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| AUSTROADS TECHNICAL SPECIFICATION ATS 3135  Supply of Reclaimed Asphalt Pavement Material | A close up of a flag  Description automatically generated |
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| Contents  [1. Scope 1](#_Toc117147647)  [2. Referenced Documents 2](#_Toc117147648)  [3. Definitions 2](#_Toc117147649)  [4. Quality System Requirements 3](#_Toc117147650)  [5. Constituent Materials 3](#_Toc117147651)  [General 3](#_Toc117147652)  [6. Process Control 4](#_Toc117147653)  [General 4](#_Toc117147654)  [Particle size distribution of combined aggregate and filler 4](#_Toc117147655)  [Stockpile Management 4](#_Toc117147656)  [Transport of Processed Material from the Processing Site to the Asphalt Plant 5](#_Toc117147657)  [Stockpiles at the Asphalt Plant 5](#_Toc117147658)  [Traceability of Material in Asphalt Production 5](#_Toc117147659)  [7. Conformity 5](#_Toc117147660)  [Material conformance 5](#_Toc117147661)  [Sampling and Testing 5](#_Toc117147662)  [Nonconformance 6](#_Toc117147663)  [Annexure A: Summary of Hold Points, Witness Points and Records 7](#_Toc117147664) |

# Scope

Austroads Technical Specification ATS 3135 sets out the requirements for the supply of reclaimed asphalt pavement (RAP) material used in the manufacture of asphalt.

Refer to ATS 3410 for the requirements covering:

1. the class of binder to be added to asphalt containing RAP material;
2. RAP level permissible in various asphalt products and pavement applications (e.g. heavy duty dense graded asphalt versus light duty dense graded asphalt);
3. the binder content tolerance of the production mix with or without RAP material; and
4. the inclusion of RAP material in asphalt manufactured using warm mix asphalt technology.

# Referenced Documents

The following documents are referenced in this Specification:

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| **Australian / New Zealand Standards**  AS 1141.3.1 Methods for sampling and testing aggregates – Sampling – Aggregates  AS/NZS 2891.3.1 Methods of sampling and testing asphalt – Binder content and aggregate grading – Reflux method  AS/NZS 2891.10 Moisture Content of Asphalt |
| **Austroads**  AP-C87-15 Austroads Glossary of Terms  ATS 1120 Quality Management Requirements  ATS 3130 Aggregates for Asphalt  ATS 3410 Asphalt Pavements  ATM 192 Characterisation of the viscosity of reclaimed asphalt pavement (RAP) binder using the dynamic shear rheometer (DSR) |

# Definitions

* 1. In addition to the definitions in AP-C87-15, the following definitions apply to this Specification.

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| **Asphalt Manufacturer** | The company that manufactures the asphalt containing the RAP material. |
| **Processed RAP** | RAP which has been blended, crushed and screened to a nominal maximum size to meet the requirements of Clause 7. |
| **RAP Approval Level:** | The level designation which corresponds to the maximum amount of RAP material which can be used in an asphalt mix design. |
| **Reclaimed asphalt pavement (RAP)** | Asphalt which has been milled or excavated from existing asphalt pavements, or returned from job sites. |

# Quality System Requirements

The Contractor must prepare and implement a RAP Management Plan that includes the documentation in Table 4.1.

Table 4.1: Quality Plan

| Clause | Description of Document |
| --- | --- |
| 6.2 | Detailed procedures and inspection and test plans (ITPs) for the excavation, processing and stockpile management of the RAP |
| 7.2 | Inspection and test plans which include details of the sampling and testing methods, as well as the frequency of testing. |

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| **HOLD POINT 1.** | |
| Process Held | Commencement of the production of RAP material. |
| Submission Details | The RAP Management Plan must be provided to the Principal at least 10 working days prior to the commencement of the production of RAP material. |

The RAP material must be produced under a Quality Management System which has been certified to AS/NZS ISO 9001 by a JAS-ANZ accredited organisation.

The submission of a RAP Management Plan is not required if the RAP Management Plan has been previously provided to the Principal through a prequalification or mix registration system.

If the asphalt is to be placed in a jurisdiction where a prequalification or approval scheme for companies supplying asphalt and / or RAP material is in place, the Asphalt Manufacturer must be prequalified or approved under that scheme to the appropriate level and/or category.

# Constituent Materials

## General

RAP constituent materials must:

1. be sourced totally from asphalt;
2. not contain any foreign materials such as road base, concrete, coal tar, plastics, brick, timber and scrap rubber;
3. be free from clay, dirt and other deleterious matter; and
4. only include aggregates which are hard, sound and durable.

The particle size distribution and materials finer than 75 µm must be determined on the total fraction after removal of the binder using toluene.

RAP material must be sourced in accordance with the regulations, policies and codes of practice issued pursuant to the applicable legislation for the protection or management of the environment.

# Process Control

## General

The production of RAP material must be subject to process control in accordance with this Clause 6.

