

## Thermoplastic Powder

### General Description

Thermoplastic Powder is a coating powder that has been specifically designed to provide a long lasting, tough coating for exterior applications to mild steel, galvanized 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.

Thermoplastic Powder 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 good abrasion and impact resistance.

### Typical Uses

- Excellent resistance to chemical and/or marine environments
- Areas exposed to extreme cold
- Applications requiring excellent UV resistance
- Coastal areas requiring excellent resistance to salt spray and humidity

### Health and Safety

Thermoplastic Powder is supplied as a finely divided powder. While there are no known health hazards associated with Thermoplastic Powder, 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 fluidized condition.

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

### Guide to Typical Coating Conditions

#### Recommended Pretreatment

Mild steel should be solvent degreased, tool cleaned and washed.

Aluminium should be degreased to remove lubricants and processing soaps. For most purposes, no further treatment is necessary. However, for maximum long term corrosion resistance chromate treatment is recommended.



## Typical Properties of the Material

Specific Gravity*		0.93-1.06 g/cm <sup>3</sup>
Tensile Strength	ISO 527	14 MPa
Elongation at Break	ISO 527	800%
Brittleness Temperature	ASTM D-746	-108.4°F (-78°C)
Hardness	Shore A Shore D	95 44
Vicat Softening Point	ISO 306	158°F (70°C)
Melting Point		221°F (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 3.2 mm 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 <sup>17</sup> Ohm/cm
Surface Resistivity	IEC 93	8 x 10 <sup>17</sup> Ohm at 200 microns
Water Absorption	ASTM D570-81	<0.03%

\*These values may vary from color to color.

## Typical Properties of the Coating

The following data applies to a 200 micron coating applied under standard conditions onto 3 mm thick steel or aluminium. The pretreatment consisted of degreasing and grit blasting unless otherwise stated.

Recommended Coating Thickness		170-300 microns
Appearance		Smooth/Glossy
Elongation at Break	ISO 527	800%
Gloss		Smooth/Glossy
Impact Strength	Gardner (drop weight) ISO 6272 Direct 73.4°F (0.7 mm plate) Reverse 32°F (0.7 mm plate) Reverse 32°F (3 mm plate) Direct 73.4°F (3 mm plate)	Greater than 27 Joules Greater than 27 Joules 18.0 Joules 2.7 Joules
Abrasion	Taber ASTM D4060/84 H18, 500 g load, 1000 cycles CS17, 500 g load, 1000 cycles	60 mg weight loss 25 mg weight loss
Salt Spray	ISO 9227 and NF 41-002  Steel - Scribed - Unscribed  Aluminum - Scribed - Unscribed	Results after 1000 hours Loss of adhesion less than 10 mm from scribe. Under film corrosion 1 mm No blistering or corrosion after 10,000 hours No loss of adhesion No loss of adhesion
Chemical Resistance*	- Dilute Acids 140°F - Dilute Alkali 140°F - Salts (except peroxides) 140°F - Solvents 73.4°F	Good Good Good Poor
Adhesion	PSL, TM 19	A-1

## Typical Properties of the Coating (cont'd.)

Weathering	QUV ASTM G53-77 Florida 45° facing South	2000 hrs - No significant change in color or loss of gloss. 3 years - No significant change in color or loss of gloss.
Burning Characteristics 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  Vo (see also Properties of Material)
Safe Working Temperature	(Continuous in air)	140°F 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 Twin City Fan concerning the effects of particular chemicals or mixtures.

## Disclaimer

Conditions under which our materials may be used are beyond our control. The suitability for application and performance of finished goods coated with Twin City Fan material is the sole responsibility of the customer and end user. Twin City Fan expressly denies specific or implied warranties including warranties for fitness for a particular use or purpose.





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