Plascoat® PPA 571 AQUA

Performance Polymer Alloy Coating

11/2018

General description

PPA 571 AQUA is part of the PPA 571 range of thermoplastic coating powders; specifically engineered to produce strong, UV-resistant, flexible, long-lasting protective coatings for application to metal substrates, without the need for a primer or curing. As part of the PPA 571 family, PPA 571 AQUA is also halogen free, produces low levels of smoke when coated, and has a low toxicity index.

Plascoat PPA 571 AQUA is a BPA-free material, approved for contact with drinking water, and designed for coating by fluidised bed-dipping or flock-spraying. PPA 571 AQUA is a tough, high-melt viscosity, resilient material, specifically engineered for protecting water & sewerage pipes and fittings.

Typical uses

Pipes and fittings at ambient temperatures for the water and aqueous chemical industries. Suitable for over ground and underground applications.

Approvals

- SAI Global (AS/NZS 4158:2003)
- WRAS approved (23°C & 60°C)
- AS/NZS 4020:2005
- ACS
- AWWA C116 A21.16-15
- KTW
- DVGW
- NSF

Typical properties of the powder

Coverage (100% efficiency)	2.1 m^2/kg at 500 microns
Particle Size	95% less than 212 microns
Bulk Density (at rest)	0.36 g/cm^3
Fluidising Characteristics	Good
Packaging	20 kg cardboard boxes

Handling and storage

Stored in a clean dry area at 10-30°C and out of sunlight, the material should not deteriorate. However, in the interest of good housekeeping, old stocks should be used first.

Common to all coating powders, there may be the likelihood of agglomerate formation during transportation and storage. The coating powder can be sieved to break up the agglomerates and therefore return the powder to its original condition; this does not affect the quality of the powder. The accumulation of powder particles is a physical phenomenon and may occur as a result of compaction or when cold powder, below 10°C, is brought into direct contact with warm humid air. In this latter situation the powder, still sealed, should be given time to warm up to the ambient temperature before use.

For Europe:
Plascoat Europe BV
The Netherlands
+31(0)181458888
plascoat-salesnl@axalta.com

For UK and Overseas:
Plascoat Systems Ltd
United Kingdom
+44(0)1252733777
plascoat-salesuk@axalta.com

For US:
Plascoat Corp.
United States of America
+1(844)752-7262
plascoat-salesus@axalta.com

AXALTA COATING SYSTEMS

www.plascoat.com

Health and safety

Plascoat PPA 571 Aqua is supplied as a finely ground powder. While there are no known health hazards associated with PPA 571 Aqua, standard precautions for the handling of fine organic powders should be taken – i.e. excessive dust generation and inhaling of the powder should be avoided. Equipment may be required for removing excess dust from the working area during the coating of certain complex items.

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

Reference should be made to the pertinent Plascoat GHS Safety Data Sheet, available on request.

If the coating is to be in contact with food or drinking water, more detailed information must be obtained from Plascoat.

Guide to typical coating conditions

Recommended pre-treatment:
To achieve the full benefits of the material, the substrate should be blast cleaned to Swedish Standard SA 2½-3.

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 zinc phosphate or chromate system should be used.

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

Batch operation:

Fluidised bed dipping
Metal preheat temperature 240°C – 300°C, depending on metal thickness (assumed to be greater than 5 mm). Dip for 5 – 10 seconds, or as required to achieve the desired coating thickness. A post-heat cycle of between 180 and 220°C may be required to produce the desired surface finish.

Flock spray coating
The substrate should be preheated to ensure that the powder fuses on contact, allowing the correct thickness to be achieved. As a guide, a minimum metal surface temperature of 220 – 260°C, depending on metal thickness, should be used if possible; a lower preheat temperature (minimum 150°C) would require a post-heat cycle of between 180°C and 220°C.

The process temperatures used should be the minimum required to achieve an acceptable surface finish. However to ensure optimal adhesion, the metal temperature must exceed 160°C. Overheating may cause the coating to discolour later in storage or in service. It is advisable to check actual metal surface temperature, as this may differ from the oven setting. Thicknesses outside the recommended range may be detrimental to the performance properties of the coating.

It is advised to test material prior to commercial use, to determine the correct process settings.

Typical properties of the material

Specific Gravity*		0.96-1.1 g/cm^3
Tensile Strength	ISO 527 at 500mm/min	16 MPa
Elongation at Break	ISO 527 at 500mm/min	≥ 350%
Brittleness Temperature	ASTM D-746	-76°C
Hardness	Shore A Shore D	98 ≥ 48
Crystallisation Onset	Derived by DSC	88°C
Melting Point	Derived by DSC	100°C
Melt Flow Index		9-13g/10min
Stress Cracking	ASTM D1693	> 1000 hrs
Toxicity Index	NES 713	1.8
Flammability	UL94 3.2mm moulding	Unrated
Volume Resistivity	ASTM D257	2.82 x 10^{14} Ohm.m
Dielectric Strength	ASTM D-149	40.8 kV/mm

*These values may vary from colour to colour

Typical properties of the coating

The following data applies to a 500µm fluidised bed-dip coating (except where specified), applied under recommended conditions onto ≥3 mm thick steel. Pre-treatment consists of degreasing and grit-blasting.

