

TECHNICAL STANDARD

Epoxy Mastic Repair Coating for Steel Pipes and Structures (Jotun Jotamastic 87 Aluminium)



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The following lists the major changes to the first edition of TS 136, which have been incorporated in this edition:

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Referenced Documents

AS 1627: Metal finishing – Preparation and pretreatment of surfaces

AS 3894: Site testing of protective coatings

APAS Document D-184 'Guidelines to Specification, Supply and Quality Assurance'

Section 1: Scope

This specification covers the surface preparation for, application of and repair of Jotun Jotamastic 87 Aluminium two-pack epoxy mastic coating system used for steel work exposed to atmosphere where abrasive blast cleaning is not possible.

This specification shall be read in conjunction with the manufacturer's specifications and technical bulletins and the products shall be applied in accordance with the manufacturer's instructions where details are not included in this specification.

Section 2: Coating Contractor and Quality Assurance

The contractor shall be certified under the 'Painting Contractor Certification Program' for the appropriate class of work or an approved equivalent. The contractor shall submit, to the Superintendent's Representative, documentation in accordance with their Quality Assurance Plan. However, the minimum requirement for Quality Assurance shall be completion of AS 3894.10, AS 3894.11 and AS 3894.12, 'Site testing of protective coatings' equipment and inspection reports. All quality control records shall be available for inspection by the superintendent's representative.

2.1 SA WATER'S REPRESENTATIVE

SA Water's representative in this Technical Standard will be nominated by SA Water.

Section 3: Instructions on Supply of Materials

Australian Paint Approvals Scheme (APAS) 'Record of Supply' shall be obtained when the product is purchased. The purchaser shall request an APAS 'Record of Supply' from the manufacturer at the time the paint is ordered. A 'Manufacturer's Certificate of Test' can then be obtained if problems in the application of the coating subsequently occur.

Information and procedures concerning 'Records of Supply' and 'Certificate of Test' are detailed in APAS Document D-184 'Guidelines to Specification, Supply and Quality Assurance' (www.apas.gov.au).

Returns are required by APAS Document D-184 instructions shall be completed by the manufacturer and submitted to SA Water's Representative by the Contractor for forwarding to the Materials Sciences Unit.

Section 4: Safety and Environment

The contractor shall conduct the operations (including surface preparation and application of coating) in accordance with the standards of safety laid down in *the South Australian Occupational Health, Safety and Welfare Act* and all regulations there under.

All operations shall be conducted in accordance with the *Environmental Protection Act*.

In particular, specific measures shall be taken when working on structures previously coated with lead based paints to meet OHS&W and EPA requirements.

All operations conducted outside the state of South Australia shall meet all local safety and environmental requirements. Contractors are responsible for obtaining all necessary approvals and disposal of all waste.

Section 5: Surface Preparation

5.1 General

The fabricator shall ensure that all joints are fully welded and sealed, sharp edges and corners are ground off to a radius not less than 1.5 mm and all weld spatter and irregularities are removed.

The coating contractor shall, before commencing coating application, inspect the surfaces to be coated and if the contractor considers that there are any imperfections that may render the coating unsatisfactory, the contractor shall notify SA Water's Representative. Commencement of work on the coating shall indicate unconditional acceptance of the surface to be coated.

All surfaces shall be free from mill scale, rust, weld spatter, oil, grease, soil, moisture and any other matter likely to impair the adhesion of the coating.

5.2 Removal of Oil and Grease

Oil and grease shall be removed from all steelwork using an alkali degreasing process or solvent washing as approved by SA Water's representative and in accordance with AS 1627.1 "Part 1: Metal Finishing – Preparation and pretreatment of surfaces – Removal of oil, grease and related contamination."

5.3 Power Tool Cleaning

5.3.1 Surface Preparation

Surfaces must be hand and power tool cleaned in accordance with AS1627.2 and AS1627.7 to a St 2 finish. Sound areas of coating need not be removed, but should be lightly abraded to provide a key for adhesion of the protective coating. Rusted surfaces shall be prepared by disc or hand sanding. This preparation shall result in all loose material and rust being removed with some scratching and polishing of the exposed bare metal to leave a dull silvery finish. Surfaces must then be dusted off and be clean and dry prior to application of coating.

