STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard METHODS OF TESTING BITUMEN AND RELATED ROADMAKING PRODUCTS

AS 2341.17 DETERMINATION OF DISTILLATION PROPERTIES OF TAR

1 SCOPE. This standard sets out a procedure for the determination of the distillation properties of tars.

2 REFERENCES. This standard requires reference to the following standards:

ASTM D370-67 Method for Dehydration of Oil-type Preservatives

ASTM E1 ASTM Thermometers

3 PRINCIPLE. A sample of the tar is distilled at a controlled rate in a flask. The masses of distillate fractions at a series of specified temperatures, and the mass of residue at the maximum specified temperature, are determined. If desired, the residue and distillates may be processed for further testing.

4 APPARATUS. The following apparatus is required:

(a) *Side-neck distillation flask*—capacity 300 mL as shown in Fig. 1, and conforming to the following dimensions:

Bulk, OD	86.0 ± 1.5 mm
Neck, ID	22.0 ± 1.0 mm
Tubulature, ID	10.0 ± 0.5 mm
Height of flask, outside	131.0 ± 1.5 mm
Vertical distance, bottom of bulb, outside, to horizontal tangent at tubulature, inside	93.0 ± 1.5 mm
Length of tubulature	220 ± 5 mm
Angle of tubulature	73 ± 2 degrees
Thickness of tubulature wall	1.0 mm to 1.5 mm

(b) *Tapered glass condenser*—as shown in Fig. 2, and conforming to the following dimensions:

Small end, OD	12.5 ± 1.5 mm
Large end, OD	28.5 ± 3.0 mm
Length	360 ± 4 mm
Length of tapered part	100 ± 5 mm

(c) *Galvanized iron shield* (for the flask)—lined with 3 mm asbestos and provided with a cover comprising two pieces of asbestos board, of the form and dimensions shown in Fig. 3 (this shield is preferably fitted with transparent windows as shown, but a similar shield without windows may be used).

(d) *Two sheets of heat-resistant wire gauze*—of 0.40 mm (26 B and S) wire having an aperture size of 1 mm; 125 mm to 150 mm in diameter or square.

(e) *Cylindrical metal shield* (for the burner)—approximately 100 mm high, 95 mm to 105 mm in diameter, and having an observation hole 25 mm in diameter centred about 32 mm below the ring support. The top of the shield shall be flanged to permit its being suspended from the ring support.

(f) *Receivers*—containers having a nominal capacity of 50 mL to 125 mL and weighed to the nearest 0.05 g.

(g) *Balance and weights*—accurate to 0.05 g.

(h) *ASTM high distillation thermometer*—having a range of −2°C to +400°C and conforming to the requirements for thermometer 8C as described in ASTM E1.

5 DEHYDRATION OF SAMPLE. If not more than 2.0 percent of water is present, the sample may be tested without previous dehydration. If the water content exceeds 2.0 percent, dehydrate a representative portion of the sample before distillation, in accordance with the method described in ASTM D370.

6 APPARATUS ASSEMBLY. Assemble the apparatus as follows (the assembled apparatus is shown in Fig. 2):

(a) Suspend the burner shield by its flange from the support ring, place the two sheets of wire gauze on the burner shield, and place the flask shield on the gauze sheets.

(b) Insert the thermometer through a cork in the neck of the flask so that the top of the thermometer bulb is level with the lowest point of the juncture between the tubulature and the neck of the flask, inside, and the stem aligned on the axis of the bulb through the neck of the flask.

(c) Place the flask in the flask shield with its bulb resting on the gauze, and connect the condenser tube to the tubulature of the flask with a tight cork joint, having the tubulature project 30 mm to 50 mm through the cork; support the condenser tube in such a position that it is in alignment with the tubulature of the flask, and the thermometer is vertical.

(d) Place the shield cover over the flask shield around the neck of the flask.