Recommended Coating Thickness		300-1000 microns (µm)
Appearance		Smooth semi-matte finish
Gloss	ISO 2813	58
Abrasion	Taber ASTM D4060-10 CS17, 1000g load, 1000 cycles EN 598 RAL-GZ662 (GSK)	≤20 mg weight loss 20 µm (mean) 120 µm (mean)
Adhesion	PSL, TM 19	A-1
Cathodic disbondment	AS/NZS 4352:2005 23±2°C for 28 days 6mm Ø start BS EN 14901:2006 23±2°C for 30 days 6mm Ø start	≤10mm (500-550µm)
Chemical Resistance**	- Dilute Acids 60°C - Dilute Alkali 60°C - Salts (except peroxides) - Solvents 23°C - Chlorine dioxide (1ppm, 30 days at ambient) - Chlorine (100ppm, 2 months at 50°C)	Good Good Good Poor Not affected Not affected
Flexibility	AS/NZS 3862 AS/NZS 4158:2003	1% strain at 0°C - No cracks or disbonding

For Europe:
Plascoat Europe BV
The Netherlands
+31(0)181458888
plascoat-salesnl@axalta.com

For UK and Overseas:
Plascoat Systems Ltd
United Kingdom
+44(0)1252733777
plascoat-salesuk@axalta.com

For US:
Plascoat Corp.
United States of America
+1(844)752-7262
plascoat-salesus@axalta.com

AXALTA COATING SYSTEMS

www.plascoat.com

Impact Strength	ASTM G14-04 AS/NZS 4158:2003 1.31kg drop weight 15.9mm Ø Tup EN 14901:2006 0.5kg drop weight 25mm Ø Tup 1.5Kv spark test Reverse impact resistance Gardner drop weight, 15.9mm Ø Tup, 1mm steel substrate, 4Kv spark test	≥2.5 joules @ 500µm ≥5 joules @ 450µm ≥27 joules @ 300µm
Penetration	AS/NZS 4158: 2003 ASTM G17-07 10MPa for 24 hours	≤5% Penetration
Salt Spray	ISO 9227:2012 ASTM B117-11 Steel - Scribed Aluminium - Unscribed - Scribed - Unscribed	Results after 1000 hours Loss of adhesion 5-14 mm from scribe* Under film corrosion 1.0 mm No loss of adhesion No loss of adhesion No loss of adhesion
Thermal Stability	AS/NZS 4158: 2003 (100 days at 100°C) ASTM D3895-94 (Oxidative-Induction Time)	≤2% change in properties ≥20.0 mins at 200°C
Ultraviolet Radiation	AS/NZS 4158:2003 ISO 527-3:1996 ASTM D2565-99(2008)	≤30% change in properties
Weathering	QUV ASTM G53-77 Florida 45° facing South	2000 hours - No significant change in colour or loss of gloss. 3 years - No significant change in colour or loss of gloss***
Water Absorption	AS/NZS 4158:2003 AS 3862 Appendix O (100 days at 25°C)	≤1% Absorption
Hot Water Resistance	AS/NZS 4158:2003 (50°C 14 days immersion) Method B-AS 1580.408.2 PSL, TM 19 AWWA C-116 A21.16-15 (66ºC immersion for 500 hours)	Rating 0 – No loss of adhesion A-1 – No loss of adhesion No disbondment or blistering.

* Dependant on surface pre-treatment quality.

For Europe:
Plascoat Europe BV
The Netherlands
+31(0)181458888
plascoat-salesnl@axalta.com

For UK and Overseas:
Plascoat Systems Ltd
United Kingdom
+44(0)1252733777
plascoat-salesuk@axalta.com

For US:
Plascoat Corp.
United States of America
+1(844)752-7262
plascoat-salesus@axalta.com

www.plascoat.com

** 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.
*** Results based on chemically comparable coating material.

Disclaimer

The information provided herein corresponds to our knowledge on the subject at the date of its publication. This information may be subject to revision as new knowledge and experience becomes available. The data provided fall within the normal range of product properties and relate only to the specific material designated; these data may not be valid for such material used in combination with any other materials or additives or in any process, unless expressly indicated otherwise. The data provided should not be used to establish specification limits or used alone as the basis of design; they are not intended to substitute for any testing you may need to conduct to determine for yourself the

suitability of a specific material for your particular purposes. Since Plascoat cannot anticipate all variations in actual end-use conditions Plascoat makes no warranties and assumes no liability in connection with any of this information. Nothing in this publication is to be considered as a license to operate under or a recommendation to infringe any patent rights.

Plascoat is an Axalta Coating Systems company.

Plascoat is an EU registered trade name

For Europe:
Plascoat Europe BV
The Netherlands
+31(0)181458888
plascoat-salesnl@axalta.com

For UK and Overseas:
Plascoat Systems Ltd
United Kingdom
+44(0)1252733777
plascoat-salesuk@axalta.com

For US:
Plascoat Corp.
United States of America
+1(844)752-7262
plascoat-salesus@axalta.com

AXALTA COATING SYSTEMS

www.plascoat.com