5.3.2 Prior to Coating

All work shall be coated on the same day that it is cleaned and while the surface remains a class St 2 finish. Coatings shall not be applied if the steel temperature is less than 10°C and if the steel temperature is 3°C below due point. Use of dehumidification or other equipment which alter the atmospheric conditions, particularly in enclosed tanks, may be acceptable to SA Water's representative.

The Contractor shall not apply the coating until the surface preparation has been inspected and approved by SA Water's representative. If rust producing salts, chlorides or any other surface contamination judged to be detrimental to coating performance are detected, surfaces shall be further prepared to remove all such contamination to the satisfaction of SA Water's representative. Testing for such contamination shall be done in accordance with AS

3894.9 "Method 6: Determination of residual contaminants." The maximum permissible level of chloride shall be 21 milligrams per square metre. This equates to 3.5 micrograms per square centimetre of sodium chloride. (Refer to clause 7.2).

Section 6: Application of Coating

6.1 Material

Jotun Jotamastic 87 (Aluminium) shall be used. Coating materials shall be mixed and applied in accordance with the manufacturer's written instructions. Proportioning and mixing of part cans is not permitted without the approval of SA Water's Representative.

Strict attention shall be paid to the shelf life and onsite storage conditions, which must meet the manufacturer's recommendations.

6.2 Application

The surface temperature of the steel to be painted shall be at least 3°C above dew point. Coating shall not be applied to any surface that will have a temperature less than 10°C or more than 55°C during the cure period.

Application shall be by spray. Under special circumstances SA Water's Representative may approve brush application for small areas.

Coating materials shall be mixed and applied in accordance with the manufacturer's written instructions. Proportioning and mixing of part cans is not permitted without the approval of SA Water's Representative. Strict attention shall be applied to the shelf life.

Coating material shall be thoroughly agitated during spraying using a compressed air driven agitator.

6.3 Thickness

The dry film thickness shall be not less than 250 microns with a maximum dry film thickness of 300 microns.

The dry film thickness shall be measured in accordance with AS3894.3 "Method 3: Determination of Dry Film Thickness" or as approved by SA Water's Representative. Calibration of instruments shall take account of surface profile height and shall be adjusted in accordance with this test method.

Section 7: Inspection

7.1 General

The work shall be monitored and inspected by an Australasian Corrosion Association (ACA) or a NACE (National Association of Corrosion Engineers) Accredited Coating Inspector who will be engaged by SA Water. For surface preparation and coating, SA Water's Representative would usually be the coating inspector. To allow for inspection, 48 hours notice shall be given to SA Water's representative prior to commencement of any cleaning or application of coating. Subsequently SA Water's Representative shall be kept informed with at least 48 hours notice of future work schedules for cleaning and painting.

7.2 Before Coating

The contractor shall not apply any coating until the surface preparation has been inspected and approved by SA Water's Representative. SA Water's Representative may, at his/her discretion, perform any tests relating to surface preparation or contamination. If testing is required, the test areas shall be prepared again in accordance with Clause 5.3 after the testing is complete.

7.3 After Completion of Coating

The coating will be inspected by SA Water's representative as soon as practicable after completion for compliance with the specification.

Areas that have been inadequately or unsatisfactorily coated shall be treated in accordance with section 5 and 6 or section 8 as directed by, and to the satisfaction of SA Water's Representative.

7.4 Re-inspection

Should surface preparation or applied coating prove to be unsatisfactory in the view of SA Water's representative and require rework and subsequent inspection, the cost of such inspection will be charged to the contractor and such costs will be deducted from the contract price.

Section 8: Reinstatement of Cured Coating

Damaged and defective areas shall be abraded by power disk sanding till bright steel is exposed or as approved by SA Water's Representative. Edges of the coating shall be feathered back by the same means for approximately 20 millimetres. Coating shall be re-applied in accordance with Section 6, however no coating shall extend beyond the edge of the prepared area.