HMG Powder Coatings Limited

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Luminescent Polyester

Part of the 837 Series

Product Description

Luminescence is the phenomenon whereby light energy (usually ultraviolet) is absorbed and emitted as visible light energy. Depending on the speed of the transition from ultraviolet light to visible light, the effect can be categorised as either fluorescent, or phosphorescent. Luminescent pigments incorporated into coatings can provide an effect that is not just visually stunning, not also has a functional character.

Fluorescent

Our fluorescent range of products reflect more visible light energy than they absorb, creating a super-bright coloured effect, that has applicability for warning signs, personal protective equipment or other important notices. To maintain the highest brightness, the coatings are supplied as a two coat system, requiring a white base coat.

Phosphorescent

Commonly called 'Glow in the Dark' coatings, these products maintain their visible light emission over a prolonged period. Available in a green, or blue, they are often used on personal protective equipment, evacuation signs, as well as for novelty items and the entertainments industry. This products form part of a clear over base system, with the phosphorescent pigment in the clear top coat.

Key Benefits

High luminescence / visibility

Powder Properties

Chemistry	A thermosetting polyester resin system with a multifunctional curing agent.
Application	Corona electrostatic. The system can be modified for Tribo application as required.
Coating Thickness (DFT)	General recommendation is 60-100 microns (µm), with a minimum thickness of 60 µm. As these effects have a low opacity, their colour will vary depending on DFT; we recommend a tightly controlled DFT range to achieve an even colour effect.
Gloss (ISO 2813)	70% ± 10 on a 60 degree head
Specific Gravity	1.40 – 1.60 g/cm^3
Coverage	Approximately 10 – 14 m^2/kg at 60 microns film thickness.
Storage & Shelf Life	When stored in a cool (<20^{o}C), dry environment: 12 months.
Curing Schedule	Typically 10 minutes at 160 Celsius (object temperature) see box label for exact curing conditions. Luminescent pigments are sensitive to heat and overbake.

Pretreatment

To ensure maximum adhesion the substrate must be thoroughly clean, free from grease, oil, rust, mill scale or any other contaminant. Cleaning may be carried out either by shot blasting, solvent or chemical degreasing. For applications where high corrosion or chemical resistance is required the substrate should be chemically treated prior to powder coating, typically:

Ferrous substrates	iron or zinc phosphate
Zinc coated steel	zinc phosphate or chromate conversion
Aluminium	chromate conversion

Mechanical Tests

Unless otherwise specified, all tests were carried out under laboratory conditions on 0.8mm degreased and zinc phosphated steel panels. A powder coating DFT of 60-70 microns was applied over a base coat of RAL 9016 827 Architectural Polyester to 60-70 microns.

Hardness	ISO 2815 Buchholtz Indentation	>80
Flexibility	ISO 1519 Cylindrical Mandrel	Pass >5mm

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	Adhesion	ISO 2409 2mm Crosshatch	Pass Gt0
	Cupping	ISO 1520 Erichsen	Pass >5mm
	Impact	BS 3900: Part E7	>25kg cm (N)
Corrosion and Durability	Neutral Salt Fog	ASTM B117 (500 hours)	Corrosion creep <2mm from scratch Adhesion – Gt0
	Boiling Water	2 hours boiling water	No defects or detachments
	Humidity	BS 3900 Part F2	More than 1000 hours without effect
	Exterior Durability	After 12 months, minimal loss of gloss. No film breakdown or reduction in protective properties. Owing to the pigment's inherent reactivity with ultraviolet light, when sited outside they will degrade (lose their brightness) over time.	
	Chemical Resistance	Resistant to most acids, alkalis and oils.	

Fire Resistance

Construction

The range has been tested to the requirements of EN 13823 and ISO 1716 and is classified as **A2 s1 d0** according to EN 13501-1

Rail

Additional to the above, the range has been tested to EN 45545-2+A1 Annex C and meets the requirements of London Underground S1085 'Fire Safety Performance of Materials'

Colour Availability

A selection of colours is available ex stock as part of the Signature Finish™ range. Other colours are available on request.

Application Tips

The coating may be applied over a variety of substrates. As the effect is translucent the final colour will be dependent on the underlying substrate colour and the film thickness of the coating (a higher film build will result in a more intense colour, but with decreasing translucency). Excellent results are obtained using a bright white basecoat, though other colours, such as a chrome effect powder coating or a polished metal surface may be used.

Tips

- When over-coating, ensure the electrical earth is sound. We recommend connecting the work to a grounding rod and grounding clamp assembly rather than the spray gun. In any case, a resistance of <0.5 megaohm is recommended and <1.0 megaohm is vital. A poor electrical earth will result in poor penetration into the corners and recesses.
- When over-coating, select the correct gun settings. Most guns have an 'overcoat' setting which reduces the voltage (kV) at the gun tip.
- Test the coating first to determine the best film thickness for your application; the final colour can be fine-tuned by careful DFT control.
- Consider the applicability of the gun nozzle. Flat nozzles are useful for getting into corners, but as they are directional, may give colour striations caused by varying film thicknesses.
- Increase the distance from the gun to the part; provided the electrical earth is good, the candy colour will be attracted to the part and deposit at a more even film build.
- Do not over-bake these products. Their colour will darken dramatically.

RoHS/RoHS2/RoHS3

This product range conforms to the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations Directives. Refer to our full statement on the hmgpowdercoatings.co.uk website.

Health & Safety

This product is intended for use only by professional applicators in industrial environments. Consult the relevant health and safety data sheet indicated in the box label before use.

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