COATING SPECIFICATION

INORGANIC ZINC SILICATE COATING ON STEEL OR CAST IRON

COATING SPECIFICATION: B1   ISSUE: 2   DATE: OCTOBER 2016

1.0 SCOPE

This document summarises the procedure for the application of Inorganic Zinc Silicate (IZS) coating on Steel or Cast Iron structures.

Refer Design Standard, DS 95 (Standard for the Selection, Preparation, Application, Inspection and Testing of Protective Coatings on Water Corporation Assets) for additional information or clarification.

It shall be read in conjunction with Water Corporation surface preparation specification A1 - Surface Preparation for the application of Protective Coatings on Steel or Cast Iron.

2.0 PURPOSE

This coating may be used as a single coat (primer) or anti-corrosive coating for atmospheric corrosivity categories C1 to C4 as described in Australian Standard AS 2312.

Typical Water Corporation applications include above ground clean skin Mild Steel Cement Lined (MSCL) pipe and structural steel which does not require a top coat.

Caution:
- Do not overcoat IZS with oil based synthetic resin like alkyds.
- Excessive film build-up will result in “Mud Cracking” type coating failure.

3.0 DEFINITIONS

ACA means Australasian Corrosion Association.

APAS means Australian Paint Approval Scheme.

Contractor means the service provider or its sub-contractor who will undertake the works.

Corporation means the Water Corporation and the Principal for the purposes of externally contracted asset delivery.

DFT means Dry Film Thickness.

ITP means the detailed Inspection and Test Plan(s) for the Works.

NACE means National Association of Corrosion Engineers.
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PCCP means Painting Contractors Certification Program.

Superintendent means the Superintendent for the contract, as defined in the conditions of contract, who is appointed by the Water Corporation to manage/oversee the work under the contract on behalf of the Water Corporation.

TDF means Total Dry Film Thickness.

Works means the surface preparation, coating application and inspection to be undertaken by the contractor to which this coating specification applies.

4.0 SURFACE PREPARATION

4.1 All visible mill scale, rust, oxides, paint and other foreign matter shall be removed from the surfaces to be coated by blast cleaning to a Class 3 (white metal) finish as specified in AS/NZS 1627 Part 4.

4.2 The blast cleaned surfaces shall have a uniform metallic appearance, a surface profile which provides satisfactory anchorage for the coating, as per paint manufacturer’s recommendation and be otherwise compatible with the coating to be applied.

4.3 Coating shall not be applied to any prepared surface(s) exhibiting “flash corrosion” or that has been abrasive blasted more than 4 hours prior to commencement of coating.

5.0 COATING MATERIALS

5.1 Where a suitable Australian Paint Approval Scheme (APAS) approved product is available it shall be used. If a suitable APAS approved product is not available, then an equivalent non-APAS approved product may be used subject to approval by the Water Corporation.

5.2 The coating components shall be thoroughly mixed in the specified proportions. Material so prepared shall be used within the “pot-life” period claimed by the manufacturer for the relevant site conditions.

5.3 Coating specifications inclusive of datasheets, coating application method statements and ITP’s shall be submitted to the Principal for approval at least 10 working days prior to commencement of work.

5.4 Surfaces to be coated which will become inaccessible after assembly or erection shall be cleaned and painted before they become inaccessible.
5.5 Mixing, thinning, application and curing of protective coatings shall be carried out in accordance with the coating manufacturer's recommended practice for the on-site conditions.

5.6 Recommended drying times between coats shall not be exceeded.

6.0 ATMOSPHERIC CONDITIONS

6.1 Prior to and during coating application, the contractor shall record details pertaining to environmental conditions including ambient and surface temperature, relative humidity and dew point.

6.2 Coating application shall not commence if any one of the following conditions exists:
   - The substrate temperature is less than dew point plus 3°C;
   - The substrate temperature is below 10°C;
   - The substrate temperature is above 55°C;
   - The surface to be coated is wet or damp;
   - Where the full prime coat application cannot be carried out before the specified cleanliness of the surface deteriorates;
   - If the weather is deteriorating or is unfavorable for application or curing;
   - If the pot life of the paint has been exceeded.

7.0 COATING THICKNESS

7.1 The surfaces to be coated shall be given one coat of the approved Inorganic Zinc Silicate paint to produce 80 microns nominal dry film thickness. References shall be made to the relevant product datasheet to ensure that the maximum recommended dry film thickness is not exceeded.

8.0 COATING FINISH

8.1 The finished coating shall be of uniform thickness, colour, appearance and gloss. It shall be fully cured, insoluble, adherent, coherent and free from mud cracking, holidays,
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laps, sags, blistering, checking, wrinkling, overspray, patchiness and any other defects that may impair the performance and/or appearance of the coating.

9.0 COATING APPLICATOR/PERSOONNEL QUALIFICATION

9.1 Work shall only be carried out by competent personnel.

9.2 The work should be undertaken by a coating contractor accredited by the PCCP to a class appropriate for the work to be undertaken.

9.3 The Applicator’s Coating Supervisor shall possess as a minimum one of the following certifications:

- ACA - Corrosion Inspector; or
- NACE - CIP Level I Coating Inspector.

9.4 The coating contractor shall nominate a Coating Inspector as their Quality Control Officer to carry out inspections, submit the ITP, undertake the required testing and maintain appropriate records for all work performed.

The Applicator’s Coating Inspector shall possess as a minimum one of the following certifications:

- ACA - Coating Inspector; or
- NACE - CIP Level I Coating Inspector.

10.0 INSPECTION AND TESTING OF COATING

10.1 Coatings shall be visually examined for surface defects and any discontinuity arising after curing shall be recorded.

10.2 Finished coating thickness shall be determined using suitable instruments standardised (zeroed) on a smooth uncoated metal plate in accordance with AS/NZS 3894.3.

11.0 REPAIR OF A DEFECTIVE COATING AND RETESTING

11.1 Coatings with defective areas equal to 20% or more of the total coated surface will be rejected outright.
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11.2 Defects such as pinholes, cracks, blisters, voids, foreign inclusions and irregular profile peaks shall be marked for repair and retested upon full cure of the repaired coating.

12.0 RECORDING AND REPORTING

12.1 Following testing a report shall be submitted by the Contractor. The Contractor shall keep detailed records and reports including the following:
   • Environmental conditions (relative humidity, dew point etc.);
   • Surface preparation;
   • Surface profile;
   • Coating application;
   • Coating testing; and
   • General failure

12.2 To supplement these records, prior to any works commencing, an Inspection Test Plan (ITP) shall be forwarded to the Water Corporation for review a minimum of 10 working days prior to the commencement of work.

13.0 CONTRACTOR'S RESPONSIBILITY

13.1 The Contractor shall supply all necessary plant, equipment, materials and labour, prepare the surface and apply and maintain the protective coating in accordance with this specification.

13.2 A list of all items to be inspected and the relevant drawing reference shall be forwarded to the Water Corporation Coating Inspector prior to the inspection being undertaken.

13.3 The preceding inspection clauses shall not relieve the Contractor of their responsibility to supply materials and perform work in accordance with the requirements of any overriding contract documentation.

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