


File Ref:	HQ.MET(SPOOR) 5/41		
Approved date:	22/12/2009		
Title:	PAINT SPECIFICATION FOR STEEL BRIDGES OWNED BY PRASA/METRORAIL		

## 1. INTRODUCTION/BACKGROUND

This specification, which is based on the specification used by the Transnet Freight Rail Bridge Office, details the paint systems that are approved and the application and preparation requirements for the maintenance of all steel bridges that are:



- 1.1. Owned by PRASA and maintained by Metrorail or Intersite
- 1.2. Owned by Transnet Freight Rail and maintained by Metrorail or Intersite
- 1.3. Partly owned and maintained by Metrorail or Intersite and the relevant municipality

The applicable safety and operational requirements of the various operators must be adhered to in the preparation for and application of the approved paint systems.

## 2. PAINT SYSTEMS

- 2.1. Metrorail prefers the use of single pack/component, water based, elastic, waterproof, impact and UV resistant, non toxic corrosion preventive paint systems.
- 2.2. There are only two approved paint systems and no other system is allowed. Details of these paint systems are:
  - 2.2.1. Noxyde paint system which is supplied by Stoncor Africa (Contact number 011 254 5500)
  - 2.2.2. OptiRustBusta® which is supplied by Optima Coatings (SA) (Pty) Ltd. (Contact number 031 208 1440).
- 2.3. The Contractor must allow both suppliers to quote and the preferred supplier must be selected by the Contractor. Once the supplier is selected a detailed specification, based on a preliminary site inspection by the paint supplier and the table below, must be obtained from the relevant supplier which is suitable for the environmental and service conditions at the site and include equipment to be used, surface preparation, quality control and monitoring of the painting operation. The supplier must monitor the preparation and application procedures and submit reports. The supplier must also guarantee the performance of the paint system after completion of the

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project and monitor such performance up to TEN YEARS AFTER COMPLETION OF THE PROJECT and submit written reports to the client.

### 3. NUMBER OF COATS/PAINT THICKNESS

3.1. The number of coats applied and the dry film thickness of the paint depends on the location of the steel bridge as described below:

#### 3.1.1. For use on inland steel bridges

Paint System	Coats	Film Thickness (microns)
		Total dry film thickness
OptiRustBusta® OR Noxyde #	At least two coats with a stripe coat * in between coats	300 microns minimum

\* To be applied to all sharp edges, rivets, bolts and nuts.

#### 3.1.2. For use on coastal (Closer than 50km from the sea) steel bridges or other harsh areas


Paint System	Coats	Film Thickness (microns)
		Total dry film thickness
OptiRustBusta® OR Noxyde #	At least two coats with a stripe coat * in between coats	400 microns minimum

\* To be applied to all sharp edges, rivets, bolts and nuts.

### 4. COLOURS

Contrasting colours are required for each coat. The final coat must be SABS 1091 G 22 Dove Grey (Battleship Grey / Buff) or D 30 French grey (Mill Green / Grey green) (or similar) or must be specified by the client.

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5. SURFACE PREPARATION

Remove all oil and grease by washing with a water emulsifiable solvent degreaser that will leave no residue that may be incompatible with the paint system. Thereafter high pressure wash (300bar with potable water) the steel surface. Depending on the condition of the existing coats, this must be followed by either:

- 5.1. Abrasive blast with a fine to medium dry grit (mineral slag grade B90 or similar) to a cleanliness of Swedish Standard Sa 2 according to ISO 8501-1: 1988 to obtain a surface profile not exceeding 60 microns, or
- 5.2. Mechanical spot cleaning of affected areas that can include abrasive blast cleaning.

6. SEALING OF GAPS AND CREVICES BETWEEN STRUCTURAL MEMBERS

The Technical Officer/Consultant will point out all gaps and crevices between structural members where painting is not accessible. These places must be filled with a suitable acrylic sealer after applying the first coat. For gaps and crevices wider than 5mm, backing cord should be used. Apply the next coat according to the sealer manufacturer's specification.


7. PAINTING UNDER SLEEPERS

This action shall be done under supervision and requirements of the local operator's Track personnel.

In order to blast and paint the top of the flanges under the sleepers, every 2<sup>nd</sup> sleeper must be loosened and moved without affecting the standard track gauge, leaving the other sleepers on either side of the loose one still attached to the bridge steelwork.

The loosened sleeper shall only be moved back to its original position after 24 hours of application of the final coat. The process shall then repeat itself by loosening and moving the other alternative sleepers. Special care must be taken not to damage the painted area when moving the sleepers back.

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8. UNDER CLEARANCE MARKERS

The Technical Officer/Consultant will be required to determine if a steel bridge is under clearance. If the steel bridge is under clearance, the face of the steelwork when approaching the bridge by rail, on both sides and both ends, shall be painted with black and yellow alternating stripes, 200mm wide, at an angle of 45 degrees by using an approved single pack water based acrylic polyurethane coating that is compatible with the rest of the coating system. This will apply to a height of between 1 metre and 3 metre above rail level measured vertically and is meant to warn the train driver of limited clearance. It shall be applied after the full paint system has been applied.

9. PAINTING OF HAND RAILS

An approved single pack water based acrylic polyurethane coating shall be used as top coat for hand rails.

10. CONCLUSION

For any queries or comments on this specification, please contact the Track & Structures Perway department at the PRASA Head Office.

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