TECHNICAL DATA

PLASCOAT PPA 571

Performance Polymer Alloy Coating

GENERAL DESCRIPTION

Plascoat PPA 571 has been specifically designed to provide a long lasting, tough coating for exterior applications to mild steel, galvanised steel and aluminium. It is based on an alloy of acid modified polyolefins. Therefore it is Halogen free and the combustion fumes are low in smoke and have a low toxicity index.
Plascoat PPA 571 is resistant to stress cracking, adverse weather conditions, detergents, salt spray and typical airborne pollutants. The coating maintains excellent adhesion to the metal substrate without the need for a separate primer. The material also provides a good degree of electrical insulation, abrasion and impact resistance.

PPA571 is normally applied by the Fluidised Bed process, but it can also be applied by Flock Spray.

TYPICAL USES

Fence posts, fencing panels, sign posts, street furniture, balustrading, stadium seating, pipes including potable water, cable tray and ducting. Garden furniture, gutter brackets and wirework.

GUIDE TO TYPICAL COATING CONDITIONS

Recommended Pretreatment:

To get the full benefits of the material, mild steel should be blast cleaned to Swedish standard SA 2½-3. The optimum profile is 30 microns. Alternatively degreasing and iron phosphating can be used.

For galvanised steel the surface should be grit blasted with a fine non-ferrous medium at a low pressure. For maximum long term adhesion, a suitable phosphate or chromate system should be used.

For both types of metal surface, ensure any previously applied resin based pretreatment is removed before applying your own in-house pretreatment. Advice on this can be obtained from your pretreatment supplier.

Fluid Bed Batch Operation:
Metal preheat temperature 220°C - 320°C, depending on metal thickness. Dip for 3-5 seconds or as required to achieve the desired coating thickness. A post-heat cycle at 170°C may be required to develop fully the surface finish on thin items.

The process temperatures used should only be the minimum to achieve an acceptable surface finish. However to ensure optimum adhesion the metal temperature must exceed 150°C. Overheating may cause the coating to discolour later in storage or in service.

Thicknesses outside the recommended range may be detrimental to the properties of the coating.

Flock Spray method:
After pre-treating the metal as above the substrate should be preheated to a metal temperature of 180 to 220°C. To ensure optimum adhesion the metal temperature must exceed 150°C. The PPA571 can then be sprayed onto the metal until the coating no longer melts. i.e. has a "sugar-like" appearance. The item is then returned to the oven to fully melt the coating. To obtain thicker coatings more powder can be sprayed onto the molten first coat and reheated. This process can be repeated until the required thickness is achieved.

For typical properties of the coating see overleaf.

TYPICAL PROPERTIES OF THE POWDER

Coverage (100% efficiency)	$3m^2$/Kg at 350 microns
Particle Size	95% less than 250 microns
Bulk Density (at rest)*	0.40 g/cm^3
Fluidising Characteristics	Excellent
Packaging	20 kg cardboard boxes

TYPICAL PROPERTIES OF THE MATERIAL

Specific Gravity*		0.96 g/cm^3
Tensile Strength	ISO 527	14 MPa
Elongation at Break	ISO 527	800%
Brittleness Temperature	ASTM D-746	-78°C
Hardness	Shore A	95
	Shore D	44
Vicat Softening Point	ISO 306	70°C
Melting Point		105 °C
Tear Strength	ASTM D1938	22 N.mm
Environmental Stress Cracking	ASTM D1693	Greater than 1000 hrs
Toxicity Index	NES 713	1.8
Flammability	UL94 3.2mm moulding	Unrated (see also Properties of Coating)
Dielectric Strength	IEC 243 VDE 0303	47.8 KV/mm at 370 microns
Volume Resistivity	IEC 93	3 x 10^{17} Ohm.cm
Surface Resistivity	IEC 93	8 x 10^{17} Ohm at 350 microns
Water Absorption	ASTM D570-81	<0.03%

**These values may vary from colour to colour*

STORAGE

Stored in a clean dry area at 10-25°C and out of sunlight, the material should not deteriorate. However, in the interest of good housekeeping, old stocks should be used first.

