

# Lead-Containing System Technical Data



## VS System

### Main Market Use

These enamels are intended mainly for the decoration of tumblers, but are also used for cosmetic and perfume bottles.

### Chemical Composition

Colors in this System contain lead and cadmium.

COLOR	REFERENCE	Pantone
DARK GREEN	VS 327	
GREEN	VS 321	362 C
ROYAL BLUE	VS 300	2727 C
COBALT BLUE	VS 302	2747 C
BLUE	VS 3318	299 C
YELLOW	VS 68.59	109 C
LIGHT RED	VS 370	1795 C
DARK RED	VS 372	187 C
ORANGE	VS 361	151 C
BROWN	VS 73.59	483 C
BLACK	VS 384	
WHITE	VS 390	
FLUX	VS 730	
ETCH	VS 392	

*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.)

This system is suitable for most chemical compositions used in the production of soda-lime glass bottles.

### Recommended Firing Conditions

From 580°C to 600°C in a cycle of 1 h-1.5 h with a soaking period of approx.10 min, dependent on both the type of furnace and the volume of ware fired.

### Chemical Resistance

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

- lead release is < 25mg/ dm<sup>2</sup> of the decorated surface. Exception is VS 302 cobalt blue, with a lead release of c. 60 mg/dm<sup>2</sup> of the decorated surface.
- Cadmium release is < 3 mg/dm<sup>2</sup> of the decorated surface.

Acid resistance: 4

Alkali resistance: 5

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