

COATINGS & LININGS DUCTILE IRON PIPELINE SYSTEMS

FUSION BONDED AND LIQUID APPLIED COATING SYSTEMS



Viadux supplies a range of coatings and linings to meet the most demanding specifications in the water industry

This data sheet describes the range of coatings systems that are currently available on TYTON ductile iron fittings, flanged pipe and valves

- Excellent resistance to water, wastewater, sea water and mist
- Low water absorption
- Low friction coefficient
- Wide range of working temps
- Long service life
- Impact resistant
- UV stable

FUSION BONDED COATINGS

FB coatings and linings comply with AS/NZS 4158 and are applied by the fluidised bed technique

Fusion coating of AS/NZS pipe (DN 80 to DN 750) up to a maximum effective length of 2700mm. Unlined pipe is used with coatings of FBE, FBN and PLASCOAT

Fusion coating of AS/NZS fittings (DN 80 to DN 750). Small (<DN 250) fittings are typically coated with Corro-coat FBE while larger (> DN 250) fittings are coated with Rilsan or Plascoat, depending on casting complexity

JOTUN

Jotun Corro-Coat EP-F 5001 is a thermo-setting epoxy powder, manufactured to and Product Certified to AS/NZS 4158 and supplied by Jotun Powder Coatings Ltd Corro-coat EP-F 5001. Detailed technical information is available on page 3

RISLAN

Rilsan T Blue 7443 MAC is a thermoplastic polyamide 11 (nylon) powder, manufactured to and Product Certified to AS/NZS 4158 and supplied by Arkema SA. Detailed technical information is available on page 4

PLASCOAT

Plascoat PPA 571H is a thermoplastic polyolefin based alloy manufactured to and Product Certified to AS/NZS 4158 and supplied by Plascoat Systems Limited. Detailed technical information is available on page 5

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FUSION BONDED COATING REPAIR PROCEDURE - FBE, FBN & PLASCOAT

Recommended repair compound:
Altra-Shield® 2000 (a high build high solids epoxy)



1. PREPARE THE SURFACE

Abrade the surface with an 80 grit sandpaper to remove the surface skin along with any accumulated corrosion or contaminants

2. PREPARE THE REPAIR MATERIAL

Dispense 4 parts base into small paper cup or onto a flat surface. Power mix the base portion first to obtain a smooth homogeneous condition. After mixing the base portion, slowly add 1 part converter whilst continuing to agitate at slow speed. After addition of the converter is complete, continue to mix slowly until homogeneous (well blended)



The correct mix of base and converter (4:1) can easily be achieved by dialling the stopper on the syringe plunger to the required volume, i.e. 4ml Base and 1ml Converter

Note: 5ml of repair material will cover an area of approx 6cm x 6cm

3. APPLY THE PATCH

Apply the epoxy to the repair area and spread out in a uniformly smooth film using a brush or spatula. The optimum patch thickness should be about 10-15% thicker than the original coating. Making a blob is not good practice as the patch will be more prone to subsequent handling damage



4. ALLOW TO CURE

The epoxy will be surface dry in 4-6 hours and thoroughly cured in approximately 16-24 hours at 20°C

LIQUID APPLIED EPOXY COATING

A 2 pack liquid epoxy coating is applied to the external surfaces of AS/NZS 2280 pipe and fitting sizes (DN 100 to DN 750)

Pipe coating can be done to a maximum effective length of 5850mm

Fittings are cement mortar lined internally to AS/NZS 2280 specifications and externally coated with Jotun Tankguard 412-Black, which is coated in accordance with Manufacturing Specification No. MS03 (available on request, to a minimum thickness of 400µm)

Note: Internal and external 2 pack liquid applied coating available on request

Other coatings are available on enquiry

MINIMUM COATING THICKNESS SPECIFICATION

Coating Type	Internal Surface	External Surface
Thermoplastic	250	200
Thermoset	350	300

Notes

- Coating system tests include hot water immersion, water absorption, flexibility, impact resistance, abrasion resistance, cathodic disbondment, thermal stability, UV resistance, adhesion and water contact.
- QC batch release tests undertaken are: thickness; high voltage continuity; adhesion; degree of cure.
- It should be noted that under Clause 3.3.2.3 of the Standard (AS/NZS 4158), discontinuities at bolt holes, other external edges, hook holes and scuff marks are not considered coating defects.

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JOTUN® CORRO-COAT EP-F 5001 POLYMERIC COATING

JOTUN Corro-Coat EP-F 5001 thermo-setting fusion bonded epoxy coatings provide corrosion protection for fittings, valves and hydrants. The coating system and application complies with AS/NZS 4158

FEATURES

Excellent resistance to: water; wastewater; sea water and mist

Chemical resistance to: hydrocarbons; solvents; salts; alkalis and many others

Outstanding: abrasion resistance; impact resistance; flexibility; thermal resistance; weathering and chalking resistance

Low: water absorption; friction coefficient

Wide range of working temperatures

Long service life

TECHNICAL DATA

Coating Thickness 350µm(minimum)

Application Method Fluidised Bed

Maximum Temperature 50°C

Colour Blue

Standards AS/NZS 4158 - Thermal-bonded polymeric coatings on valves and fittings for water industry purposes

Approvals AS 4020 -Suitable for contact with drinking water

TYPICAL TYPE TEST RESULTS

Test	AS/NZS 4158 Requirement	Corro-Coat EP-F 5001 Result
Hot Water Immersion	<= 1	= 0
Water Absorption	<= 4.0%	0.8%
Flexibility	no crack @ 1.0%	no cracks
Impact Resistance	>= 2.0 J	4.6 J
Abrasion Resistance	<= 40mg	39mg
Cathodic Disbondment	<= 15mm	1mm
Thermal Stability	<= 35% change to melt flow rate after 100 days @100°C	No holidays or cracks
Ultraviolet Radiation	<= 35% change to melt flow rate after 100 days @100°C	No holidays or cracks
Water Contact	No effect when used to convey drinking water	AS 4020 certified

