

COATING SPECIFICATION

EPOXY MASTIC, POLYURETHANE TOP COATING ON STEEL OR CAST IRON

COATING SPECIFICATION: E3

ISSUE: 4

DATE: MARCH 2023

1.0 SCOPE

This document summarises the procedure for the application of 2 pack epoxy mastic followed by polyurethane topcoat on Steel or Cast Iron structures.

Refer Design Standard, DS95 (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**.

Note:

If anti-graffiti properties are required, replace the specified topcoat with 2 coats of 50 microns nominal dry film thickness “Anti-graffiti Polyurethane” with a total thickness of 100 microns as described in Coating Specification J1.

2.0 PURPOSE

This coating is primarily used as a maintenance type coating on the external surfaces of steel or cast iron exposed to atmospheric corrosivity categories C1 to C5 as described in Australian Standard AS 2312. For corrosivity categories C4 & C5, Micaceous Iron Oxide (MIO) epoxy mastic is preferred [Refer product list in Appendix 3 of Corporation Design Standard DS95].

3.0 DEFINITIONS

ACA: Australasian Corrosion Association.

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

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

DFT: Dry Film Thickness.

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

NACE: National Association of Corrosion Engineers.

Superintendent: 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.

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Works: 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 Oil, dirt and other contaminants shall be removed using appropriate methods.
- 4.2 If blast cleaning is not possible, as a minimum requirement, surfaces shall be hand or power tool cleaned in accordance with St3 (ISO 8501-1:1998).
- 4.3 Care shall be taken not to burnish or polish the cleaned surface. Use of a MBX[®] Bristle Blaster is the Water Corporation preferred power tool clean method.
- 4.4 Coating shall not be applied to surfaces which have become contaminated or deteriorated after cleaning.

5.0 COATING MATERIALS

- 5.1 Coating materials used for attaining the specified standard shall be selected in accordance with Appendix 3 of DS-95- commonly used coatings in potable water and wastewater infrastructures unless approved otherwise by the Principal. This approval is required before coating commences.
- 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 the work.
- 5.4 Edges, crevices, seams, joints and corners shall be brush coated before commencement of spray application of the coating.
- 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.

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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 relative humidity is above 85%;
 - 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;
 - The specified cleanliness of the surface deteriorates;
 - If the weather is deteriorating or unfavorable for application or curing;
 - If the pot life of the paint has been exceeded.

7.0 COATING THICKNESS

- 7.1 Finished coating thickness shall be as follows:
- 2 pack Epoxy Mastic: 200 microns minimum DFT
 - Polyurethane Top Coat: 50 microns minimum DFT
 - Total minimum DFT: 250 microns
- 7.2 Finished coating thickness shall be determined using suitable instruments standardised (zeroed) on a smooth uncoated metal plate in accordance with AS 3894.3.

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 holidays, laps, sags, blistering, checking, wrinkling, overspray, patchiness, and any other defects that may impair the performance and/or appearance of the coating.
- 8.2 Protective coating colours shall comply with AS/NZS 2700 - Colour Standards for General Purposes. For colour code used in treatment plants, refer to Water Corporation Colour Code Drawing No. EG71-1-1. Any other proposed colour than specified in Water Corporation standards shall be referred to the Water Corporation for acceptance prior to use.

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9.0 COATING APPLICATOR/PERSONNEL QUALIFICATION

- 9.1 Work shall only be carried out by a competent person.
- 9.2 The work shall be undertaken by an approved Water Corporation Protective Coatings and Concrete Repair Services panel member.
- 9.3 The contractor shall nominate a certified coating inspector to perform inspections and maintain appropriate records for the work performed. The coating Inspector engaged in testing, monitoring and verification of surface preparation and coating application shall hold relevant inspection qualifications and current certifications (e.g. NACE or ACA) or approved by the Principal. The coating inspector shall conduct the following:
- Prepare Quality Assurance documentation to meet the specified standards given herein and the required acceptance criteria.
 - Perform inspections and maintain appropriate records for work performed.
 - Testing, monitoring and verification of surface preparation and coating application.

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.

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.
- 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;

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- Coating testing; and
- General failure.

12.2 These records, including completed and signed Inspection Test Plans (ITP) shall be forwarded to the Principal on completion of works.

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 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.

Document Revision History					
Sect	Issue	Date	Revision Description	RVWD	APROV
8	4	03/03/2023	Coating Finish	AO	SS
9	4	03/03/2023	Update coating application qualifications	AO	SS

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