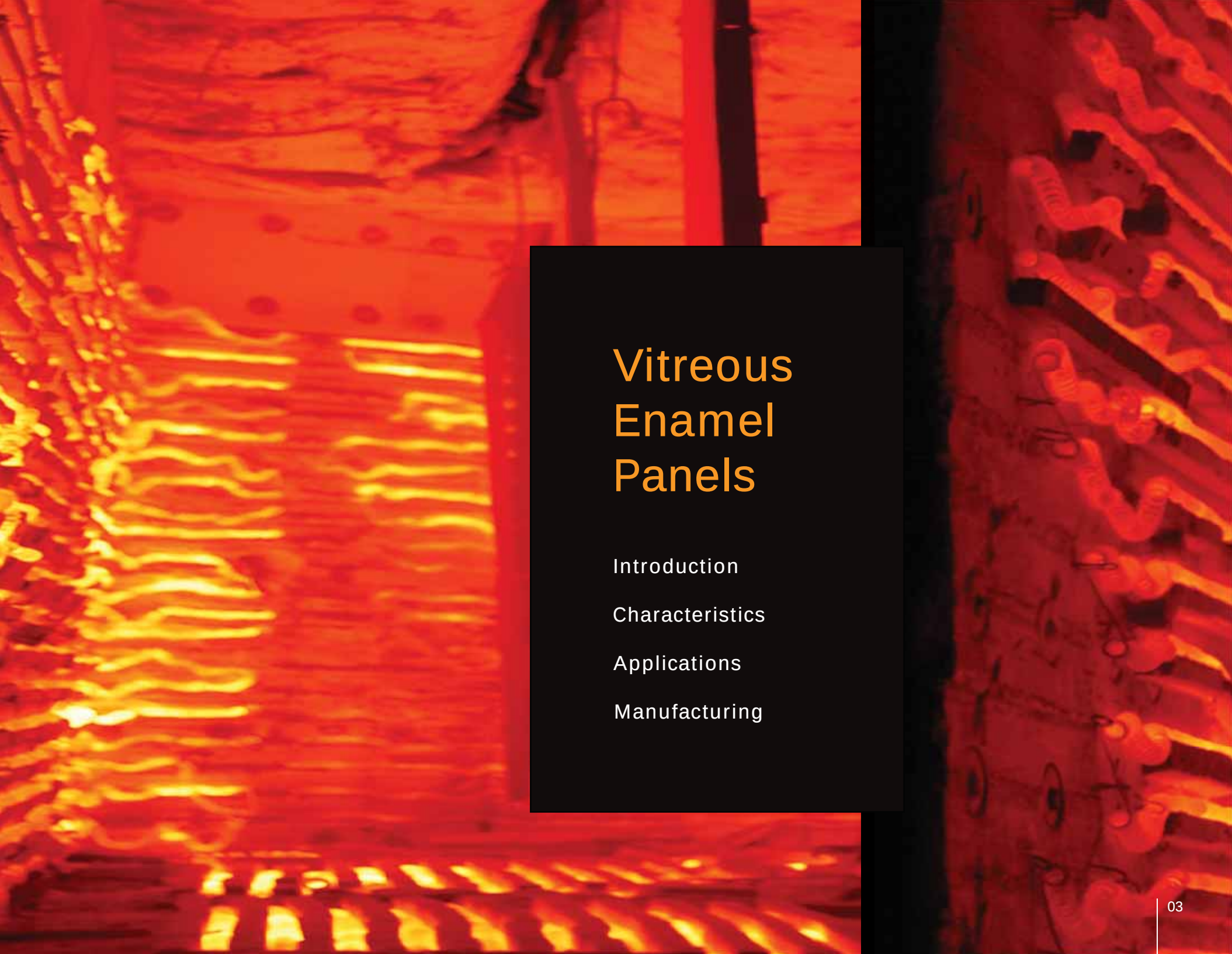
CERATEC

VITREOUS ENAMEL PANELS


長沙灣廣場
Cheung Sha Wan Plaza



Vitreous Enamel Panels

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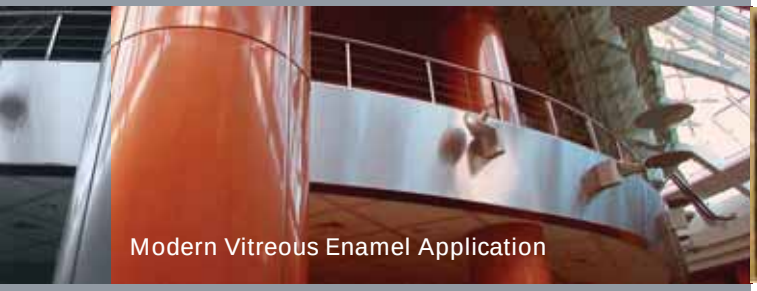
Introduction



