

## COATING SPECIFICATION

### EPOXY MASTIC COATING ON STEEL OR CAST IRON

COATING SPECIFICATION: E1

ISSUE: 4

DATE: MARCH 2023

#### 1.0 SCOPE

This document summarises the procedure for the application of using 2 pack Epoxy Mastic coating on steel or cast iron.

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.

#### 2.0 PURPOSE

This coating is a 2 pack Epoxy Mastic coating system primarily used as a maintenance type coating on the external surfaces of steel or cast iron (e.g. valves and pipe works) 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 DS 95]. If discolouration/fading is an issue then Corporation coating specification E3 should be adopted.

#### 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 the contract, who is appointed by the Water Corporation to manage/oversee the work under the contract on behalf of the Water Corporation.

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

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#### 4.0 SURFACE PREPARATION

- 4.1 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).
- 4.2 Care shall be taken not to burnish or polish the cleaned surface. Use of an MBX<sup>®</sup> Bristle Blaster is the Water Corporation preferred power tool clean method.
- 4.3 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 as manufacture recommendations.
- 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.

#### 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;

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- 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 Coating shall be 2 pack Epoxy Mastic of 200 microns nominal dry film thickness.
- 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 2700 - Colour Standards for General Purposes. For treatment plants, reference shall be made to Water Corporation Colour Code Drawing No. EG71-1-1. Any other proposed colour shall be referred to the Water Corporation for acceptance prior to use.

#### 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 Coating and Concrete Repair Services panel member unless approved otherwise by the Principal.
- 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.

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- 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;
  - Coating testing; and
  - General failure.
- 12.2 These records, including Inspection Test Plans (ITP) shall be forwarded to the Water Corporation 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.

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<b>Document Revision History</b>					
<b>Sect</b>	<b>Issue</b>	<b>Date</b>	<b>Revision Description</b>	<b>RVWD</b>	<b>APROV</b>
4	4	20/03/2023	Amend coating finish	AO	SS
9	4	20/03/2023	Amend coating applicator/personnel qualification	AO	SS

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