

Main Roads Technical Standard

MRTS88

Painting New Work

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Painting New Work

1 INTRODUCTION

This Standard applies to the painting of new work.

This Technical Standard shall be read in conjunction with MRTS01 *Introduction to Technical Standards*, MRTS50 *Specific Quality System Requirements* and other Technical Standards as appropriate.

This Technical Standard forms part of the Main Roads Specifications and Technical Standards Manual.

2 DEFINITION OF TERMS

The terms used in this Standard shall be as defined in Clause 2 of MRTS01 *Introduction to Technical Standards*.

3 REFERENCED DOCUMENTS

Table 3 lists the documents referenced in this Technical Standard.

Table 3 – Referenced Documents

Reference	Title
AS/NZS 2312	Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings
AS 1580	Paints and related materials – Methods of test

4 QUALITY SYSTEM REQUIREMENTS

4.1 Hold Points, Witness Points and Milestones

General requirements for Hold Points, Witness Points and Milestones are specified in Clause 5.2 of MRTS01 *Introduction to Technical Standards*.

The Hold Points and Milestones applicable to this Technical Standard are summarised in Table 4.1. There are no Witness Points defined.

Table 4.1 – Hold Points and Milestones

Clause	Hold Point	Milestone
5.2.1	1. Approval of paint system	Submission of proposed paint system (21 days)
5.3	2. Approval of paint system	Submission of proposed paint system (28 days)
6.2	3. Defective steelwork	
6.4	4. Approval of Painting Procedure	Submit proposed procedure (28 days)

4.2 Painting Procedures

Painting procedures which are required to be submitted by the Contractor to the Administrator in accordance with Clause 5 of MRTS50 *Specific Quality System Requirements* are listed in Table 4.1.

4.3 Conformance Requirements

The conformance requirements which apply to lots of work covered by this Standard are summarised in Table 4.3.

Table 4.3 – Conformance Requirements

Clause	Procedure
7	Acceptance of Paintwork

4.4 Testing Frequency

The minimum testing frequency for work covered by this Standard is specified in Clause 7.6.

5 MATERIALS

5.1 General

Paint shall not contain lead or chromium. Paint with lead or chromium compounds exceeding 0.2 percent of the dried paint mass shall not be used.

Paint systems may be specified as Approved products (Clause 5.2) or as Painting Systems to AS/NZS 2312 (Clause 5.3).

5.2 Approved Products

5.2.1 General

The approved products (where applicable) are listed in Clause 1 of Annexure MRTS88.1. Alternative brand products may be submitted to the Administrator for approval.

The Contractor shall submit the proposed paint system with full technical data sheets to the Administrator at least 21 days prior to ordering paint. **Milestone**

Paint shall not be ordered until the products have been approved by the Administrator. **Hold Point 1**

5.2.2 Dry Film Thickness

The dry film thickness shall be in accordance with Clause 2 of Annexure MRTS88.1.

5.3 Generic Paint System

The paint system may be specified as a paint system in accordance with AS/NZS 2312. Where applicable, the paint system is detailed in Clause 3 of Annexure MRTS88.1.

The Contractor shall submit the proposed paint system with full technical data sheets to the Administrator at least 28 days prior to ordering paint. **Milestone**

Paint shall not be ordered until the product has been approved by the Administrator. **Hold Point 2**

6 PAINTWORK

6.1 Scope of Work

The scope of the work to be undertaken under the Contract shall be as stated in Clause 4 in Annexure MRTS88.1

6.2 Defective Steelwork (if applicable)

All sharp edges and corners shall be dressed to a 2 mm radius (minimum) and grinding rags removed by finishing, or hand filing or other approved methods.

Prior to preparation for repainting, the Contractor shall notify the Administrator of any defective steelwork and propose corrective action. Prior to the commencement of preparation, the corrective action shall be verified by the Administrator. **Hold Point 3**

6.3 Preparation of Surface prior to painting

The preparation of the surface prior to application of the paint shall be in accordance with Clause 5 of Annexure MRTS88.1.

Any repairs to the surface after abrasive blast cleaning shall be in accordance with Clause 5 of Annexure MRTS88.1. Grinding or sanding is not acceptable.

6.4 Painting Procedure

The Contractor shall submit to the Administrator a painting procedure and an Inspection and Test Plan at least 28 days prior to commencing painting. **Milestone** No painting shall be undertaken prior to acceptance of the procedure by the Administrator. **Hold Point 4**

The painting procedure shall cover at least the topics described in Clause 6.5.

6.5 Painting

The Contractor shall be responsible for ensuring that the standard set for surface preparation is maintained, the dry film thickness of paint is as specified, the finish of all paint coats is of a high standard and any areas that may require repairs are reported.