Modern Vitreous Enamel Application

Old VE 1100 AD

Vitreous enamel is an extremely durable, high quality surface coating used to protect and beautify metal products. Ceratec uses the vitreous enameling process primarily for producing high quality architectural panels, signage and artwork. Vitreous enamel has a glass like appearance that is unique. No other surface coating looks like it or performs as well because VE is actually a type of glass fused to a metal substrate at 800ºC. Available in a wide range of colors VE has extreme UV resistance and can be applied to any shape.

Traditionally the art of vitreous enameling dates back 3500 years primarily for decorative purposes in art and jewelry design. Many of these antiques still exist in excellent condition today.

Performance Comparison

A comparison of vitreous enamel with major characteristics of other architectural finishing materials indicates why vitreous enamel is the material of choice for high quality architectural cladding systems:

	Vitreous Enamel Panels	Glass Reinforced Cement	Aluminium	Tiling	Natural Stonework
Color Retention	30 years +	Color fades after 5 years	Color fades after 5 years	20 years +	Color fades after 5 years
Chemical Resistant	Yes	Yes	No	Tiles Yes, Grout No	No
Abrasion Resistant	Yes	No	No	Yes	No
Fire Proof	Yes	Yes But Stains	No	Tile Yes, Adhesive No	No
Graffiti Resistant	Yes	No	No	Tiles Yes, Grout No	No
Impact Resistant	Yes	Yes	No	Yes but can be cracked	No
Ultra Violet Light Resistant	Yes	No	No	Yes, but grout will deteriorate	No
Anti - Bacterial	Yes	No	No	No	No
Scratch Resistance Moh Scale	5.5	3	3	5.5	3 - 6


Attractive | Durable | Versatile

Characteristics

A sustainable environment requires products that last both functionally and aesthetically.

High Gloss

Naturally a high gloss and non porous surface. Gloss levels range between 60% to 90%. It retains its gloss for the lifetime of the panel.

Unique Appearance

Glass like colors no other surface coating looks like it or performs as well.

Climate Resistance

High resistance to extreme weather conditions. Exposure to desert and coastal environments does not affect the performance or appearance.

Custom Shapes

Architectural panels, interior design items, 3D lettering and art forms are custom made to any shape from VE steel then vitreous enamel is applied and fused to the substrate at 800°C. Creative opportunities for designers and architects are excellent. Custom cut outs for lighting and fittings. Please enquire by sending your designs to us directly at: info@ceratec.com.hk

Abrasion Resistance

Vitreous enameled steel is unusually hard and has high lubricity. This combination makes it extremely resistant to abrasion. The surface hardness of a material is measured using the Moh scale of hardness. VE enamel has a rating of 5.5 making it significantly more resistant to damage from scratching than all metals or coatings currently used for cladding purposes. Aluminium or sheet steel, for example, is rated 3 on the Moh scale. It's why VE coating is also used for high quality white boards as well as water bearings and silo chute applications.

UV Light Resistance

Vitreous enameled steel is completely resistant to ultra violet light and the original colours and surface finish will not deteriorate under continuous exposure to sunlight.

VE Graphics

Extremely durable, high resolution graphics for signs, maps and art.. Vitreous enamel pastes are screen printed onto the base metal then fused at 800°C forming a VE Super Graphic with the same high performance ratings as any plain color VE finish.

All Colors

Vitreous enamel can be made in a wide range of colors including most commercial colors from the RAL and Pantone color ranges. Colors can also be matched to existing architectural finishes.

Economical

Vitreous enamel panels last much longer than other panels and are much less likely to get damaged. With a warranty of up to 50 years the long term cost benefits are significant and the panels maintain their appearance for their lifetime.

Sustainability

VE Coating increases the lifespan of the original steel many times over. Both the VE steel and the vitreous enamel coating can be recycled and re-used. Typical backing material is calcium silicate which contains no toxic ingredients and requires no harmful substances for production. VE retains its gloss levels and ability to reflect light for its lifespan therefore reducing lighting and energy usage in low light applications like tunnels.

Low Maintenance

Vitreous enamel is a non-stick, non porous finish making it resistant to dirt and extremely easy to clean with a mild soap solution.

