Australian Standard®

# Methods for sampling and testing aggregates

# Method 35: Sugar

## 1 SCOPE

This Standard sets out a qualitative method for the detection of sugar in aggregates.

A positive reaction is given by one part of sugar in one thousand parts of aggregates. No visible reaction is given by one part of sugar in 10 000 parts of aggregates.

NOTE: The basis of the test is that, although Fehling's solution does not react directly with cane sugar (sucrose), it does react with glucose (grape sugar). Therefore cane sugar, if present, is first converted into invert sugar (glucose plus fructose) by boiling with hydrochloric acid. The glucose so formed reacts with Fehling's solution, giving a positive test. Although cane sugar is perhaps the most likely sugar source if concrete aggregate is accidentally contaminated, the test also detects contamination from honey, wine, fruit juices or other sources of glucose.

## 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
1141.3.1 Method 3.1: Sampling—Aggregates

## 3 TERMS AND DEFINITIONS

For the purposes of this document, the terms and definitions given in AS 1141.1 apply.

## 4 APPARATUS

The following apparatus is required:

(a) *Glassware*—Beakers and measuring cylinders.

(b) *Litmus paper*.

## 5 TEST PORTION

By coning and quartering or using sample dividers, take a test portion of approximately 100 g from a laboratory sample obtained in accordance with the procedures of AS 1141.3.1. The test portion shall be used in the condition in which it was received.

## 6 SOLUTIONS REQUIRED

Prepare equal volumes of stock solutions as follows:

(a) *Solution A* Dissolve 17.3 g of powdered copper sulphate ($CuSO_4.5H_2O$) in water, and dilute the solution to 250 mL.