

TRANSPORT FOR NSW (TfNSW)

SPECIFICATION D&C 3360

TWO PART COLD APPLIED ROAD MARKING MATERIAL

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Transport
for NSW

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FOREWORD

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BASE SPECIFICATION

This document is based on Specification TfNSW 3360 Edition 3 Revision 1.

TfNSW SPECIFICATION D&C 3360

TWO PART COLD APPLIED ROAD MARKING MATERIAL

1 SCOPE

This Specification sets out the material requirements for two part resin based cold applied road marking material for use with surface applied glass beads.

Three types of two part cold applied road marking material are covered, *viz*:

- Type I Spray Material (contains no glass beads)
- Type II Trowel or Screed Applied Material (contains intermix glass beads)
- Type III School Zone Material (contains no glass beads)

2 STRUCTURE OF THE SPECIFICATION

This Specification includes a series of annexures that detail additional requirements.

2.1 (NOT USED)

2.2 (NOT USED)

2.3 (NOT USED)

2.4 REFERENCED DOCUMENTS AND DEFINITIONS

Standards, specifications and test methods are referred to in abbreviated form (e.g. AS 2350). For convenience, the full titles are given in Annexure 3360/M.

The term “the Supplier” means the supplier of the product covered by the scope of this Specification.

3 (NOT USED)

4 SUPPLIER’S QUALITY MANAGEMENT SYSTEM

The Supplier must establish and maintain a Quality Management System complying with AS/NZS ISO 9001 as a means of ensuring that the product conforms to this Specification.

Provide evidence verifying compliance with this Clause.

5 MATERIAL REQUIREMENTS

5.1 COLOUR

When a test panel which has been prepared in accordance with Annexure 3360/E is assessed in accordance with AS 1580.601.1, the colour match (according to AS 2700S) must be as follows:

- White:** equivalent to or whiter than Y35 Off-White
- Yellow:** equivalent to Y12 Wattle or Y14 Golden Yellow or all colours deemed to be between these colours.
- Black:** to be no lighter than B64 Charcoal

5.2 LEAD CONTENT

When determined by method ASTM D3335, the lead content must be no greater than 0.25%.

5.3 NO-PICK-UP-TIME

When prepared in accordance with Annexure 3360/E and measured in accordance with AS 1580.401.8 (Method 104.8), the three types of two-part, cold applied, road marking material applied at the specified film thickness must satisfy the no-pick-up times shown in Table 3360.1.

Table 3360.1 - Film Thickness and No-Pick-Up Times

	Applied Film Thickness	No-Pick-Up Time at 23°C (Maximum)
Type I	0.200 ± 0.025 mm	5 minutes
Type II	2.0 ± 0.25 mm	20 minutes
Type III	2.0 ± 0.25 mm	20 minutes

5.4 LUMINANCE

5.4.1 White Road Marking Material

When tested in accordance with AS 4049.2 Appendix G, the luminance factor of white road material as delivered, prepared in accordance with Annexure 3360/E, must be not less than 75%.

5.4.2 Yellow Road Marking Material

When tested in accordance with AS 4049.2 Appendix G, the luminance factor of yellow road marking material as delivered, prepared in accordance with Annexure 3360/E, must be not less than 50%.

5.5 ABRASION RESISTANCE

When tested in accordance with AS 4049.2 Appendix I, the loss in mass must not exceed 0.3 g for 500 cycles.

6 FIELD TESTING

6.1 GENERAL

The markings must be applied in a lane which is subjected to 1,500,000 vehicle passes within a period of more than three, but less than nine months, and assessed for skid resistance, retroreflectivity, degree of wear and luminance factor. The road surface selected for field testing must be 10 mm or 14 mm dense grade asphalt.

For beaded and unbeaded test lines of Type I and Type II, apply two part cold applied road marking material in accordance with the general procedure of AS 4049.2 Appendix L, with the appropriate application equipment in lieu of that used with thermoplastic marking material.

Apply Type III material in accordance with Specification TfNSW TTT-037 School Zones, Appendix C. Dry unbeaded applied film thicknesses must be as specified in Table 3360.1.

For Type I material, apply glass beads to achieve a minimum retention rate of 250 grams per square metre of drop-on glass beads and 250 grams per square metre of large glass beads conforming respectively to Class A and Class B of TfNSW D&C 3353.

For Type II material, in addition to the glass beads applied for Type I material, apply also 400 grams per square metre of white crushed quartz (or equivalent) between 0.4 mm to 0.7 mm size.

6.2 SKID RESISTANCE

When tested in the wheelpath in accordance with AS 4049.2 Appendix M up to 4,000,000 vehicle passes, the skid resistance value on a beaded test line of Type I and Type II material and a normally applied (according to Specification TfNSW TTT-037 School Zones, Appendix C) Type III test line must not be less than 45 BPN.

6.3 RETROREFLECTIVITY

When tested in the wheel path in accordance with AS 4049.2 Appendix L, the retroreflectivity of a beaded Type I and Type II line one hour after application must be greater than 220 mcd/lux/m². After 4,000,000 vehicles pass, the retroreflectivity must be not less than 100 mcd/lux/m².

6.4 DEGREE OF WEAR

When assessed for degree of wear in the wheel path on a test line in accordance with AS 4049.2 Appendix L after 4,000,000 vehicle passes, the photographic rating must be not less than 10 or the wear index using the grid method must not exceed 24.

6.5 LUMINANCE FACTOR

When tested in accordance with AS 4049.2 Appendix G after 4,000,000 vehicle passes, the luminance factor must be not less than 45.

7 PRODUCT CERTIFICATION

Provide a certificate of compliance verifying that the road marking material complies with this Specification, together with the relevant test results from a laboratory registered by NATA to carry out the tests.

8 PACKAGING

Package the product in sound clean dry containers constructed of a material which is inert to the contents and sufficiently robust to withstand normal conditions of handling and storage without rupture or leakage.

Supply the product components in separate containers.

Containers must comply with statutory requirements relevant to the transport and storage of flammable liquids as specified in the current edition of the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code).

Note: AS 2854 and AS 2905 refer to suitable containers for these products.

9 LABELLING

Clearly mark each container with the following information:

- (a) Name of supplier;
- (b) Product name and Type (I, II or III);
- (c) Batch number or date of manufacture;
- (d) Volume of contents of container, in litres;
- (e) Mixing proportions;
- (f) Any information required by statutory regulations.

ANNEXURES 3360/A TO 3360/D – (NOT USED)

ANNEXURE 3360/E – PREPARATION OF TEST PANELS

1. General

Test panels may be of glass, aluminium, steel or tin plate. They must be flat and smooth. Panels must be solvent washed and dried before the application of marking material.

2. Procedure

Apply the mixed marking material to the test panel in accordance with the instructions on the manufacturer's product data sheet.

After 24 hours, the cured film is ready for testing.

ANNEXURES 3360/F TO 3360/L – (NOT USED)

ANNEXURE 3360/M – REFERENCED DOCUMENTS

Refer to Clause 2.4.

TfNSW Specifications

TfNSW D&C 3353 Glass Beads (for Application to Road Marking Materials)

TTT-037 School Zones

Australian Standards

AS 1580 Methods of test for paints and related materials

AS 2700S Colour standards for general purposes

AS 2854 Open top metal cans

AS 2905 Steel drums

AS 4049.2 Paints and related materials – Pavement marking materials – Thermoplastic pavement marking materials – For use with surface applied glass beads

AS/NZS ISO 9001 Quality management systems - Requirements

ASTM Method

ASTM D 3335 Test Method for Low Concentrations of Lead