Hygienic and Non-Toxic

VE is completely non porous therefore it does not absorb bacteria. Non static, it does not attract dust or allergens. Ideal for medical and other clean room environments.

Chemical Resistance

High resistance to most acids and alkalis. High resistance to sea spray makes vitreous enamel ideal for coastal and marine applications.

Fire Resistance

Vitreous enameled steel is highly resistant to heat and can withstand temperatures of around 500°C for prolonged periods with no damage to the coating. No toxic fumes emitted when exposed to fire. Vitreous enameled steel will withstand rapid cooling by water spray from +400°C to normal room temperatures over a 30 second period.

Graffiti Resistance

Vitreous enamel has a unique combination of characteristics that enables complete removal of paint or permanent markers using industrial strength solvents without damaging the VE color or surface.

Impact Resistance

The physical strength of the steel, coating and panel backing enable vitreous enameled panels to withstand deformation and damage due to impact during normal daily usage.

Sound Absorption

Use in tunnel lining for various reasons including excellent sound absorption properties.

Exteriors

custom shapes | all colors | climate resistance | sustainability | uv resistance | low maintenance | custom cut outs | graffiti resistance

Commercial Buildings | feature walls | function rooms | meeting rooms | writing walls

custom shapes | all colors | abrasion resistance | hygiene impact resistance | low maintenance | graffiti resistance

Function Rooms | feature columns | wall cladding

custom shapes | all colors | high gloss | impact resistance | low maintenance | abrasion resistance | graffiti resistance

Skylight Cladding | Stairways | Reception Areas

unique appearance | high gloss | all colors | uv resistance | custom shapes and cut outs | abrasive resistance | impact resistance

Columns

unique appearance | custom shapes | any colors | uv resistant | abrasion resistance | impact resistance | grafitti resistance

Entrances | commercial and residential buildings

custom shapes | all colors | climate resistance | sustainability | uv resistance | low maintenance | graffiti resistance

Mass Transit Railways | Feature Walls | Feature Columns

any color | custom shapes | graffiti resistance | abrasion resistance | impact resistant | sound absorption | fire resistance

Mass Transit Railways | Platforms | Signage

high gloss | any color | custom shapes | graffiti resistance | abrasion resistance | impact resistant | sound absorption | VE graphics | fire resistance

Walkways | Escalators | Stairs | Bulkheads

low maintenance | custom shapes | all colors | abrasion resistance | impact resistance | sound absorption | VE graphics

Transport and Infrastructure | Commercial | Customer Service

all colors | custom shapes | hygienic | abrasion resistance | impact resistance | custom cut outs | low maintenance

Rail | Ports | Airports | Bridges

climate resistance | uv resistance | impact resistance | abrasion resistance | custom shapes | VE graphics | low maintenance

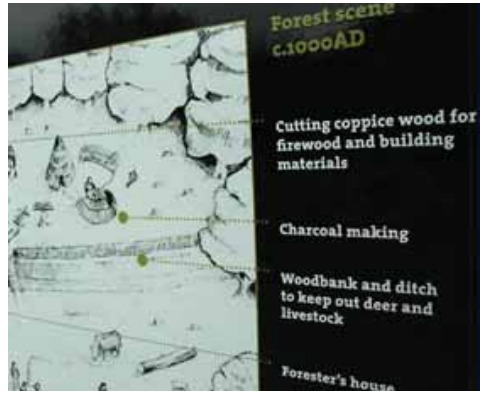
Tunnels

high gloss | low maintenance | fire resistance | sustainability | impact | resistance | VE graphics

Medical | Writing Walls

non toxic | non porous | abrasion resistance | impact resistance | chemical resistance | low maintenance | graffiti resistance | electrical resistance

Graphics | Signage | Maps | Artworks



any colors | custom shapes | fire resistance | climate resistance | uv resistance | chemical resistance | abrasion resistance

Manufacturing

Experience. Know-how. Consistency

The manufacturing process of vitreous enameled panels requires years of experience and know how to ensure the highest product quality consistently. Our panels are manufactured under strictly controlled conditions using state of the art technology.

1 **Design:** Shop & fabrication drawings to your requirements.

2 **Panel Cutting:** Steel sheets are cut to the design dimensions.