HEALTH AND SAFETY

Plascoat PPA 571 is supplied as a finely divided powder. Whilst there are no known health hazards associated with PPA 571, normal handling precautions for dealing with fine organic powders should be taken - i.e. excessive dust generation and inhaling of the powder should be avoided. Facilities may be required for removing excess dust from the working area during the coating of certain difficult items.

As with all polymeric powders, the material can ignite if brought into contact with a high temperature source or ignition - particularly in the fluidised condition.

Reference should be made to the respective Plascoat Health and Safety Data Sheet, available on request.

Should the coating be required for contact with food or potable water, further details should be obtained from Plascoat.

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PLASCOAT PPA 571

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TYPICAL PROPERTIES OF THE COATING

The following data applies to a 350 micron coating applied under standard conditions onto 3mm thick steel or aluminium. The pretreatment consisted of degreasing and gritblasting unless otherwise stated.

Recommended Coating Thickness		300-750 microns
Appearance		Smooth/Glossy
Gloss	ISO 2813	70
Impact Strength	Gardner (drop weight) ISO 6272	
	Direct 23°C (3mm plate)	2.7 Joules
	Indirect 0°C (3 mm plate)	18.0 Joules
	Direct 23°C (0.7 mm plate)	Greater than 27 Joules
	Indirect 0°C (0.7 mm plate)	Greater than 27 Joules
Abrasion	Taber ASTM D4060/84	
	H18, 500g load, 1000 cycles	60 mg weight loss
	CS17, 500g load, 1000 cycles	25 mg weight loss
Salt Spray	ISO 7253 and NF 41-002	Results after 1000 hours
	Steel - Scribed	Loss of adhesion less than 10mm from scribe. Under film corrosion 2-3mm
	- Unscribed	No blistering or corrosion after 10,000 hours
	Aluminium - Scribed	No loss of adhesion
	- Unscribed	No loss of adhesion
Chemical Resistance*	- Dilute Acids 60°C	Good
	- Dilute Alkali 60°C	Good
	- Salts (except peroxides) 60°C	Good
	- Solvents 23°C	Poor
Adhesion	PSL, TM 19	A-1
Weathering	QUV ASTM G53-77	2000 hrs - No significant change in colour or loss of gloss.
	Florida 45° facing South	3 years - No significant change in colour or loss of gloss.
Burning Characteristics		
Ignitability	BS476: Pt5: 1979 500 micron coating	P - not easily ignitable
Surface spread of flame	BS476: Pt7: 1979 500 micron coating	Class 1
Fire Propagation	BS476: Pt6: 1989 500 micron coating	I = 0.2
Flammability	UL94	V_o (see also Properties of Material)
Safe Working Temperature	(Continuous in air)	60°C max

*The results given are for full immersion in the chemicals for a prolonged period of time. The coating is resistant to splashes and short term contact of most chemicals. *Further technical advice may be obtained from Plascoat concerning the effects of particular chemicals or mixtures.*

QUALITY

Plascoat is committed to the manufacture and supply of a wide range of thermoplastic coating powders. This service is backed by the unrivalled experience of over 50 years of powder coating application. With a policy of continuous improvement to its range of products, Plascoat reserves the right to alter or amend any item. Stringent quality control procedures are carried out at every relevant stage of manufacture and Plascoat operates a quality management system approved by BSI in accordance with ISO 9001:2008.

Plascoat can also offer, through its factories in Europe, specialist plastic coating equipment, an extensive custom coating service and a size reduction service for plastics and other materials.

Plascoat is a subsidiary member of the IPT Group of companies.
Plascoat is an EU registered trade name.

DISCLAIMER

The information given here is, to the best of our knowledge, true and accurate.

Product and item design, pre-treatment, coating conditions, quality assurance and conditions of product end use are among the factors that affect performance of the coated products and are outside Plascoat's control.

Conditions under which our materials may be used are beyond our control. The suitability for application and performance of finished goods coated with Plascoat material is the sole responsibility of the customer and end user.

Plascoat expressly denies specific or implied warrantees including warrantees for fitness for a particular use or purpose.

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PPA571/ 05/07/2010 /HM

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