

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

METHODS FOR SAMPLING AND TESTING AGGREGATES

AS 1141.20
AVERAGE LEAST DIMENSION OF AGGREGATE
BY DIRECT MEASUREMENT

1 SCOPE. This standard sets out the method for determining the average least dimension of aggregate particles by the use of vernier callipers or dial gauge or a slotted gauge. The method is applicable to aggregate of nominal size 5 mm and greater for sprayed bituminous surfacing.

NOTE: The first use of the term 'average least dimension' is attributed to F. M. Hanson, M M, in the paper 'Bituminous Surface Treatment of Rural Highways' published by New Zealand Society of Civil Engineers (Incorporated) in 1935.

Present practice is outlined in the NAASRA publication 'Principles and Practice of Bituminous Surfacing' 1980.

2 REFERENCED DOCUMENTS. The following standards are referred to in this standard:

AS 1141 Methods for Sampling and Testing Aggregates
 1141.2 Equipment
 1141.11 Particle Size Distribution by Dry Sieving

AS 1152 Test Sieves

3 APPARATUS. The following apparatus, complying with the relevant provisions of AS 1141.2, is required:

- (a) Dial gauge or vernier callipers or gauge (see (b) below).
- (b) Gauge—a metal slotted gauge having slots 2 mm, 4 mm, 6 mm, 8 mm, 10 mm, 12 mm, 14 mm, 16 mm and 18 mm wide arranged consecutively in a suitable frame. The tolerance for all sized slots shall be ± 0.05 mm.
- (c) Containers—metal dishes of sufficient size to contain the various portions of the test sample during testing.
- (d) Sieves—as required, complying with AS 1152.

4 PREPARATION TEST PORTION. The test portion shall be prepared in the following manner:

- (a) Sieve the sample as outlined in AS 1141.11.
- (b) Discard all size fractions where the material is present in an amount of less than 10 percent of the whole sample.
- (c) Recombine the remaining size fractions and reduce the size of the sample by quartering or riffing to obtain the test portion of at least 100 pieces.

5 PROCEDURE.**5.1 General.**

- (a) Spread the particles on a flat surface and manipulate them in such a manner that they lie with their least dimension in a vertical plane.
- (b) Determine the dimensions in the vertical plane of each particle by one of the methods described in Clauses 5.2, 5.3 and 5.4.
- (c) Count the number of particles in each class size.

5.2 Vernier Callipers Method.

- (a) Set the vernier scale at an opening of 20 mm. Pass the particles through the opening in the orientation adopted in Clause 5.1(a) above.
- (b) Separate the particles into classes of 2 mm intervals in sizes, i.e. between 0 and 2 mm, 2 mm and 4 mm, etc, by carrying out the procedure outlined above for vernier calliper openings of 18 mm, 16 mm, 14 mm ... 2 mm.