

Superseded

**Technical Specification**

**Transport and Main Roads Specifications  
MRTS46 Skid Resistant Friction Coating for  
Steel Road Plates**

**October 2010**

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## 1 Introduction

This technical specification sets out the requirements for coatings applied to steel road plates (e.g. over road openings) in order to improve the skid resistant frictional properties of the road plates. The requirements for field measurement of existing coated road plates prior to installation and in service are included.

This technical specification shall be read in conjunction with MRTS01 *Introduction to Technical Specifications*, MRTS50 *Specific Quality System Requirements* and other technical specifications as appropriate.

This technical specification forms part of the Transport and Main Roads Specifications Manual.

## 2 Definition of terms

The terms in this specification shall be as defined in Clause 2 of MRTS01 *Introduction to Technical Specifications*. Additional terms used in this Specification shall be as defined in Table 2.

**Table 2 – Definition of terms**

Term	Definition
British Pendulum Number (BPN)	A quantitative estimate of the adherence of a rubber slider to a wet surface determined by measuring the energy lost in friction of the rubber slider against the wet surface.
Friction Coating	A coating designed to be applied to steel road plates which will result in surface skid resistance properties fit for the purpose of vehicular trafficking. Skid resistance is assessed by the coating achieving a minimum British Pendulum Number (BPN), both as applied and after a specified regime of simulated trafficking and polishing.

## 3 Referenced documents

Table 3 lists documents referenced in this technical specification.

**Table 3 – Referenced documents**

Reference	Title
TMR	Guideline to Quality Systems in Infrastructure Delivery Dec. 2002
TMR	Guideline to Skid resistant friction coating for steel road plates May 2010

## 4 Standard test methods

The standard test methods listed in Table 4-A and 4-B shall be used in this specification.

**Table 4A – Australian Standards**

Reference	Title
AS 1141	Methods for sampling and testing aggregates
AS 1141.41	Methods for sampling and testing aggregates – Polished Aggregate Friction Value – Horizontal bed machine
AS 1141.42	Methods for sampling and testing aggregates – Pendulum Friction Test
AS/NZS 1580	Paints and related materials – Methods of test
AS/NZS 1580.408.5	Paints and related materials – Methods of test - Adhesion-Pull-off test

Reference	Title
AS/NZS 1580.455.1	Paints and related materials – Methods of test – Resistance to water at room temperature
AS/NZS 1580.601.1	Paints and related materials – Methods of test – Colour – Visual comparison
AS 2700S	Colour standards for general purposes
AS/NZS ISO 9000	Quality Management Systems Fundamentals and vocabulary
AS/NZS ISO 9001	Quality management systems - Requirements

**Table 4B – TMR Test Method**

Reference	Title
Q704-1982	Skid Resistance (Portable Pendulum)

## 5 Quality management system

The supplier shall establish and maintain a Quality Management System in accordance with ISO 9001 as a means of ensuring that the product conforms to the specification requirements. The contractor shall provide a certificate of compliance verifying that the frictional coating complies with this specification

## 6 Material requirements

### 6.1 General

When applied to a smooth steel road plate in accordance with the manufacturer's recommendations, the friction coating must demonstrate the specified performance when subject to the following tests in Clauses 6.3 to 6.7.

### 6.2 Composition

The friction coating must be composed of resinous binder and inert mineral matter. The mineral matter shall be composed of natural or synthetic mineral matter with a Polished Aggregate Friction Value (PAFV) of no less than 58 when tested in accordance with Q203-1996.

### 6.3 Colour

When examined visually in accordance with AS/NZS 1580.601.1, the friction coating must be an approximate match to any grey colour in the range N32 to N65, or to the red colour R62 of AS 2700s. The luminance factor should be no greater than 0.14.

### 6.4 Pull-off adhesion test

When tested in accordance with AS/NZS 1580.408.5, the friction coating must show no sign of cohesion and/or adhesion failure at a load of 3MPa.

### 6.5 Resistance to water immersion

When tested in accordance with AS.NZS 1580.455.1, after immersion in water at 23+/-20C for 1000 hours, the friction coating must show:

- a) no softening, swelling or delamination
- b) no difference in the scratch resistance of the immersed and unimmersed coating
- c) no material removed by rubbing with cotton wool.

## **6.6 Friction value**

When tested in accordance with the procedures of AS 1141.41 and AS 1141.42 the initial and final British Pendulum Number (BPN) must be not less than 55.

## **6.7 Surface texture**

When tested in accordance with the procedures of Q 705-2008 Texture Depth – Sand patch test method, the coating shall have a minimum texture depth of 1 mm.

# **7 Measurement of skid resistance of existing coated steel road plates**

## **7.1 Measurement frequency**

The BPN of the friction coating of each existing coated steel road plate must be measured at the storage stockpile or on the road:

- a) prior to its initial installation in the roadway at the site
- b) for road plates in continuous use under traffic, after every 12 months of service.

In addition, for road plates in continuous use at one site, the BPN must be measured where, by visual assessment:

- c) more than 10% of the total area of the coating is polished, damaged or missing
- d) more than 20% of the coating is polished, damaged or missing in a clearly defined wheel path.

In cases (c) and (d) the BPN must be measured using a portable skid resistance tester in accordance with Q704-1982.

The measurements must be taken in and between the positions of the wheel paths at the rate of one measurement per linear metre in the direction of traffic.

## **7.2 Friction value**

When tested in accordance with Q704-1982, the Skid Resistance Value (SRV) measured in units of British Pendulum Number (BPN) must be not less than 55.

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