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# GENERAL PRODUCT SPECIFICATIONS

## VitraSign Vitreous Enamel Steel Signs

(Document Reference CC/GPS/SIGN/01 Rev. 1 April 2010)

(E&OE - Document and content subject to change without prior notice)

Vitreous enamel provides an ideal medium through which practical as well as artistic solutions such as signs, graphics, company logos and murals can be incorporated into the design of a facilities and buildings.

Vitreous enamel signs are particularly suited where specifiers require strong colours and a high level of weather and vandal resistance.

Large sign panels carrying multi-coloured graphics can also be used to brighten the environment, public places, schools and work areas.

Although various application techniques can be adopted depending on the complexity of the artwork and the detail required, in general however, each successive application of enamel screening paste for the image is individually fired through the furnace at a temperature of around 740<sup>0</sup> C, which is some 60<sup>0</sup> C lower than the firing temperature of the base coat enamel. The base enamel becomes soft and there is fusion between the enamel of the image and that of the panel. The images and text therefore form an integral part of the enamel surface and are permanent in nature.

Vitreous enamel signs have been successfully used in a variety of applications:

- Hydrological (Dam Level Water Indicators).
- Stations, Harbours, Airports and Tunnels.
- Electrical Equipment (High Voltage) Installations.
- Sports Stadiums and Sporting Venues.
- Mines.
- Coastal Installations.
- Factories, Manufacturing Plants and Industrial Buildings.
- Parks and Recreational Facilities.
- Road Signs and Address Markings.
- Decorative Purposes for Appliances and Cookware.
- Educational Institutions.



Member of the Institute  
of Vitreous Enamellers (IVE)

ISO 9001:2000 accredited  
Quality Management System



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VitraSigns are generally produced by incorporating the enamel graphics into:

- **Light Gauge Panels (C-Type or Composite Panel)** - Light gauge panels have a flush edge necessitating the introduction of extrusion edge covers and joints profiles. The thickness of the enamelling quality steel is 0.7 mm.
- **Heavy Gauge Panels (F-Type or Flanged Panel)** - Flanged panels have an integral return flange around the full perimeter of the panel. The thickness of the enamelling quality steel is 1.5 mm.
- **Heavy Gauge Plate** - Enamel steel sheets have a flush edge and in general through fixing holes complete with brass eyelets are provided to secure the sign in position. The thickness of the enamelling quality steel is 1.5 mm.

In general, our VitraSign enamelled steel signage panels would be manufactured in accordance with the following specifications:

CATEGORY	QUALITY REQUIREMENT	TEST REGULATION
Steel Quality	According to Standard	EN 10209
Enamel Thickness	Max. 0.5 mm	EN 1443
Spots, pores and cracks	Quality Standard	DEZ-MB 7.19
Adhesion	Rank 3	DEZ-MB 7.10.3, EN 10209
Resistance to Citric Acid	Class A	ISO 2722

Test certificates to cover the acid resistance of the enamels and material test certificates for the steel are available, whilst the other elements will be covered by our in-house quality control documentation (ISO 9001-2000 Dekra certified Quality Management System).

In addition to the above, we also have available a copy of the test report prepared by the South African Bureau of Standards on vitreous enamelled steel plates submitted by ourselves for testing.

Signs are a highly customized type of product, hence specific design solutions are required on each individual application.

*Please note therefore, that it is not possible to present detailed specification parameters beyond what has been noted hereunder and that it is vitally important to consult with our staff at the early design stages, to determine your exact requirements and to draw up a detailed specification document. In addition, we also recommend that at all times reference is to be made within the specification documentation to the relevant drawings and that these must be available at quotation stage.*

Please note that the use of **italics** in the text indicates the need for an appropriate selection to be made by the Specifier:

### **(1) VitraSign Light Gauge Signs:**

“Proprietary **VitraSign Light Gauge Vitreous Enamelled Steel Signs** consisting of:

#### **(1.1) Panel:**

- i. **Front Plate** - Front plate of 0.7 mm enamelling quality steel, enamelled to a standard Vitraclad enamel colour to front face and with standard vitreous enamel base coat to rear.
- ii. **Graphics** - Graphics to be in accordance with the details reflected on the accompanying Drawing No.'s \_\_\_\_\_ (*confirm details of the relevant drawings*) and Artwork Specifications Document Reference \_\_\_\_\_ (*confirm details of the relevant specification documents*). The graphics are to form an integral part of the enamel surface and are to be permanent in nature.
- iii. **Core** - Core of 12 mm Calcium Silicate.
- iv. **Back Plate** - Back plate 0.5 mm Galvanised Mild Steel.
- v. **Protection** - Vitreous enamel steel face of front plate to be covered with removable protective plastic foil.
- vi. **Edge Detail** - Square edge with no return flanges. Edge of the enamelled steel sheet to be cut prior to the enamelling process with no firing holes present through the use of micro tags. Panel edges to be fitted all round with a protective aluminium edge trim, polyester powder coated to a colour selected from the Vitrex Powder Coating Colours Schedule <sup>(1)</sup>.

#### **(1.2) Substructure:**

- i. **Panel Fixing Detail** - Cladding panels to be secured to a suitable sub-structure by means of proprietary brackets.
- ii. **Substructure** - Appropriate mild steel sub-structure complete with brackets and adjustment elements, all in a *painting (red oxide) / hot dip galvanised* finish, to be secured to *brickwork / reinforced concrete / structural steel*.

Panels to be manufactured in accordance with the European Normative Standard EN14431:2004 and the Vitrex ISO 9001:2000 certified Quality Assurance system.

