TP COATING - PLASCOAT PPA 571

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 very 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.

PPA 571 is normally applied by the fluidised bed process, but it can also be applied by flock-spray or flame spray techniques. Whilst PPA 571 is suitable for flame spraying. The flame spray method uses extremely high temperatures and therefore care should be taken to avoid degradation of the powder during application.

TYPICAL USES

Pipes including potable water, cable tray and ducting. Garden furniture, gutter brackets, battery boxes, hand rails, fan guards and wirework.

GUIDE TO TYPICAL COATING CONDITIONS

Recommended Pre-treatment:
For mild steel, ensure metal is clean by thorough degreasing and removal of mill scale.
To get the full benefits of the material, mild steel should be blast cleaned to Swedish standard SA 2½-3. 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.

TYPICAL PROPERTIES OF THE POWDER

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

Fluid Bed Batch Operation:
Metal preheat temperature 220°C - 320°C, depending on metal thickness. Dip for 3-5 seconds. 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 a 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 pre-heated to a metal temperature of 180°C to 220°C. The PPA 571 can then be sprayed onto the metal until the coating no longer melts - i.e. with 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 re-heated. This process can be repeated until the desired thickness is achieved.

For typical properties of the coating see below.

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 Plascoat Health and Safety Data Sheet HS504, available on request.

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

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 7	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 µ
Volume Resistivity	IEC 93	3 x 10^{17} Ohm.cm
Surface Resistivity	IEC 93	8 x 10^{17} Ohm at 350 µ
Water absorption	ASTM D570-81	<0.03%

**These values may vary from colour to colour*

TYPICAL PROPERTIES OF THE COATING

The following data applies to a 350 µ coating applied under standard conditions onto 3mm thick steel or aluminium. The pre-treatment consisted of degreasing and grit-blasting unless otherwise stated.

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

**Further technical advice may be obtained from Plascoat concerning the effects of particular chemicals or mixtures.*