

Australian Standard®

AS 1141.54:2018

Methods for sampling and testing aggregates

Method 54: Foreign material in crushed recycled concrete for use in pavements

1 SCOPE

This Standard sets out the method for determining by visual examination the amount of foreign material in coarse aggregate produced from recycled concrete aggregate.

The method is appropriate for material up to 75 mm nominal size and tests that fraction of the material retained on the 4.75 mm sieve.

WARNING: CRUSHED CONCRETE AGGREGATE HAS BEEN KNOWN TO BE CONTAMINATED WITH ASBESTOS. WHEN SAMPLING FROM STOCKPILES OR PREPARING SAMPLES IN THE LABORATORY, THE CRUSHED AGGREGATE SHOULD BE DAMP TO PREVENT GENERATING AIRBORNE DUSTS.

ON EXAMINATION, IF FIBROUS INORGANIC MATERIAL IS REVEALED OR IF THE AGGREGATE CONTAINS FLAT OR CURVED PARTICLES CLEARLY OF A MANUFACTURED ORIGIN (THAT IS SHEET OR PIPE FRAGMENTS) SAMPLING OR TESTING SHOULD BE SUSPENDED.

ANY SAMPLE AND SAMPLE CONTAINERS SHOULD BE SEALED INTO HEAVY DUTY PLASTIC BAGS WITH MINIMAL ADDITIONAL HANDLING AND THE SAMPLES DEALT WITH IN ACCORDANCE WITH APPROPRIATE WORK, HEALTH AND SAFETY STANDARDS.

2 NORMATIVE REFERENCES

The following are the normative documents referenced in this Standard.

AS

1141	Methods for sampling and testing aggregates
1141.1	Part 1: Definitions
1141.2	Method 2: Basic testing equipment
1141.3.1	Method 3.1 Sampling—Aggregates
1141.11.1	Method 11.1: Particle size distribution—Sieving method

3 DEFINITIONS

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

3.1 Foreign material

Any crushed material other than crushed concrete or any contaminant introduced during the demolition and crushing process.

4 TYPES OF FOREIGN MATERIAL

Foreign material is categorized as follows:

- (a) Type I or high density material such as asphalt, breccia, brick, ceramics glass, metal, sandstone, shale or slag (not blast furnace slag).
- (b) Type II or lowdensity material such as plaster, plastic, rubber, clay lumps and other friable material.
- (c) Type III or organic matter such as wood, vegetable matter, paper, cloth, paint and bitumen.

5 APPARATUS

The following apparatus conforming to the provisions of AS 1141.2, is required.

- (a) *Balances*—of sufficient capacity with a limit of performance not exceeding ± 5 g for mass determinations >1 kg and ± 0.5 g for mass determinations ≤ 1 kg.
- (b) *Drying oven*—capable of operating at 105°C to 110°C .
- (c) *Sample dividers or quartering equipment*.
- (d) *Sieve*—a 4.75 mm sieve.
- (e) *Dishes, trays and brushes*.

6 PREPARATION

A test portion shall be prepared as follows:

- (a) Obtain a sample of material using the appropriate procedure detailed in AS 1141.3.1.
- (b) Obtain, either by quartering or by the use of a sample divider, a subsample containing at least 2 kg and not more than 5 kg retained on a 4.75 mm sieve.
- (c) Handle in a manner that will avoid breaking up any clay lumps that may be present.
- (d) Record the wet mass of the subsample (M_w).
- (e) Remove all clay lumps and friable material from the subsample and record their mass (m_c).
- (f) Dry the sub-sample to constant mass in the drying oven.
- (g) Record the dry mass (M) of the sub-sample.

NOTE: If this test is performed in association with a particle size analysis, it is permissible to conduct a washed procedure in accordance to AS 1141.11.1 at this point and retain all sieve fraction retained on the 4.75 mm sieve as the test portion.

7 PROCEDURE

The procedure shall be as follows:

- (a) Separate the foreign material from the test portion and sort it into types in accordance with Clause 4.
- (b) Determine the mass (m_n) of each type of foreign material separated in Step (a).