as well as existing laws, rules and regulations.

Rüger & Günzel GmbH
Dornhofstrasse 71
D 63263 Neu-Isenburg
Tel: +49(0)6102-812940
Fax: +49(0)6102-8129440
E-Mail: info@rgfarben.de