

Technical Specification

**Transport and Main Roads Specifications
MRTS103 Fillers for Asphalt**

November 2025

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Feedback

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About this document

The document adopts and modifies Austroads Technical Specification ATS 3125 *Fillers for Asphalt* as part of national harmonisation. It sets out the requirements for added fillers for use in asphalt.

How to use this document

This document includes the national guidance and Queensland-specific advice while following the structure established in Austroads Technical Specifications.

Queensland-specific advice includes practices which vary from national practice because of local environmental conditions (such as geography, soil types, climate); different funding practices; local research; local legislation requirements; and to expand instruction on particular issues.

This document:

- sets out how the Austroads Technical Specification ATS 3125 *Fillers for Asphalt* applies in Queensland
- has precedence over the Austroads Technical Specification ATS 3125 *Fillers for Asphalt* when applied in Queensland
- has the same clause numbering and headings as the Austroads Technical Specification ATS 3125 *Fillers for Asphalt*.

Transport and Mains Roads provides an ancillary document which outlines adopted national and modified Queensland-specific content with tracked changes. To access a copy click on the below link: [Ancillary documents for harmonised Technical Specifications.](#)

Terminology

The following general amended definitions apply when reading this document.

Reference to...	Means
Shall	Denotes mandatory requirements
Must	Denotes mandatory requirements
Principal	The State of Queensland acting through the Department of Transport and Main Roads.
Administrator	The Administrator will be responsible for the overall administration of this Contract.

Contents

About this document.....	i
How to use this document	i
Terminology.....	i
1 Scope	1
2 Referenced documents.....	1
3 Definitions	2
4 Quality system requirements	3
5 Storage	3
6 Properties of Added Fillers	3
General	3
Verification of Conformity	4
Appendix A: Summary of Hold Points, Witness Points, Milestones and Records	6

1 Scope

- 1.1 This Technical Specification sets out the requirements for added fillers for use in asphalt ('Added Fillers').
- 1.2 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.
- 1.3 This Technical Specification forms part of the Transport and Main Roads Specifications Manual.

2 Referenced documents

- 2.1 The requirements of the referenced documents listed in Table 2.1 below apply to this Technical Specification. Where there are inconsistencies between this Technical Specification and the referenced documents, the requirements in this Technical Specification shall take precedence.

Table 2.1 – Reference documents

Reference	Title
Australian / New Zealand Standards	
AS 1141.8	<i>Methods for sampling and testing aggregates - Water-soluble fraction of filler</i>
AS 1141.11.1	<i>Methods for sampling and testing aggregates - Particle size distribution - Sieving method</i>
AS 1141.66	<i>Methylene blue value</i>
AS 1672.1	<i>Limes and limestones - Limes for building</i>
AS/NZS 3582.1	<i>Supplementary cementitious materials for use with portland and blended cement - Fly ash</i>
AS 3583.1	<i>Methods of test for supplementary cementitious materials for use with portland and blended cement, Method 1: Determination of fineness by the 45 micrometre sieve</i>
AS 3583.3	<i>Methods of test for supplementary cementitious materials for use with portland cement, Method 3: Determination of loss on ignition</i>
AS 4489.2.1	<i>Test methods for limes and limestones - Fineness - Wet sieving</i>
AS 4489.6.1	<i>Test methods for limes and limestones - Lime index - Available lime</i>
AS 4489.8.1	<i>Test methods for limes and limestones - Free moisture - Convection oven</i>

Reference	Title
International / European Standards	
EN 13639	<i>Determination of total organic carbon in limestone</i>
Transport and Main Roads Technical Documents	
MRTS01	<i>Introduction to Technical Specifications</i>
MRTS30	<i>Asphalt Pavements</i>
MRTS50	<i>Specific Quality Systems - Requirements</i>
MRTS101	<i>Aggregates for Asphalt</i>

3 Definitions

3.1 The terms used in this Technical Specification shall be defined in Clause 2 of MRTS01 *Introduction to Technical Specifications*. Additionally terminology relevant to this Technical Specification is defined in Table 3.1 below.

Table 3.1 - Definitions of terms

Term	Definition
Added Filler	A mineral material which: a) is incorporated into an asphalt mix to modify the properties of the mix, and b) complies with this Technical Specification.
Available Lime	Alkaline constituents which are readily soluble in a sucrose solution as determined by AS 4489.6.1, using the calculation for calcium hydroxide.
Cement Works Flue Dust	A mineral material derived from the cement manufacturing process, also known as 'cement kiln dust'.
Fly Ash	The solid material extracted from the flue gases of a boiler fired with pulverized coal.
Ground Limestone	A calcium carbonate-rich rock dust derived from the grinding of sound unfired limestone.
Hydrated Lime	Essentially calcium hydroxide in the form of a white powder produced by the addition of sufficient water to slake quicklime.

