

AS 1141.19

FINE PARTICLE SIZE DISTRIBUTION IN ROAD MATERIALS

1 SCOPE. This standard sets out the methods for the determination of the fine particle size distribution in road materials. This distribution is determined by dry sieving in the case of materials coarser than 2.36 mm and by decantation in the case of materials finer than 2.36 mm. In the latter case the proportions determined are those passing 425 μm and 75 μm sieves and that less than 13.5 μm diameter. These sizes are in the ratio derived from Wilhelmi's formula for maximum density grading.

The procedure for the determination of coarse particle size distribution and particle size distribution for fillers for asphalt is described in AS 1141.11.

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

- (a) *Balances*—
 - (i) Accurate and readable to within 0.1 percent of the mass of the respective test samples (coarse particles).
 - (ii) Accurate and readable to 0.1 g (fine particles).
- (b) *Beakers*—Pyrex squat form, 1 L capacity, with lip and pouring spout. Graduation marks are to be made on the side of each beaker to indicate levels 30 mm and 110 mm above the base of the beaker.
- (c) *Bench*—a decantation bench.
- (d) *Cans*—metal boiling cans with a capacity of at least 1 L.
- (e) *Desiccator*—preferably cabinet type.
- (f) *Dishes*—metal dishes approximately 100 mm, 225 mm and 350 mm diameter.
- (g) *Dispensing device*—for dispersing agent.
- (h) *Heating device*—with rapidly adjustable temperature control.
- (j) *Mixing apparatus*—trowel and spatula; quartering apparatus, e.g. metal plates 400 mm \times 125 mm and 20 mm \times 125 mm.
- (k) *Mixing and quartering tray*—metal.
- (l) *Mortar*—porcelain, approximately 180 mm diameter with porcelain and rubber pestles.
- (m) *Ovens*—
 - (i) Thermostatically controlled, with good air circulation capable of maintaining a temperature not exceeding 50°C.
 - (ii) Thermonstatically controlled, with good air circulation capable of maintaining a temperature within the range of 105°C to 110°C.
- (n) *Sample dividers (riffle boxes) (optional)*—of appropriate size openings.
- (o) *Sieves*—53.0 mm, 37.5 mm, 26.5 mm, 19.0 mm, and 9.50 mm (as required), 4.75 mm (perforated plate), 2.36 mm, 425 μm and 75 μm (wire cloth), complying with AS 1152.*
- (p) *Sieve brushes.*
- (q) *Sieve shaking machine (optional)*—bench type.
- (r) *Stirring rods*—glass, rubber-tipped.
- (s) *Thermometer*—indicating within the range of 0°C to 100°C.
- (t) *Timing device*—indicating in seconds and minutes.
- (u) *Watchglass*—approximately 100 mm diameter.

*AS 1152, Test Sieves.