

SUPERSEDED

**Specification (Measurement)**

**Transport and Main Roads  
MRS32 High Modulus Asphalt (EME2)**

**October 2017**

SUPERSEDED

## Copyright



<http://creativecommons.org/licenses/by/3.0/au/>

© State of Queensland (Department of Transport and Main Roads) 2017

**Feedback:** Please send your feedback regarding this document to: [tmr.techdocs@tmr.qld.gov.au](mailto:tmr.techdocs@tmr.qld.gov.au)

**Contents**

- 1 Introduction .....1**
- 2 Measurement of work .....1**
  - 2.1 Standard Work Items ..... 1
  - 2.2 Work Operations ..... 1
  - 2.3 Calculation of quantities ..... 2
    - 2.3.1 High modulus asphalt, EME2 mix .....2
    - 2.3.2 Grit .....2
- 3 Utilisation of a rejected lot for a reduced level of service .....2**
  - 3.1 Acceptance of nonconformances ..... 2
  - 3.2 Combined particle size distribution and binder content ..... 3
  - 3.3 Insitu air voids ..... 3

SUPERSEDED

## 1 Introduction

This Specification applies to the construction of pavement layers using high modulus asphalt (EME2) complying with MRS32 *High Modulus Asphalt (EME2)*.

This Specification shall be read in conjunction with Specification MRS01 *Introduction to Specifications* and other Specifications as appropriate.

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

## 2 Measurement of work

### 2.1 Standard Work Items

In accordance with the provisions of Clause 2 of MRS01 *Introduction to Specifications*, the Standard Work Items covered by this Specification are listed in Table 2.1.

**Table 2.1 – Standard Work Items**

Standard Item No.	Description	Unit of Measurement
<b>High Modulus Asphalt (EME2)</b>		
42101	High modulus asphalt, EME2 mix	tonne
42102P	Supply and application of grit to the surface of high modulus asphalt (Provisional Quantity, if ordered)	tonne

### 2.2 Work Operations

#### Item 42101 High modulus asphalt, EME2 mix

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) being a prequalified asphalt contractor or engaging a subcontractor who is a prequalified asphalt contractor
- c) having a registered mix design or obtaining a registered mix design
- d) manufacture of the high modulus asphalt in accordance with the registered mix design(s)
- e) delivery of the high modulus asphalt to the Works
- f) laying, compacting and finishing the high modulus asphalt
- g) providing an allowance for high modulus asphalt used in temporary ramps and high modulus asphalt lost from cut-offs from joints
- h) provision of a laboratory and compliance testing facilities
- i) sampling, testing and quality assurance requirements
- j) delivery of the results for all tests and inspections to the Administrator by the nominated time, and
- k) removal and disposal of any nonconforming material or product, or any material or product not utilised for a reduced level of service, and replacement with conforming material or product.

**Item 42102P Supply and application of grit to the surface of high modulus asphalt  
(Provisional Quantity, if ordered)**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) winning and processing of the material, and
- c) loading, delivery, stockpiling, hauling, spreading and rolling of the grit.

**2.3 Calculation of quantities**

**2.3.1 High modulus asphalt, EME2 mix**

The quantity of asphalt incorporated in the final work shall be mutually agreed using the tally of the weighbridge docket of the delivered asphalt less:

- a) the quantity of asphalt which does not remain in the Works (such as asphalt in temporary ramps, cut-off joints and spillages or that remaining on or in the construction plant), and
- b) any amount of asphalt which exceeds the upper vertical and horizontal geometric tolerances but is accepted to remain in the Works by the Administrator.

Weighbridge dockets must be issued at a certified weighbridge and collected at the point of delivery.

**2.3.2 Grit**

The quantity of grit shall be calculated based on the actual area of EME2 mix gritted and the nominated spread rate complying with the requirements of Clause 8.5 of MRS32 *High Modulus Asphalt (EME2)*.

**3 Utilisation of a rejected lot for a reduced level of service**

The Contractor may elect to approach the Principal, via the Administrator, with a written proposal about how rejected lots, or rejected lots not accepted for a reduced level of service, may be retained. If accepted, the relevant details about the outcome should be captured on the Transport and Main Roads asphalt warranty register.

**3.1 Acceptance of nonconformances**

Pre-determined acceptance criteria in the form of payment deduction(s), as provided in this Specification, will be applied to nonconformances for the following properties:

- a) particle size distribution and binder content in asphalt, and
- b) insitu air voids.

Deductions apply to the scheduled rate for the quantity of asphalt represented by the test sample (lot or sub-lot as appropriate).

The requirements of Clause 1.2 of MRS32 *High Modulus Asphalt (EME2)* still apply to asphalt accepted for utilisation at a reduced level of service under this clause.

Transport and Main Roads accepts asphalt for utilisation at a reduced level of service based on the requirements of Clause 3.1 being satisfied. However, it may not be appropriate to apply these pre-determined dispositions for specific high risk / high profile projects. Where it is determined that application of these pre-determined dispositions is not appropriate, it will be stated elsewhere in the Contract that the requirements of Clause 3.1 do not apply.

### 3.2 Combined particle size distribution and binder content

Deductions in accordance with Table 3.2 will be applied to accepted nonconformances in combined particle size distribution and binder content provided that:

- a) for any individual sieve size or binder content, nonconformances greater than twice the production tolerance specified in Table 7.4.3.2 of MRTS30 *Asphalt Pavements* will not be accepted, and
- b) deductions are cumulative and nonconformances will not be accepted if the combined particle size distribution and binder content deductions exceed 20%.

**Table 3.2 - Deductions for particle size distribution and binder content nonconformances**

Combined Particle Size Distribution Element	% by which Nonconformance exceeds Production Tolerance (Clause 7.4.3.2 of MRTS30)	Deductions (% of Lot or Sub-lot Value)
	(% by mass of total aggregate)	
Passing 19.0 mm	Each 2 or part thereof	1
Passing 13.2 mm	Each 2 or part thereof	1
Passing 9.50 mm	Each 2 or part thereof	1
Passing 6.70 mm	Each 2 or part thereof	1
Passing 4.75 mm	Each 2 or part thereof	1
Passing 2.36 mm	Each 1 or part thereof	1
Passing 1.18 mm	Each 1 or part thereof	1
Passing 0.600 mm	Each 1 or part thereof	1
Passing 0.300 mm	Each 1 or part thereof	2
Passing 0.150 mm	Each 0.5 or part thereof	2
Passing 0.075 mm	Each 0.5 or part thereof	2
<b>Binder Content</b>	<b>(% by mass of total asphalt mix)</b>	
All asphalt mix	Each 0.1 or part thereof	3

### 3.3 Insitu air voids

Deductions in accordance with Table 3.3 will be applied to nonconformances in excess of the upper characteristic value limit for insitu air voids ( $V_U$ ), provided the nonconformance does not exceed the limit specified in Table 9.1 of MRTS32 *High Modulus Asphalt (EME2)* by more than 2.0%.

**Table 3.3 – Deductions for excessive insitu air voids**

<b>Insitu Air Voids in Excess of Specified Limit <math>V_U</math> by (%)</b>	<b>Deduction (% of Lot Value)</b>
≤ 0.5	5
0.6 - 1.0	15
1.1 - 1.5	30
1.6 - 2.0	50

SUPERSEDED

SUPERSEDED