4 Quality system requirements

4.1 Added Fillers must be manufactured under a Quality Management System which is certified as complying with AS/NZS ISO 9001 by an organisation which is accredited by JAS-ANZ or another Accreditation Body Member of the International Accreditation Forum.

5 Storage

5.1 Added Fillers must be:

- a) stored in silos, bins or sheds that keep the contents dry and free from contamination, and
- b) used in the order they were delivered with the earliest delivered batches to be used first.

6 Properties of Added Fillers

General

6.1 Added Fillers must:

- a) comprise of a mineral material with a consistent composition, and
- b) be dry and free of lumps, organic material or other deleterious matter.

6.2 Each type of Added Filler, where used, must comply with Table 6.2 and the additional requirements in Table 6.3.

Table 6.2 – Added Filler Requirements

Added Filler	Requirement
Cement Works Flue Dust (also known as “baghouse dust”)	Collected as residue from the cement manufacturing process in a cement manufacturing plant.
Ground Limestone	Contain more than 75% by mass of CaCO ₃ determined from an analysis of the source rock by X-ray fluorescence.
Fly ash	Grade 1 conforming to AS/NZS 3582.1.
Ground Granulated Blast-Furnace Slag (GGBFS)	Comply with AS 3582.2.
Hydrated Lime	Comply with AS 1672.1.
Cement	Comply with to AS 3972

Added Filler	Requirement
Rock Dust and Other Mineral Fillers	Derived from rock conforming to the requirements of MRTS101 <i>Aggregates of Asphalt</i> .

Verification of Conformity

6.3 The Contractor must ensure that the Added Fillers are tested in accordance with the requirements specified in Table 6.3 and the results submitted to the Administrator with the asphalt Lot in accordance with MRTS30 *Asphalt Pavements*. For each test (where applicable), the minimum test frequency is one test per 500 tonnes of production per source of supply. **Record**

Table 6.3 – Testing of Added Fillers

Filler	Property	Test Method	Acceptance Criteria
Cement Works Flue Dust	Particle size distribution	AS 1141.11.1	Refer Clause 6.5
	Loss on ignition	AS 3583.3	≤ 6%
	Water soluble fraction	AS 1141.8	≤ 20%
	Moisture content	AS 4489.8.1	≤ 3%
	Methylene Blue Value (MBV) of the portion of material passing the 0.075 mm test sieve (determined in accordance with AS 1141.11)	AS 1141.66	Report only
Ground Limestone	Particle size distribution	AS 1141.11.1	Refer Clause 6.5
	Total organic carbon content (only required if the CaCO ₃ content < 80%)	EN 13639	< 0.50% by mass
	Moisture content	AS 4489.8.1	≤ 3%
Fly ash	Fineness	AS 3583.1	Refer AS 3582.1
	Moisture content	AS 4489.8.1	≤ 3%
	Water soluble fraction	AS 1141.8	≤ 20%
GGBFS	Moisture content	AS 4489.8.1	≤ 3%
Cement	Moisture content	AS 4489.8.1	≤ 3%
Hydrated Lime	Available lime content, calculated as calcium hydroxide	AS 4489.6.1	≥ 80.0%
	Sieve residue: % retained 300 µm sieve	AS 4489.2.1	≤ 2.0%
	Moisture content before use	AS 4489.8.1	≤ 1.0%

- 6.4 Where fly ash, GGBFS and/or cement are used, the Contractor must submit a certificate of compliance in accordance with the AS/NZS 3582.1, AS 3582.2 and AS 3972 respectively. **Record**
- 6.5 The grading limits for ground limestone and cement kiln dust materials must comply with Table 6.5.

Table 6.5 – Grading Limits for Cement Works Flue Dust and Ground Limestone

Sieve size (mm)	Percentage passing sieve size (by mass)
0.600	100
0.300	95-100
0.075	75-100

Appendix A: Summary of Hold Points, Witness Points, Milestones and Records

General requirements for Hold Points, Witness Points, Milestones and Records are specified in Clause 5.2 of MRTS01 *Introduction to Technical Specifications*.

The Hold Points, Witness Points, Milestones and Records that the Contractor must submit to the Administrator to demonstrate compliance with this Technical Specification are summarised in Table A. There are no Hold Points, Witness Points and Milestones defined.

Table A – Hold Points, Witness Points, Milestones and Records

Clause	Hold Point	Witness Point	Milestone	Record
6.3 and 6.4				Evidence of conformity, including test results

