

# Lead-Containing System Technical Data


 Performance Colors & Glass

## PR System

### Main Market Use

These enamels are specially designed for the decoration of borosilicate glasses.

### Chemical Composition

Colors in this System contain lead, cadmium and lithium

COLOR	REFERENCE	Pantone
GREEN	PR 106	349 C
BLUE GREEN	PR 109	323 C
ULTRAMARINE BLUE	PR 113	2945 C
ROYAL BLUE	PR 108	Reflex Blue C
BLUE	PR 102	2727 C
YELLOW	PR 107	012 C
ORANGE	PR 101	021 C
MEDIUM RED	PR 100	186 C
DARK RED	PR 118	200 C
BROWN	PR 105	470 C
BLACK	PR 112	
WHITE	PR 104	

*The Pantone references and color prints are provided as an indication of the shade only.*

*The above mentioned references are randomly selected color shades, please contact your respective Ferro Technical Service to get more information on further available colors.*

*The above mentioned references refer to the powder form only. If you want the thermoplastic paste, liquid paste or spraying form, make sure to add the suitable name of the medium – mentioned on page 5 - at the end of the reference.*

These colors are intermixable. We recommend performing preliminary tests before launching production with color mixtures from this System. Additional colours are available on demand.

Our technical service teams also offer a full custom-color matching service.

### Expansion Coefficient (C.o.E.)

Avgc C.o.E. measured on the basic frit System is 57 (+/- 4).10<sup>-7</sup>K<sup>-1</sup>.

The enamels are specially formulated for application onto borosilicate glass and they should be tested for suitability to the expansion of the glass to be decorated. The 'fit' of these enamels is also dependent on application weight and to avoid microcracking or fracture problems, they should not be applied too thickly.

### Recommended Firing Conditions

From 620°C to 640°C in a long cycle; from 630°C to 700°C in a short cycle. Tests are recommended.

### Chemical Resistance

Norm EN 1388-2 (tests on the basic flux system in laboratory conditions)

- lead release is < 10 mg/dm<sup>2</sup> of the decorated surface.
- Cadmium release is < 1 mg/dm<sup>2</sup> of the decorated surface.

Acid resistance: 4

Alkali resistance: 4

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