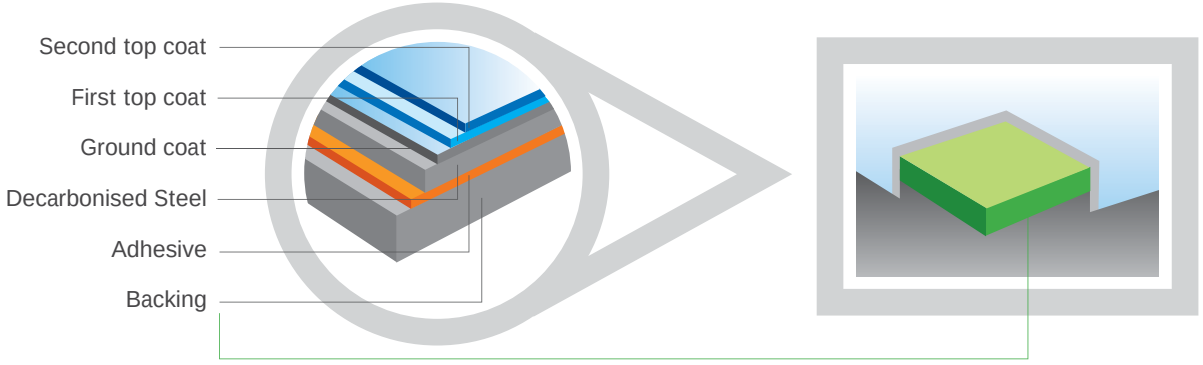
3 **Bending:** Steel sheets are bent to form returns & fixing flanges.

4 **Welding:** Panel corners are welded & finished to complete the panel profile.

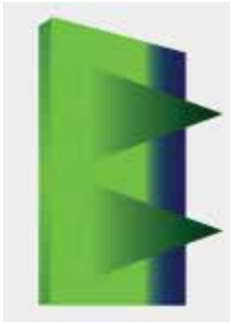
5 Chemical cleaning process to remove contamination.

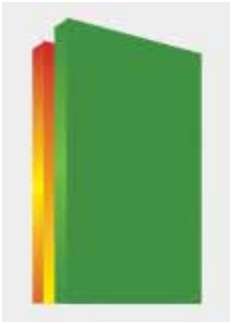
6 Ground coat is applied.

Position of VE Coating Layers








6 Drying at approximately 200 - 300°C.

7 Preheated to 400°C before entering the furnace.

8 Top coating and can consist of one or two coats. VE Screen print of Graphics optional.

9 Drying cycle is repeated as per the ground coat cycle.

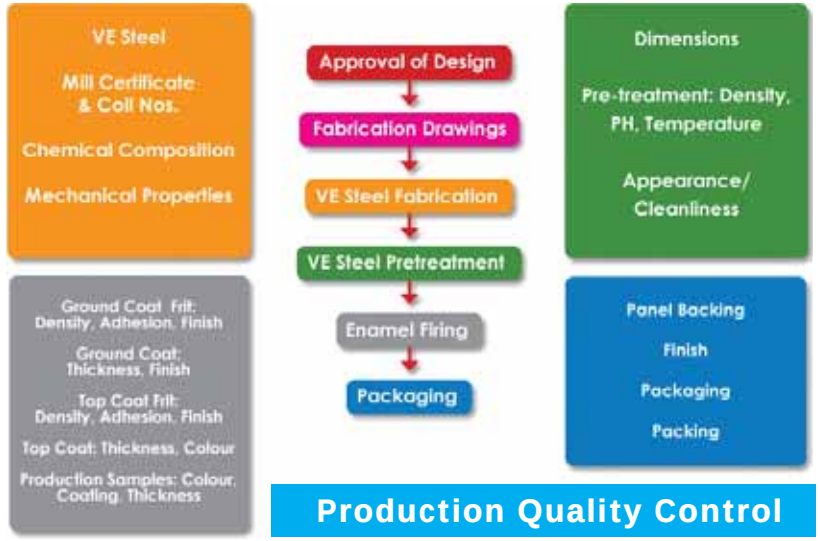
10 Fired in the furnace at approximately 800°C.

11 The requested panel backing is then applied.

12 After final inspection & packaging panels are packed and shipped.

Manufacturing Standards

EN 14431:2004	Vitreous and porcelain enamels – Characteristics of the enamel coatings applied to steel panels intended for architecture
BS 3830: 1973	Vitreous and porcelain enamels – Characteristics of the enamel coatings applied to steel panels intended for architecture
BS 4900: 1976	Specifications for Vitreous Enameled Colours for Building Purposes.
ISO 9001:2008	Quality Management Systems
ISO 14001:2004	Environmental Management Systems
ISO 18001:2007	Quality Management Systems



Production Quality Control


www.ceratec.com.hk