Technical Information

DF42

Performance Coatings

Saphira – Transparent glass colors

In this technical information, Vibrantz presents the **Saphira Series**. The series includes 21 lead-containing colors for glass decoration.

The available colors are listed in table 1 and figure 1.

Application

The colors of the **Saphira Series** have excellent processing properties in all conventional decorating methods like screen printing (direct and indirect), spraying and brush application. For cleaning of equipment and screens, we recommend cleaning oil 80 452.

Screen printing (Direct and indirect)

We recommend polyester screens with 68 - 90 threads/cm (175 - 230 mesh/inch) or stainless-steel screens VA with 220 – 300 mesh/inch.

For further enhancement of opacity and color intensity, a white underlayer may be printed first. For this purpose 19 33130 is perfectly suited.

Media

For all standard methods, Vibrantz offers suitable media and covercoats. Further detailed technical information can be found in our **CerDePrint Media Guide**.

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 mixing.

Miscibility and compatibility

The colors may be mixed with each other in any desired ratio. Regarding mixtures with other colors of this series, we recommend performing tests to ensure the firing stability of the mixed shades. The gold- and silver-free colors are all intermixable. The transparent flux 10 104 may be added to every color for obtaining lighter shades and ensures fire resistance up to 600° C.

Surface treatments like tin or titanium can influence the final color shade, depending on the coating type.

Firing conditions

The firing temperature range is between 540 and 580 °C.

When a higher transparency is desired, higher temperature is recommended wherever possible. By adding 10-20% of flux 10 104, the firing temperature can increase by approximately 20 °C. Purple color shades are strongly influenced by the firing temperature.

The optimum firing result depends on the firing temperature, total firing time, soak time and glass type. For indirect printed decals a heating time of 120 minutes is recommended. Customers should check under their individual conditions to achieve an optimized firing result.

Expansion coefficient

The expansion coefficient of the colors lies between 100 and 120 x 10-7/K.

Acid and alkali resistance

The alkali and acid resistance of fired color layers is influenced by the thickness of the layer and the firing conditions. The colors of the **Saphira Series** are not resistant to acids and alkalis (tested with 4% acetic acid, 22 °C, 5 h, as well as with 0.5 % calgonite solution, 77 °C, 16 h).

Heavy metal release and heavy metal content

The colors of the Saphira Series are lead-containing and do not fulfill the limits of the EN 1388 1-2 standard.

Figure 1: The available colors of the Saphira Series


71 31604 Turquoise blue


71 31605 Turquoise


71 31606 Grass green


71 31607 Yellow green


12 31601 Cyan


12 33602 Blue


12 31603 Cobalt blue


73 31608 Silver yellow


73 31609 Yellow orange


73 31610 Orange


77 31611 Antique red


77 31612 Pink


77 291 Rose purple


78 149 Violet


15 31613 Grey


14 31125 Black


76 31614Brown


19 33130 White

These colors available at PELI Glass (subject to change)

Table 1: The colors of the Saphira Series

Product no.	Color shade	Pantone® code[1]
71 31604	Turquoise blue	P3273
71 31605	Turquoise	P3278
71 31606	Grass green	P328
71 31607	Yellow green	P367
12 31601	Cyan	P2935
12 33602	Blue	Reflex blue
12 31603	Cobalt blue	P2728
73 31608	Silver yellow	P3955
73 31609	Yellow orange	P157
73 31610	Orange	P1575
77 31611	Antique red	P1795
77 31612	Pink	P219
77 291	Rose purple	P 227 C
78 149	Violet	P 2597 C
15 31613	Grey	P423
14 31125	Black	Black C
76 31614	Brown	P 470 C
19 33130	White	
19 33166	Silk matting	
10 31022	Flux	
10104	Mixing stability flux	

[1] The above mentioned Pantone code is only a guideline for the color shade. Pantone is a registered trade mark of Pantone Inc.