

STANDARDS AUSTRALIA

RECONFIRMATION

OF

AS 1141.14–2007

Methods for sampling and testing aggregates

Method 14: Particle shape, by proportional caliper

RECONFIRMATION NOTICE

Technical Committee CE-012 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

Certain documents referenced in the publication may have been amended since the original date of publication. Users are advised to ensure that they are using the latest versions of such documents as appropriate, unless advised otherwise in this Reconfirmation Notice.

Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 29 March 2018.

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NOTES

Australian Standard®

AS 1141.14—2007

Methods for sampling and testing aggregates**Method 14: Particle shape, by proportional caliper**

This Standard incorporates Amendment No. 1 (April 2016). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

1 SCOPE

This Standard sets out a method to determine the proportion of flat particles, elongated particles and, flat and elongated particles found in those fractions of a coarse aggregate retained on a 9.50 mm test sieve, using a proportional caliper.

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2 NORMATIVE REFERENCES

The following referenced documents are indispensable for the application of this document:

AS	
1141	Methods for sampling and testing aggregates
1141.1	Method 1: Definitions
1141.2	Method 2: Basic testing equipment
1152	Specification for test sieves

3 DEFINITIONS

For the purpose of this Standard, the definitions given in AS 1141.1 and the ones below apply.

3.1 Caliper ratio

The caliper ratio can be either 2:1 or 3:1, as required by the technical specifications.

3.2 Elongated particle

An elongated particle is one having a ratio of length (L) to width (W) greater than the caliper ratio adopted.

3.3 Flat particle

A flat particle is one having a ratio of width (W) to thickness (T) greater than the caliper ratio adopted.

3.4 Flat and elongated particle

A flat and elongated particle is one having a ratio of length (L) to width (W) and a ratio of width (W) to thickness (T) greater than the caliper ratio adopted.

3.5 Length, width and thickness

The length (L), width (W), and thickness (T) are, respectively, the greatest, intermediate and least dimensions of any particle, as measured along mutually perpendicular directions, that is, they are the principal dimensions of the circumscribing rectangular prism.

3.6 Proportion of elongated particles

The proportion of elongated particles is the percentage of elongated, and flat and elongated particles.

3.7 Proportion of flat particles

The proportion of flat particles is the percentage of flat, and flat and elongated particles in the aggregate, retained on 9.50 mm test sieve, determined by summing the weighted percentages.

3.8 Proportion of misshapen particles

The proportion of misshapen particles is the percentage of flat, elongated and flat and elongated particles in the size fraction measured, determined by summing the weighted percentages.

A1 3.9 'Text deleted'

3.10 Weighted percentage

The weighted percentage is the percentage of a type of misshapen particle in a particular size fraction multiplied by the amount of material in that size fraction (expressed as a percentage of all the material measured) and divided by one hundred.

4 APPARATUS

The following apparatus, complying with the relevant provisions of AS 1141.2, are required:

- (a) Balance—of adequate capacity, with a limit of performance not exceeding ± 5 g.
- (b) Caliper—proportional caliper capable of ratios 2:1 or 3:1, made of steel as shown in Figure 1. The fixed posts shall be suitably hardened.
- (c) Oven—A thermostatically controlled oven to operate at a temperature of 105°C to 110°C.

NOTE: Material may be dried to constant mass using other methods such as microwave ovens, infra-red lights or hotplates, provided tests have shown that these techniques do not disrupt or weaken particles to the extent that changes occur in the property being measured.

- (d) Sample divider.

- (e) Sieves—complying with AS 1152 as required, i.e., 53.0 mm, 37.5 mm, 26.5 mm, 19.0 mm, 13.2 mm, and 9.50 mm.

5 TEST PORTION

The test portion shall be of a size that will yield not less than 100 particles of each size fraction larger than 9.50 mm present in an amount of not less than 10% of the sample.