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’.

Powder Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
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<tbody>
<tr>
<td>Chemistry</td>
<td>Thermosetting carboxylated polyester cured with a multifunctional curing agent.</td>
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</tbody>
</table>
| Application               | Gloss & Semi-Gloss: Corona and Tribo  
                          Matt: Corona (Tribo can be manufactured on request)                                        |
| 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/cm³ depending on colour.                                                                                                       |
| Coverage                  | From 10-14 m²/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                                                                 |
| 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.

<table>
<thead>
<tr>
<th>Test</th>
<th>Description</th>
<th>Value</th>
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<tbody>
<tr>
<td>Hardness</td>
<td>ISO 2815 Buchholtz Indentation</td>
<td>&gt;80</td>
</tr>
<tr>
<td>Flexibility</td>
<td>ISO 1519 Cylindrical Mandrel</td>
<td>Pass &gt;5mm</td>
</tr>
<tr>
<td>Adhesion</td>
<td>ISO 2409 2mm Crosshatch</td>
<td>Pass G10</td>
</tr>
<tr>
<td>Cupping</td>
<td>ISO 1520 Erichsen</td>
<td>Pass &gt;4mm</td>
</tr>
<tr>
<td>Impact</td>
<td>BS 3900: Part E7</td>
<td>&gt;20kg cm (N)</td>
</tr>
</tbody>
</table>
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

- **Mortar Resistance**
  - ASTM C207
  - Adhesion — Gt0

- **Boiling Water**
  - 2 hours boiling water
  - Easy to remove. No staining

- **Humidity**
  - BS3900: Part F2
  - No defects or detachments

**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**

- This range is not materially different from the smooth polyester (827) range. The 827 range has been tested to the requirements of BS 476 parts 6 & 7 and has a Class 0 surface as defined in various national building regulations. Additionally, the smooth 827 range has been tested to and meets the requirements of various international fire tests as follows: the flammability requirements of FAR/JAR 25.853 Appendix F Part 1 (Vertical Burn Test); the heat release requirements of FAR/JAR 25.853 Appendix F Part 4; the Smoke Emission requirements of FAR/JAR 25.853 Appendix F Part 5 and ABDOO31 paragraph 7.3.2; the Smoke Toxicity Emission requirements of ABDOO31 paragraph 7.4.

**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. 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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