The Contractor shall have a monitoring and recording system for at least the following –

- a) surface preparation;
- b) paint system adopted;
- c) wet film thickness;
- d) dry film thickness of each paint coat;
- e) batch number of paint used for each layer;
- f) quantity of paint used;
- g) method of application;
- h) weather;
- i) recoating times;
- j) drying time before handling; and
- k) sharp corners and paint thickness.

6.6 Inspection

The Administrator will carry out an examination of the work and shall be given reasonable access to the Site for this purpose. Hold points for inspection shall be agreed between the Administrator and the Contractor before work commences. The Administrator may refer to the Contractor's records of other jobs as the basis for inspection. Defects shall be marked with school grade chalk, adhesive inspection labels or masking tape.

7 APPLICATION OF PAINT

7.1 Condition of Steelwork

All steelwork shall be dry, clean and free of any loose or flaky material prior to the application of each coat.

7.2 Application

All coatings shall be applied in accordance with the paint manufacturer's recommendations. All coatings shall be thoroughly mixed.

Thinners shall not be used without the approval of the Administrator. Any thinner submitted for approval shall be in accordance with the manufacturer's recommendations.

Each coat of paint shall be applied at the application rates specified in either 1) Clause 2 of Annexure MRTS88.1 for Approved Products, or 2) Clause 3 of Annexure MRTS88.1 and AS/NZS 2312 for Generic Paint Systems, as applicable.

Coatings shall be applied so as to produce a smooth, even coating free of lumps, ripples, sags, air holes and other defects.

The dry film thickness of the paint shall be measured with an Eleometer 246 Digital Electronic Coating Thickness Gauge. Instruments shall be calibrated in accordance with Method 108.1 of AS 1580 using non-magnetic shims on polished steel.

7.3 Curing

The curing time for each coat shall be strictly adhered to in accordance with the manufacturer's recommendations.

7.4 Method of Application

The method of application shall be approved by the Administrator. **[Refer Clause 6.4 and Hold Point 4]**

7.5 Weather Conditions

All coatings shall be applied to a dry metal surface. Coatings shall not be applied when the temperature of the ambient air or the receiving surface is less than 10°C nor when the temperature of the receiving surface is greater than 55°C nor when the humidity is greater than 85%. Paint shall not be applied if adverse weather conditions are likely to occur before it has cured.

The coating shall not be applied when the surface temperature of the metal is within 3°C above the dew point or when the surface is in direct strong sunlight.

The ambient temperature, metal temperature, relative humidity and dew point shall be recorded –

- a) at the commencement of work each day;
- b) at 9.00 am;
- c) at 12.00 noon;
- d) at 3.00 pm;
- e) at finishing time of work; and
- f) with each weather change.

Maximum and minimum temperatures each 24 hours shall be recorded by placing a maximum and minimum temperature thermometer adjacent to the work.

7.6 Acceptance Criteria

The average dry film thickness shall not be less than the specified thickness.

The actual minimum thickness shall not be less than 90% of the specified thickness.

The number of readings taken shall be determined as follows –

- a) for pipe work, the following readings shall be taken –
 - i) for pipes less than 150 mm diameter, two readings shall be taken evenly around the circumference per linear metre;
 - ii) for pipes 150 mm to 300 mm diameter, four readings shall be taken evenly around the circumference per linear metre; and
 - iii) for pipes 300 mm to 600 mm diameter, six readings to be taken evenly around the circumference per linear metre.
- b) for beams and angles where the face is less than 300 mm wide, one reading on each flat face for every linear metre; and
- c) for all other areas, a minimum of three readings per square metre shall be taken.

7.7 Repair of Paint Coating

To reinstate a damaged coating system or to rebuild the dry film thickness, the following procedure shall be followed –

- a) any sharp edges of the damaged coating shall be feathered or tapered;
- b) any oil, grease, dirt or other contaminants shall be removed from the surface with a suitable solvent or oil emulsifier and degreaser and the surface abraded by use of a suitable tool, emery cloth or by whip blasting;
- c) the appropriate coating system shall be applied as specified to the damaged area;
- d) foreign particles shall not be permitted within the coating; and
- e) areas of low thickness shall be rebuilt to that specified, by applying the appropriate coating.

7.8 Storage of Paint

Paint shall be stored in sealed containers in a lock-up store and not exposed to extreme temperature. The temperature of the store shall be kept between 4°C and 35°C. Any special storage conditions recommended by the paint manufacturer shall be observed.

Paint which has not been used within the shelf life period specified by the manufacturer or within 18 months of manufacture shall be replaced.

8 SUPPLEMENTARY REQUIREMENTS

The requirements of MRTS88 *Painting New Work* are varied by the Supplementary Requirements given in Clause 6 of Annexure MRTS88.1.

All relevant Acts and Regulations shall be observed.