Test Method

Foreign Materials in Crushed Concrete Products

RC 372.04

1. Scope

This test is used to determine the percentage by mass in that fraction of a crushed concrete product retained on a 4.75 mm sieve. The test depends on visual categorisation of various types of foreign materials.

2. Precaution

Crushed concrete products may contain asbestos or asbestos bearing material. If such is identified the test should not continue (see Note 1).

3. Foreign Material

Foreign material is defined in terms of:

(a) High density material—such as metal, glass, brick, ceramics and slag.

(b) Low density material—such as plastic, rubber, plaster, clay lumps and other friable material.

(c) Wood and vegetable matter.

4. Apparatus

(a) Drying oven—capable of operating at 105°C to 110°C (see Note 2).

(b) Balance of adequate capacity with a limit of performance not exceeding ±0.5 g.

(c) Splitters as described in AS 1141.2

(d) Sieve— AS 4.75 mm and pan.

(e) Dishes and trays.

5. Sample Preparation

(a) Obtain a sample of material using the appropriate procedure detailed in AS 1141.3.1

(b) Split out a representative sub-sample of appropriate mass as detailed in RC 301.01 so that the amount of material retained on the 4.75 mm sieve is at least 2 kg.

(c) Sieve the total sub-sample over the 4.75 mm sieve, to obtain a test portion of at least 2 kg of material retained on the sieve.

Note: If the test is being performed in conjunction with a particle size distribution test, use the material retained on each sieve down to and including the 4.75 mm sieve as the test portion.

6. Procedure

(a) Remove soft and friable material from the test portion and retain this material.

(b) Thoroughly wash the test portion over the 4.75 mm sieve and the return the material removed in (a) to the test portion (see Note 3).

(c) Dry the washed test portion to constant mass (see Note 2) and determine its mass (M).

(d) Separate the particles into four groups and determine the mass of the material in each group of foreign material:

high density materials *(M_H)*

low density materials *(M_L)*

wood and vegetable matter *(M_W)*

other crushed material.

7. Calculations

(a) Calculate the percentage of high density foreign matter *(P_H)* from:

$$P_H = \frac{M_H}{M} \times 100$$

(b) Calculate the percentage of low density foreign matter (P_L) from:

$$P_L = \frac{M_L}{M} \times 100$$

(c) Calculate the percentage of wood and vegetable foreign matter (P_W) from:

$$P_W = \frac{M_W}{M} \times 100$$

8. Report

Report the percentage of each group of foreign matter to the nearest 0.1.

NOTES

1. Exposure to asbestos or asbestos bearing materials when disturbed may pose a serious health risk, especially when drying samples on hot plates or in a forced-draught oven.
2. Material may be dried to constant mass using other methods such as a microwave oven, infra-red lights or hot plates provided tests have shown that these techniques do not disrupt or weaken particles to the extent that the property being measured changes.

   The determination of constant mass shall be such that after further periods of drying using the selected method the loss in mass does not exceed 1 percent of the total losses of moisture.
3. If the sample has been previously washed during the particle size distribution test, additional washing is not required.

Test Method - Revision Summary

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Date	Clause Number	Description of Revision	Authorised by
June 2013	Full document	Re-issued with minor corrections	Manager – Construction Materials