PRODUCTION BATCH RELEASE REQUIREMENTS

Test	Requirement
Thickness	>350µm - >600µm
Continuity	no holidays
Adhesion	<= 1
Cure	Pass MEK rub test

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FUSION BONDED AND LIQUID APPLIED COATING SYSTEMS

RILSAN® NYLON 11 POLYMERIC COATING

RILSAN Nylon 11 polymeric coatings provide corrosion protection for fittings, valves and hydrants. Coating system and application complies with AS/NZS 4158. RILSAN Nylon 11 coating provides excellent corrosion resistance in both potable and wastewater applications

FEATURES

Excellent corrosion resistance to: water; wastewater; sea water and mist

Chemical resistance to: hydrocarbons; solvents; acids; salts; alkalis and many others

Outstanding: abrasion resistance; impact resistance; flexibility; thermal resistance; weathering and chalking resistance

Low: water absorption; friction coefficient

Wide range of working temperatures

Long service life

Produced from renewable raw materials of plant origin, environmentally friendly

TECHNICAL DATA

Coating Thickness 250µm(minimum)

Application Method Fluidised Bed

Maximum Temperature 50°C

Colour Blue

Standards AS/NZS 4158 - Thermal-bonded polymeric coatings on valves and fittings for water industry purposes

Approvals AS 4020 - Suitable for contact with drinking water

TYPICAL TYPE TEST RESULTS

Test	AS/NZS 4158 Requirement	RILSAN NYLON 11 Result
Hot Water Immersion	<= 1	<1
Water Absorption	<= 4.0%	2.2%
Flexibility	no crack @ 1.0%	no crack
Impact Resistance	>= 2.0 J	2.6 J
Abrasion Resistance	<= 40mg	16.6mg
Cathodic Disbondment	<= 15mm	4.2mm
Thermal Stability	<= 35% change to melt flow rate after 100 days @100°C	Viscosity change <28%
Ultraviolet Radiation	<= 35% change to melt flow rate after 100 days @100°C	Viscosity change <28%
Water Contact	No effect when used to convey drinking water	AS 4020 certified

PRODUCTION BATCH RELEASE REQUIREMENTS

Test	Requirement
Thickness	>250µm - >600µm
Continuity	no holidays
Adhesion	<= 1

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PLASCOAT™ PPA571 POLYMER ALLOY COATING

A thermoplastic coating powder specifically engineered to produce a strong, UV resistant, flexible, long-lasting protective coating for applications onto cast iron, mild steel, galvanised steel, and aluminium without the need for a primer. Halogen free, produces low levels of smoke when coated, and has a low toxicity index

PLASCOAT PPA571 was designed for coating by fluidised bed dipping or flock spraying; it has a high melt viscosity, and is a very tough, highly resilient material specifically engineered for protecting water pipes and fittings. Smooth with a slightly matte appearance

PLASCOAT PPA571 is a BPA free, WRAS and AS/NZS 4020:2005 potable water contact approved material, other major water approvals are currently pending

TECHNICAL DATA

Coating Thickness 250µm(minimum)

Application Method Fluidised Bed

Maximum Temperature 50°C

Colour Blue

Standards AS/NZS 4158 - Thermal-bonded polymeric coatings on valves and fittings for water industry purposes

Approvals AS 4020 - Suitable for contact with drinking water

TYPICAL PROPERTIES

Test	Requirement	PLASCOAT PPA571 Result
Gloss	ISO 2813	58
Abrasion	Taber ASTM D4060-10 CS17, 1000g load, 1000 cycles	≤20 mg weight loss
Adhesion	PSL, TM 19	A-1
Cathodic disbondment	AS/NZS 4352:2005 23±2°C for 28 days 6mm Ø start	≤10mm at 600µm
	BS EN 14901:2006 23±2°C for 30 days 6mm Ø start	≤10mm at 600µm
Chemical Resistance**	- Dilute Acids 60°C	Good
	- Dilute Alkali 60°C	Good
	- Salts (except peroxides) 60°C	Good
	- Solvents 23°C	Poor
Flexibility	AS/NZS 3862 / AS/NZS 4158:2003	1% strain at 0°C - No cracks or disbonding
Impact Strength	ASTM G14-04 AS/NZS 4158:2003 1.31kg drop weight 15.9mm Ø Tup	≥2.5 joules @ 500µm
	EN 14901:2006 0.5kg drop weight 25mm Ø Tup 1.5Kv spark test	≥5 joules @ 500µm
Penetration	AS/NZS 4158: 2003 / ASTM G17-07 10MPa for 24 hours	≤5% Penetration
	ISO 9227:2012 / ASTM B117-11	Results after 1000 hours
Salt Spray	Steel - Scribed	Loss of adhesion 5-14 mm from scribe* Under film corrosion 1.0 mm
	Aluminium - Unscribed	No loss of adhesion
	Aluminium - Scribed	No loss of adhesion
Thermal Stability	AS/NZS 4158: 2003 100 days at 100°C	≤2% change in properties
	ASTM D3895-94 Oxidative-Induction Time by DSC	≥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 D 100 days at 25°C	≤1% Absorption
Water Quality	AS/NZS 4020:2005 / WRAS	PASS
Hot Water Resistance	AS/NZS 4158:2003 50°C 14 days immersion / Method B-AS 1580.408.2	Rating 0 – No loss of adhesion
	PSL, TM 19	A-1 – No loss of adhesion

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FUSION BONDED AND LIQUID APPLIED COATING SYSTEMS

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