The Rap Management Plan must include procedures / details for:

1. managing the milling and transportation process, including the method of preventing to ensure that the asphalt is not contaminated by granular pavement materials;
2. ensuring that contaminants are screened / separated from the RAP;
3. blending feedstock, crushing, screening and managing oversize material;
4. details of the stockpile management, including the methods to prevent ponding of water in the stockpile and compaction of the RAP;
5. Ensuring that the processed RAP material in each stockpile is homogeneous in terms of its visual appearance and test properties;
6. managing any absorptive aggregates to ensure that their distribution in the stockpile does not produce variable binder absorption in the asphalt mix;
7. controlling the moisture content in each stockpile; and
8. if the asphalt mix will contain more than 25% RAP material, the methodology to ensure that the processed RAP material within a stockpile is graded and fractionated.

The Asphalt Manufacturer must undertake sufficient regular monitoring and testing to ensure that the consistency and quality of the RAP comply with this Specification at all times. These requirements are auditable at the point of mix design submission and at any time during the production and placement of asphalt mixes containing RAP.

## Particle size distribution of RAP

RAP material must be blended, crushed and screened to ensure that:

1. 100% passes the 26.5 mm AS sieve;
2. it is free flowing with a consistent particle size distribution that complies with the tolerances specified in ATS 3130 and the Contractor’s target grading; and
3. it has minimal fracture of aggregate particles.

Where the asphalt mix will contain more than 25% RAP material, processed RAP material must be fractionated into more than one size (i.e. coarse and fine) and then metered into the asphalt mixing process.

## Stockpile Management

RAP must be transported and stored to minimise the impact of moisture and prevent compaction, segregation and contamination from other material sources (including virgin aggregates, other processed RAP lots and unprocessed RAP).

At the processing site, separate stockpiles must be established for processed and unprocessed RAP material.

Processed RAP must be stockpiled in Lots not exceeding 1000 tonnes. Each lot must be clearly identified and marked including its testing status.

Once the processed RAP stockpile has been assessed for compliance, additional RAP must not be added to that stockpile.

## Transport of Processed Material from the Processing Site to the Asphalt Plant

Processed RAP material must be transported from the processing site to the asphalt plant in a manner such that there is:

1. no segregation or contamination of the processed RAP material; and
2. no change in the mix during production.

## Stockpiles at the Asphalt Plant

At the asphalt plant:

1. each stockpile of processed RAP material must not exceed 500 tonnes;
2. stockpiles must be configured to prevent contamination; and
3. each stockpile must remain free flowing without agglomeration of the material prior to use.

Incoming RAP must be visually monitoring and assessed for homogeneity and for the presence of foreign and/or deleterious materials. The monitoring must be carried out daily (at a minimum) by a person experienced in the process.

Where RAP material in a stockpile is found to contain lumps or is not free flowing, it must not be used in asphalt production. Such materials may be reprocessed to comply with this Specification.

The distribution of RAP aggregate in each stockpile must be visually homogeneous and meet the requirements for control moisture content in stockpiles.

## Traceability of Material in Asphalt Production

The RAP material used in asphalt production must be traceable to a designated stockpile.

# Conformity

## Material conformance

In addition to submitting records of process control to the Principal, the Asphalt Manufacturer must demonstrate that the RAP material complies with this Specification by sampling and testing in accordance with this Clause 7.

## Sampling and Testing

The RAP Management Plan must nominate the sampling locations, method of sampling and the frequency of sampling / testing.

All samples for testing must be taken from stockpiles as described in the Contactor’s ITP. Sampling must be undertaken in accordance with AS 1141.3.1. The sampling and testing must be carried out within a 28 day period prior to the incorporation of RAP into the asphalt manufacturing process.

Unless specified otherwise in the Contract documents or directed by the Principal, the frequency of testing must not be less than the minimum specified in Table 7.3.

Table 7.3: Minimum testing frequencies for RAP

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| **Material Property** | **Test Method** | **Minimum Frequency of Testing** |
| **Unprocessed RAP** | | |
| Homogeneity and absence of foreign and / or deleterious materials in the incoming RAP | Visual inspection | Each incoming load |
| **Processed RAP** | | |
| Binder content and aggregate grading | AS 2891.3.1 | 1 per 500 tonnes |
| Recovered binder viscosity of RAP (1) | ATM-192 | 1 per 1000 tonnes |
| Moisture Content | AS/NZS 2891.10 | Daily during asphalt production |

Note:

(1) This testing is only required where the percentage of RAP binder exceeds 15% of the total binder in the mix:

The Asphalt Manufacturer may submit a proposal to the Principal for a reduced minimum frequency of testing to apply in accordance with ATS 1120. Any such proposal must be supported by a statistical analysis verifying consistent process capability and product characteristics.

## Nonconformance

A nonconforming Lot must not be used in the production of asphalt.

Annexure A: Summary of Hold Points, Witness Points and Records

The following is a summary of the Witness Points / Hold Points that apply to this Specification and the Records that the Contractor must submit to the Principal to demonstrate compliance with this Specification.

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| **Clause** | **Hold Point** | **Witness Point** | **Record** |
| 4.1 | 1. Manufacture of RAP |  | RAP Management Plan |
| 7.4 |  |  | Test results |

Amendment Record

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| Amendment no. | Clauses amended | Action | Date |
| - | New specification | New | November 2023 |
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| Key |  |
| Format | Change in format |
| Substitution | Old clause removed and replaced with new clause |
| New | Insertion of new clause |
| Removed | Old clauses removed |