

# TEST METHOD T1018

## DETECTION OF FLY ASH IN FRESHLY MIXED CONCRETE

### REVISION SUMMARY

Date	Clause Number	Description of Revision	Authorised By Gen Mgr Pavements
<b>Jun2001</b>		<b>Reformatted and RevisionSummary Added</b>	<b>D.Dash</b>





## TEST METHOD T1018

# DETECTION OF FLY ASH IN FRESHLY MIXED CONCRETE

### 1. Scope

This test method sets out the procedure for the detection of fly ash in freshly mixed concrete by a method of flotation depending on the low density of fly ash compared with cement and aggregate.

### 2. Apparatus

- (a) Australian Standard sieves 200 mm in diameter with openings of 4.75 mm, 1.18 mm and 75  $\mu\text{m}$ .
- (b) Buchner filter funnel 90 mm diameter.
- (c) Buchner filter flask.
- (d) Vacuum pump
- (e) Filter paper 90 mm diameter, Whatman No. 40.
- (f) A thermostatically controlled oven with good air circulation capable of maintaining the temperature within the range of 105°C to 110°C.
- (g) Glass beakers 400 mL, measuring cylinders 100 mL, 100 mm Petri dishes, thin glass rods.

### 3. Reagents

- (a) Bromoform. Density 2.88 g/mL.
- (b) Trichloroethylene. Density 1.46 g/mL.
- (c) Polyethylene glycol monolaurate  
(“Nisant E44 a.c. Hatrick Pty Ltd)
- (d) Anhydrous acetone.

### 4. Preparation of Heavy Liquid

Mix the reagents in the following proportions to produce a heavy liquid with a density between 2.4 and 2.5 g/mL.

Bromoform	68 mL
Trichloroethylene	31.9 mL
Ethylene glycol monolaurate	0.1 mL

## 5. Procedure

- (a) Take a sample of the freshly mixed concrete of approximately 500 g and dilute with water. (This test should be carried out prior to the initial set of the concrete. If there is likely to be any delay in the testing, add approximately 1 g of sucrose to the concrete to retard the set.)
- (b) Pour the concrete slurry through the 4.675 mm sieve which has been nested with the 1.18 mm and 75  $\mu\text{m}$  sieves and wash the fines through each succeeding sieve with acetone. Discard the residues held on the sieves and retain the washings.
- (c) Filter the washings through a No. 40 Whatman filter paper with suction and wash four times with acetone. Allow the filter pad to suck until just dry between washings.
- (d) Dry the residue and filter paper in a Petri dish at a temperature between 105°C and 110°C for 20 minutes.
- (e) Place a minimum of 10 g of the dried residue from the filter paper in a 100 mL measuring cylinder and add 60 mL of the heavy liquid.
- (f) Disperse the material thoroughly by means of a glass rod. Allow the suspension to stand overnight. If fly ash is present it will float as a silky scum on top of the liquid, the heavier constituents consisting of cement and aggregate fines settling out.
- (g) If fly ash is present and further identification is necessary, the silky scum may be collected by means of a pipette.

**Note: Dry cement may be tested for presence of fly ash using this method, but omitting steps 5(a) to (d) inclusive.**

## 6. Reporting

Report the presence or absence of fly ash.