

TRANSPORT FOR NSW (TfNSW)

QA SPECIFICATION 3354

ADHESIVE FOR RAISED PAVEMENT MARKER INSTALLATION

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REVISION REGISTER

Ed/Rev Number	Clause Number	Description of Revision	Authorised By	Date
Ed 1		First Issued	GM,CMS	050791
Ed 2	1 2 3 5 7 8	Delete reference to two part epoxy adhesives. New standards inserted Application conditions deleted, bituminous adhesive inserted. Replaced by requirements for two pack chemically curing adhesives. New clause number for product certification, required every 3 years. Type of material, mixing ratios, recommended temperatures to be shown on each container.	GM,CEC	270594
Ed 3		Converted to MS Word 6.0c. Document reformatted. References updated.	GM, RNIC (J Woodward)	18.4.97
Ed 4	3	Type 2 adhesive redefined	GM, RNIC (W Ho)	01.07.97
Ed 5/Rev 0	“Notice” Spec Ref No Foreword Global 3 (in previous edition) 5 (in previous edition)	RTA PO Box and Fax numbers updated. Revision No added. Foreword added. Text revised to direct imperative style. “shall” replaced by “must”. Reformatting and minor editing. Clauses renumbered. Type 1 adhesive no longer specified, requirement standardised to Type 2 adhesive. Entire clause referring to Type 1 adhesive, including Tables 3354.1 to 3354.4, removed.	GM, IC	20.04.09

Ed/Rev Number	Clause Number	Description of Revision	Authorised By	Date
Ed 5/Rev 0 (cont'd)	6 7 8 Annex M	Table 3354.5 renumbered as Table 3354.1. Softening Point requirement in Table increased; Heat Stability Flow test conditions redefined, test method changed. Requirement inserted for testing to be by NATA laboratory or laboratory approved by Principal. References to Type 1 adhesive removed. AS 3554 reference removed. ASTM D3407 replaced with ASTM D5329.		
Ed 5/Rev 1	Global	References to “Roads and Maritime Services” or “RMS” changed to “Transport for NSW” or “TfNSW” respectively.	DCS	22.06.20



ADHESIVES FOR RAISED PAVEMENT MARKER INSTALLATION

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VERSION FOR: DATE:

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FOREWORD

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REVISIONS TO PREVIOUS VERSION

This document has been revised from Specification TfNSW 3354 Edition 5 Revision 0.

All revisions to the previous version (other than minor editorial and project specific changes) are indicated by a vertical line in the margin as shown here, except when it is a new edition and the text has been extensively rewritten.

PROJECT SPECIFIC CHANGES

Any project specific changes are indicated in the following manner:

- (a) Text which is additional to the base document and which is included in the Specification is shown in bold italics e.g. ***Additional Text***.
- (b) Text which has been deleted from the base document and which is not included in the Specification is shown struck out e.g. ~~Deleted Text~~.

TfNSW QA SPECIFICATION 3354

ADHESIVE FOR RAISED PAVEMENT MARKER INSTALLATION

1 SCOPE

This Specification sets out the requirements for adhesives to be used for installing raised pavement markers on both bituminous and concrete pavements.

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

Unless specified otherwise, the applicable issue of a referenced document, other than a TfNSW Specification, must be the issue current at the date one week before the closing date for tenders, or where no issue is current at that date, the most recent issue.

Standards, specifications and test methods are referred to in abbreviated form (e.g. AS 2350). For convenience, the full titles are given in Annexure 3354/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 GENERAL REQUIREMENTS

The adhesive used for raised pavement marker installation must be a thermoplastic bituminous adhesive with a homogeneously mixed filler.

It must be capable of being melted and applied at elevated temperatures in the nominal range of 180°C to 220°C. The properties of the adhesive must not deteriorate when it is heated to the application temperature in either an air or oil jacketed kettle.

6 ADHESIVE MATERIAL REQUIREMENTS

Thermoplastic bituminous adhesive must conform to the requirements as set out in Table 3354.5 below:

Table 3354.1 - Thermoplastic Bituminous Adhesive Requirements

Property	Requirement		Test Method
Softening Point, °C	108	122	TfNSW T505
Flash Point, °C	285	-	AS 2341.14
Penetration, 100g, 5 sec, 25°C	10	20	ASTM D5
Flow, mm	-	2	TfNSW T736
Viscosity 205°C, Brookfield Thermosel	3	6	ASTM D4402
Heat Stability flow, mm, 60°C, 5hrs	-	2	ASTM D5329

7 PRODUCT CERTIFICATION

The Supplier must provide a certificate of compliance verifying that the product complies with the relevant clauses of this Specification, together with the results of the relevant tests. The tests must be carried out by a laboratory accredited by NATA to carry out such tests, or by a laboratory approved by the Principal.

The certification must relate only to the formulation on which the tests were carried out. New certification will be required every 3 years or whenever a change in product formulation is made.

8 PACKAGING AND LABELLING

The following information must appear on each container:

- (a) Name of the supplier,
- (b) Product name and/or number,
- (c) Recommended application temperature and maximum heating temperature for bituminous adhesives,
- (d) Date of manufacture or batch number,
- (e) Shelf life.

The following information must be supplied with each delivery:

- (i) Technical Data Sheets giving relevant properties, and instructions for storage, mixing, application and clean-up,
- (ii) Safety Data Sheets,
- (iii) Product certification (Refer Clause 7).

ANNEXURES 3354/A TO 3354/L – (NOT USED)

ANNEXURE 3354/M – REFERENCED DOCUMENTS

Refer to Clause 2.4.

TfNSW Test Methods

TfNSW T505	Softening point of bituminous and resinous material
TfNSW T736	Flow test for rubber bitumen mixes

Australian Standards

AS 1906.3	Retroreflective materials and devices for road traffic control purposes – Raised pavement markers (retroreflective and non-retroreflective)
AS 2341	Methods of testing bitumen and related roadmaking products
AS/NZS ISO 9001	Quality management systems – Requirements

ASTM Standards

ASTM D5	Standard test methods for penetration of bituminous materials
ASTM D5329	Standard methods of testing joint sealants, hot-poured, for concrete and asphalt pavements
ASTM D4402	Standard test methods for viscosity determinations of unfilled asphalts using the brookfield thermosel apparatus