



**Methods for sampling and testing aggregates**

**Method 19: Fine particle size distribution in road materials by sieving and decantation**

STANDARDS  
Australia



AS 1141.19:2018

This Australian Standard® was prepared by CE-012, Aggregates and Rock for Engineering Purposes. It was approved on behalf of the Council of Standards Australia on 7 December 2018.

This Standard was published on 21 December 2018.

The following are represented on Committee CE-012:

ARRB (Australian Road Research Board)  
Ash Development Association of Australia  
Australian Geomechanics Society  
Australasian (iron & steel) Slag Association  
Australian Asphalt Pavement Association  
AUSTROADS  
Cement Concrete & Aggregates Australia - Aggregates  
Cement Concrete & Aggregates Australia - Cement  
Cement Concrete & Aggregates Australia - Concrete  
Engineering & Construction Laboratories Association  
National Association of Testing Authorities Australia  
University of Technology Sydney

This Standard was issued in draft form for comment as DR AS 1141.19:2018.

#### **Keeping Standards up-to-date**

Ensure you have the latest versions of our publications and keep up-to-date about Amendments, Rulings, Withdrawals, and new projects by visiting:

[www.standards.org.au](http://www.standards.org.au)

[www.saiglobal.com](http://www.saiglobal.com) (sales and distribution)

ISBN 978 1 76072 338 5



**Methods for sampling and  
testing aggregates**

**Method 19: Fine particle size  
distribution in road materials by sieving  
and decantation**

Origin: technical AS 1141.19—1980.  
Second edition 1998.  
This edition 2018.

**COPYRIGHT**

© Standards Australia Limited 2018

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher, unless otherwise permitted under the Copyright Act 1968 (Cth).

## Preface

This Standard was prepared by the Standards Australia Committee CE-012, Aggregates and Rock for Engineering Purposes, to supersede AS 1141.19—1998.

This edition of the standard has added a safety warning concerning the use of ammonia as a dispersing agent if the working space is not adequately ventilated. Editorial changes have been made to make the method consistent with Standards Australia Standardization Guides.

The terms “normative” and “informative” are used in Standards to define the application of the appendices or annexes to which they apply. A “normative” appendix or annex is an integral part of a Standard, whereas an “informative” appendix or annex is only for information and guidance.

Currently in preview, click buy full version.

## Contents

Preface .....	ii
<b>1 Scope .....</b>	<b>1</b>
<b>2 Principle .....</b>	<b>1</b>
<b>3 Normative references .....</b>	<b>1</b>
<b>4 Reagents .....</b>	<b>1</b>
<b>5 Apparatus .....</b>	<b>2</b>
<b>6 Preparation of samples .....</b>	<b>2</b>
<b>7 Procedure .....</b>	<b>3</b>
<b>8 Calculations .....</b>	<b>5</b>
<b>9 Report .....</b>	<b>5</b>
<b>Appendix A (normative) Calculation of fine particle size distribution as a percentage of total mass of sample .....</b>	<b>7</b>

# Australian Standard<sup>®</sup>

## Methods for sampling and testing aggregates

### Method 19: Fine particle size distribution in road materials by sieving and decantation

#### 1 Scope

This Standard sets out the method for the determination of the fine particle size distribution in road materials.

The procedure for the determination of coarse particle size distribution and particle size distribution for fillers for asphalt is described in AS 1141.11.1.

**WARNING — THE STANDARD PROCEDURE FOR THE DETERMINATION OF THE FINE PARTICLE SIZE DISTRIBUTION IN ROADBASE ACCORDING TO THIS METHOD, INVOLVES THE REPEATED BOILING OF THE TEST PORTION IN A DILUTE SOLUTION OF AMMONIA WHICH IS USED AS A DISPERSING AGENT. THE PROCEDURE SHOULD BE CONDUCTED UNDER A FUME HOOD WHICH WILL REMOVE AMMONIA FUMES AND DISCHARGE THE FUMES TO EXTERIOR ATMOSPHERE. FAILURE TO EXTRACT FUMES, ALLOWING THEM TO ENTER THE WORKING SPACE, WILL CAUSE DISCOMFORT TO STAFF IN THE FORM OF EYE AND NASAL IRRITATION. STAFF WITH BREATHING DIFFICULTIES MAY BE AFFECTED SERIOUSLY. IF EXTRACTION FACILITIES ARE NOT AVAILABLE, THE USE OF AMMONIA SHOULD BE AVOIDED IN FAVOUR OF THE ALTERNATE DISPERSING AGENTS (SEE [CLAUSE 7\(I\)](#) NOTE 2).**

#### 2 Principle

The particle size distribution is determined by dry sieving in the case of materials coarser than 2.36 mm and by decantation in the case of materials finer than 2.36 mm. In the latter case the proportions determined are those passing 425  $\mu\text{m}$  and 75  $\mu\text{m}$  sieves and that are less than 13.5  $\mu\text{m}$  diameter. The determination of the 13.5  $\mu\text{m}$  particle size is based on the application of Stokes Law. The particle sizes determined enable the assessment of roadbase products based on ratios derived from Wilhelmi's formula for maximum density grading.

#### 3 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document.

AS 1141.2, *Methods for sampling and testing aggregates, Method 2: Basic testing equipment*

AS 1141.3.1 *Methods for sampling and testing aggregates, Method 3.1: Sampling — Aggregates*

AS 1141.11.1, *Methods for sampling and testing aggregates, Method 11.1: Particle size distribution — Sieving Method*

#### 4 Reagents

The following reagents may be required (see Note 2 to [Clause 7\(i\)](#)):

- (a) A 20 % ammonia solution.
- (b) Sodium oxalate.
- (c) Sodium hexametaphosphate.