HMG Powder Coatings Limited

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Polyester

837 Series

Product Description

Designed for both exterior and internal use, this range of powder coatings offers both excellent outdoor durability and decorative aspect. Common applications include garden furniture, urban furniture, home and office furniture, automotive parts, machinery, and electrical enclosures. These products are 'bloom resistant'.

The range meets the requirements of BS EN 13438, particularly recommended is the 'DG' modification.

Powder Properties

Chemistry	Thermosetting carboxylated polyester cured with a multifunctional curing agent.
Application	Corona and Tribo
Coating Thickness	Depending on covering power and shade, general recommendation is 60-100 microns (µm), with a minimum thickness of 60 µm.
Gloss (ISO 2813)	Gloss 85 ± 10 Semi-Gloss 65 ± 7 Matt 25 ± 5
Specific Gravity	1.40 – 1.90 g/cm^3 depending on colour.
Coverage	From 10-14 m^2/kg at 60 microns film thickness.
Storage & Shelf Life	When stored in a cool (<20°C), dry environment: 24 months.
Curing Conditions (Object Temperature)	Gloss 17–37min @ 170°C / 10–30min @ 180°C / 7–20min @ 190°C Matt 17–30min @ 190°C / 10–20min @ 200°C / 7–15min @ 210°C We recommend that where the coatings may be subjected to temperatures above 210°C, a trial is first carried out to ensure there is no unwanted colour variation. Direct-fired gas ovens may also cause colour to change from the expected result.
Curing Coefficient	For oven temperature recorders, use the minimum time values at temperature presented above. Set the minimum cure temperature to 155°C.

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, or chrome-free system.

Advice should be sought from the chemical pretreatment supplier on the use of their products.

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 used.

Hardness	ISO 2815 Buchholtz Indentation	>80
Flexibility	ISO 1519 Cylindrical Mandrel	Pass >5mm
Adhesion	ISO 2409 2mm Crosshatch	Pass Gt0
Cupping	ISO 1520 Erichsen	Pass >4mm
Impact	BS 3900: Part E7	>20kg cm (N)

Polyester

Corrosion and Durability	Sulphur Dioxide	Kesternich Test ISO 3231	After 24 cycles, infiltration <1mm from scratch
	Neutral Salt Fog	ASTM B117 (500 hours)	Corrosion creep <2mm from scratch Adhesion – Gt0
	Mortar Resistance	ASTM C207	Easy to remove. No staining
	Boiling Water	2 hours boiling water	No defects or detachments
	Humidity	BS3900: Part F2	Pass. 1000 hours without any effect.
	Exterior Durability	After 12 months, minimal loss of gloss or colour change. No film breakdown or reduction in protective properties	

Chemical Resistance

The range shows excellent resistance to water, brine, hydrochloric acid, dilute sulphuric, acetic and phosphoric acids, dilute alkalis, peroxides and bleach, alcohols and urea.

Fire

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

All colours from BS 5252, BS 4800, BS 381C, RAL Classic, RAL Design, Pantone and NCS ranges. Any submitted colour standard can be manufactured to customer's requirements.

Structured Effects

This range is also available in sandpaper texture, ripple texture, wrinkle finish and hammer effects.

Available Modifications

DG Zinc surfaces out-gas at elevated temperatures, causing unsightly cratering in the powder coating surface; these craters are corrosion hot spots resulting in 'white rust' deposits. 'DG' polyesters have been modified to significantly reduce, or even completely eliminate, the occurrence of this cratering whilst still maintaining excellent recoatability.

EC Where there are issues with sharp corner and edge covering, these coatings are modified to reduce sagging and help protect steel surfaces from premature corrosion.

AM An Anti-Microbial coating – see 967 series data sheet for more details.

LB Higher reactivity curing system to allow the applicator the freedom of choosing the right balance of line speed and cure temperature to suit his process. See 727 series data sheet for more details.

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

Consult the relevant health and safety data sheet indicated in the box label before use.

Example Application Procedure

1. Prepare the substrate properly for the environment that the object will be placed (refer to ISO12944-2 for a list of environmental categories). Ensure the process cleans and provides an adequate key to the substrate. Pay particular attention to sharp edges, water traps, or other likely points of premature corrosion.
2. Spray using an electrostatic gun designed for powder coating application. Typical settings are 70 kV. Ensure that the minimum film thickness is being met.
3. Cure the coated objects in an oven, ensuring that the metal substrate achieves the correct temperature for the required duration.

Allow to cool before handling. Wrapping should be used that does not allow moisture to be trapped against the powder coating.

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