

# VS System

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## 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
ROYAL BLUE	VS 300	2727
COBALT BLUE	VS 302	2747
BLUE	VS 3318	299
YELLOW	VS 68.59	109
LIGHT RED	VS 370	1795
DARK RED	VS 372	187
ORANGE	VS 361	151
BROWN	VS 73.59	483
BLACK	VS 384	
WHITE	VS 390	
AcE IMITATION ETCH	VS 392	

The Pantone references are provided as an indication of the shade only.

These colors are intermixable. We recommend performing preliminary tests before launching production with color mixtures from this System, especially for combinations of red or yellow cadmium-containing colors (**marked \***) with any other colors.

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 (1075-1110°F) in a cycle of 1 h-1.5 h with a soaking period of approx.10 min, dependant 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