The vitreous enamelled steel surface is to be guaranteed to perform specifically to the function for which it was intended, and to remain functionally unchanged for a period of fifteen (15) years, under the terms of the general VitraSign Guarantee.”

## (2) VitraSign Heavy Gauge Signs:

“Proprietary **Vitraclad Heavy Gauge Vitreous Enamelled Steel Signs** consisting of:

### (2.1) Panels <sup>(2)</sup>:

- i. **Fabricated Plate** - Front plate of 1.5 mm enamelling quality steel, vitreous enamelled to a standard Vitraclad colour to the front face and with standard vitreous enamel base coat to rear.
- ii. **Flange Returns** - Panels to have double return flanges (40 mm + 20 mm) all around. Outside radius of the return bend on the return flanges to be  $R_{\text{OUTSIDE}} = 3.6$  mm (finished or enamelled dimension).
- iii. **Graphics** - Graphics to be in accordance with the details reflected on the accompanying Drawing No.'s \_\_\_\_\_ (*confirm details of the relevant drawings*) and Artwork Specifications Document Reference \_\_\_\_\_ (*confirm details of the relevant specification documents*). The graphics are to form an integral part of the enamel surface and are to be permanent in nature.
- iv. **Core** - Core of 12 mm Calcium Silicate.
- v. **Back Plate** - Back plate of 0.5 mm galvanised mild steel.
- vi. **Protection** - Vitreous enamelled steel face of front plate to be covered with removable protective plastic foil.
- vii. **Edge Detail** - Panel edges taped all round with a pressure sensitive polyethylene cloth tape. Perimeter of core against return flanges sealed with silicone sealant.

### (2.2) Substructure:

- i. **Panel Fixing Detail** - Cladding panels to be secured to a suitable sub-structure by means of proprietary brackets.
- ii. **Substructure** - Appropriate mild steel sub-structure complete with brackets and adjustment elements, all in a *painted (red oxide) / hot dip galvanised* finish, to be secured to *brickwork / reinforced concrete / structural steel*.

Panels to be manufactured in accordance with the European Normative Standard EN14431:2004 and the Vitrex ISO 9001:2000 certified Quality Assurance system.

The vitreous enamelled steel surface is to be guaranteed to perform specifically to the functions for which it was intended, and to remain functionally unchanged for a period of fifteen years (15) years, under the terms of the general VitraSign Guarantee.”

## **(2) VitraSign Heavy Gauge Plate Signs:**

“Proprietary **VitraSign Heavy Gauge Vitreous Enamelled Steel Plate Signs** consisting of:

- i. **Plate** - 1.5 mm enamelling quality steel, vitreous enamelled to a standard Vitraclad colour to the front face and with standard vitreous enamel base coat to rear.
- ii. **Graphics** - Graphics to be in accordance with the details reflected on the accompanying Drawing No.'s \_\_\_\_\_ *(confirm details of the relevant drawings)* and Artwork Specifications Document Reference \_\_\_\_\_ *(confirm details of the relevant specification documents)*. The graphics are to form an integral part of the enamel surface and are to be permanent in nature.
- iii. **Protection** - Vitreous enamelled steel face of plate to be covered with removable protective plastic foil.
- iv. **Edge Detail** - Square edge with no return flanges. Edge of the steel plate to be laser cut and rounded prior to the enamelling process.
- v. **Fixing Holes** - Fixing holes to be fitted with suitable Brass eyelets.

Plates to be manufactured in accordance with the European Normative Standard EN14431:2004 and the Vitrex ISO 9001:2000 certified Quality Assurance system.

The vitreous enamelled steel surface is to be guaranteed to perform specifically to the functions for which it was intended, and to remain functionally unchanged for a period of fifteen years (15) years, under the terms of the general VitraSign Guarantee.”

### **(A) Specification Notes:**

*Refer to the numbered references in the specification text above.*

- (1) Please refer to the Vitrex Document Ref. CC/PPC/01 “Vitrex Powder Coating Colours for Aluminium Extrusions” for details of the available colours.
- (2) Please note that graphics can only be offered on flat (non-curved) panels.

### **(B) Technical Notes:**

- a. Details of the graphics to be incorporated in the design of the panels must be clearly specified and detailed in the tender documentation and all relevant artwork (positives) required for the preparation of the screening (graphics) must be made available by the Client, where applicable in accordance with their Identity Programme, and in an appropriate format (Corel Draw or Macromedia).

- b. The individual signs panels need to be identified, sized and specified in the BOQ documentation in terms of their type, size and graphics :
- i. VitraSign **Light Gauge / Heavy Gauge / Heavy Gauge Plate**  
Vitreous Enamelled Steel Signs  
**Width** mm wide x **Height** mm high complete with integral and permanent enamel graphics **(details of graphics)**  
Unit of measure = No.
- c. In addition to the standard Vitraclad colours for the background, where specific colours need to be matched in enamel, this is done in accordance with good enamelling practice, after ensuring that the colours are proven stable under production conditions and as close as technically possible to the required colour. In addition, specific enamel thickness requirements need to be met (ideally the overall enamel thickness should be  $\pm 300 \mu\text{m}$ ) and allowance must be made for two (2) cover coats, over and above the general ground coat (black). Colours are matched progressively on a trial and error basis. Please refer to the Vitrex Document Ref. CC/CM/01 "Colour Matching in Enamel" for further details.
- d. Our staff and Agents remain available to address any queries, provide project specific recommendations as well as to assist with sizing and take-offs from the relevant drawings. We would then also be in a position to draw up an itemised schedule and prepare a corresponding estimate for the proposed scope of work.