STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

METHODS FOR SAMPLING AND TESTING AGGREGATES

AS 1141.17
VOIDS IN DRY COMPACTED FILLER

1 SCOPE. This standard sets out the method for the determination of the voids in dry compacted filler for asphalt.

NOTE: The apparent particle density of the filler, as determined in accordance with AS 1141.7, is used in the calculation of the voids in dry compacted filler.

2 NUMBER OF DETERMINATIONS. Three determinations of the percentage dry voids shall be made, using a separate test portion of filler for each determination. If any of these values differs by more than one percent from the mean percentage, that value shall be discarded and two further determinations shall be made.

3 APPARATUS. The following apparatus, complying with the relevant provisions of AS 1141.2, is required:

(a) *Balance*—a balance of at least 50 g capacity, readable and accurate to 0.01 g.

(b) *Compaction apparatus*—an apparatus of the form shown in Fig. 1 made of steel, and consisting of the following:

(i) A base of approximately the dimensions shown in Fig. 1.

(ii) A cylinder of 25 ± 1 mm internal diameter and 65 mm internal depth, closed at one end.

(iii) A ram or plunger of such diameter as will allow it to slide freely in the cylinder with minimum lateral play, provided with a hole to allow air to escape. The hole, about 5 mm in diameter, shall be drilled axially from the top to about 13 mm from the bottom. From the bottom upward the hole shall be about 1.5 mm diameter and about 1.5 mm off centre, meeting the hole drilled from the other end. The plunger shall have a circumferential groove about 6.5 mm from its lower end to accommodate filler that works up the side of the cylinder while in use. The mass of the plunger shall be 350 ± 2 g.

(iv) Means for raising the cylinder and dropping it freely between vertical guides from a height of 101.5 ± 0.25 mm to the base. The total mass dropped on to the base shall be 850 g to 900 g, including the filler.

(v) Means for reading the depth of the compacted filler in the cylinder to an accuracy of 0.1 mm.

The compaction apparatus shall be used dry, without lubricant on any part. During use the apparatus shall be held or clamped firmly on a rigid, level non-resilient support; a position above the leg on a firm bench is recommended.

(c) *Desiccator*—a desiccator containing anhydrous silica gel.

NOTE: A convenient size is 200 mm to 250 mm.

(d) *Oven*—a drying oven, operating temperature 105°C to 110°C.

4 PROCEDURE. The test procedure shall be as follows:

(a) Dry the filler for 4 h in the oven at a temperature of 105°C to 110°C and cool it to room temperature in a desiccator.

(b) Pour about 10 g of the dried filler into the compaction cylinder and distribute it uniformly in the bottom of the cylinder by tapping it gently on the bench.

(c) Pressing a finger on to the central hole in the plunger to prevent ejection of the filler from the cylinder, insert the plunger and allow it to slide slowly on to the filler. Apply pressure to the plunger so as to form the filler into a slightly compacted bed.

(d) Remove the plunger without disturbance of the filler, wipe excess filler from the plunger and sides of the cylinder and clean the hole through the plunger if necessary.