

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard METHODS OF TESTING BITUMEN AND RELATED ROADMAKING PRODUCTS

AS 2341.11 DETERMINATION OF DUCTILITY*

1 SCOPE. This standard sets out a procedure for the determination of the ductility of bitumen as a measurement of the amount by which a standard briquette, formed from the sample, can be elongated before the thread breaks under specified conditions.

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

ASTM E1 ASTM Thermometers
IP Standard Thermometers

3 PRINCIPLE. The molten sample is poured into a specified mould, allowed to cool at room temperature, and then placed in a water bath at the test temperature. By means of a warm knife, the excess material is removed from the mould which is returned to the water bath for a further period and then transferred to the ductilometer.

4 APPARATUS. The following items of apparatus are required:

(a) A brass mould of such dimensions that when assembled it will form a briquette of the sample having the following size (see Fig. 1):

Total length	75 ± 0.5 mm
Distance between clips	30 ± 0.3 mm
Width at minimum cross-section	10 ± 0.1 mm
Extreme width	30 ± 0.3 mm
Width at mouth of clip	20 ± 0.2 mm
Thickness throughout	10 ± 0.1 mm

(b) A brass baseplate of suitable form and dimensions as shown in Fig. 1.

(c) A water bath of not less than 10 L capacity and having a perforated shelf supported in a position not less than 50 mm from the bottom of the bath and not less than 100 mm from the top of the bath. Means shall be provided for maintaining the water at the temperature specified for the test.

(d) A ductilometer trough of such dimensions as to permit—

- (i) determinations being made on at least three briquettes at the same time;
- (ii) elongation of briquettes to a length of at least 1 m; and
- (iii) immersion of the briquettes for test in water at a depth of not less than 50 mm from the top of the briquette to the surface of the water.

An opaline glass sheet shall be placed at the bottom of the trough, so that there is a clearance of 10 mm between its upper surface and the bottom of the briquette. This glass provides a white background for observation of the breakage of the fine bitumen thread which does not readily adhere to it. The ductilometer shall be capable of pulling the briquettes apart with minimum vibration at the specified speed, and of maintaining the water within the specified temperature limits.

(e) Thermometer, IP 39C or ASTM 90C.

*Derived from IP 32, Ductility of Bitumen.