STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

METHODS OF TESTING PORTLAND AND BLENDED CEMENTS

AS 2350.5
DETERMINATION OF SOUNDNESS OF PORTLAND AND BLENDED CEMENTS

PREFACE

This Standard was prepared by the Association's Committee on Cement to supersede AS 2350.5—1980, Methods of Testing Portland and Blended Cements—Constancy of Volume of Portland and Blended Cements.

1 SCOPE. This Standard describes a method for the determination of soundness of portland and blended cements using a paste of normal consistency. The procedure to be used in obtaining a paste of normal consistency is given in AS 2350.3.

2 REFERENCED DOCUMENTS. This Standard refers to the following Standards:

AS 1315 Portland Cement.

AS 1317 Blended Cement.

AS 2350.3 Methods of Testing Portland and Blended Cements
Part 3: Normal Consistency of Portland and Blended Cements.

3 PRINCIPLE. A measure of the soundness is given by an increase in volume of the hardened cement paste as indicated by an increase in the distance separating the indicator points of the apparatus.

4 APPARATUS. The following apparatus is required:

(a) *Le Chatelier moulds.* The Le Chatelier moulds shall conform to Figure 1 and the tolerances shown thereon. The apparatus consists of a small split cylinder of spring brass or other suitable metal of 0.5 mm thickness, forming a mould of 30 mm internal diameter and 30 mm high. On either side of the split are attached two indicators with pointed ends AA, the distance from these ends to the centre of the cylinder being 165 mm.

The extensibility of each mould shall be measured as follows:

(i) Rigidly secure the mould by means of the clamp C, as shown in Figure 2. Slip a small metal sleeve having a hook E, at the end over the unclamped pointer and secure it by means of the set-screw D, so that the distance between the hook and the cylindrical surface of the mould is 50 ±2 mm and the distance between the ends of the pointers does not exceed 5 mm. Suspend a weight of mass 100 ±1 g from the hook as shown and measure the distance between the ends of the points in millimetres.

(ii) Remove the weight and again measure the distance between the ends of the pointers in millimetres. Take the difference between the readings when loaded with the 100 g weight and after unloading. This is termed the extensibility of the mould. The moulds shall be considered satisfactory for use in the soundness test if the extensibility is between 20 mm and 30 mm. Moulds with extensibilities outside these limits shall not be used.

The moulds shall be kept in good condition with the split open but not wider than 1.0 mm.

(b) *Laboratory.* The air within the laboratory in which the specimens are made and tested shall be maintained at a temperature of 23 ±2°C.

(c) *Water bath.* A water bath capable of maintaining a temperature of 23 ±2°C.

(d) *Boiling water bath.* A water bath capable of bringing water from room temperature to boiling point in less than 1 h.

(e) *Glass plates.* Glass plates approximately 50 mm square.