STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard METHODS OF TESTING BITUMEN AND RELATED ROADMAKING PRODUCTS

AS 2341.16 DETERMINATION OF FLASHPOINT OF CUTBACK BITUMEN

1 SCOPE. This standard sets out a procedure for the determination of the closed flashpoint of cutback bitumens when the flashpoint does not exceed 110°C.

NOTE: The results obtained do not differ significantly from the minimum flashpoint of the material determined under equilibrium conditions of temperature and vapour pressure.

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

AS 2106 Methods for the Determination of the Flashpoint of Flammable Liquids
Part 1—Liquids Having a Flashpoint Within the Temperature Range −18°C to +70°C

IP Standard Thermometers

3 PRINCIPLE. The sample is placed in the cup of an Abel flashpoint apparatus and heated at a very slow uniform rate with stirring. A small test flame is directed into the cup at regular intervals, and the flashpoint is taken as the lowest temperature at which application of the flame causes the vapour above the sample to ignite.

4 APPARATUS. The following items of apparatus are required:

(a) *Abel flashpoint apparatus.* An Abel flashpoint apparatus with a stirrer as specified in AS 2106, Part 1, but provided with means for mechanical stirring. Provision shall also be made for maintaining a good circulation in the water-bath, e.g. by means of a gentle stream of air, the air being introduced through a fine tube entering the bath through a hole bored for this purpose.

(b) *Thermometers.* IP 43C (10°C to 110°C) or IP 44C (15°C to 121°C).

(c) *A metronome,* set at 75 beats to 80 beats/min, or a pendulum of 600 mm effective length.

(d) *A barometer,* reading to 1 mmHg (1 mmHg = 0.133 kPa).

5 PREPARATION OF SAMPLE. In view of the ease with which volatile matter can be lost from some cutback bitumens, take all possible precautions against excessive handling of the sample to minimize its exposure to the atmosphere. Warm the sample, if necessary, while still sealed in its original container by standing the container in warm or hot water. Shake or stir thoroughly and transfer immediately to the test apparatus. Do not heat more than is absolutely necessary, preferably not higher than 15°C below the expected flashpoint of the sample.

6 PROCEDURE. The procedure shall be as follows:

(a) Thoroughly clean and dry all parts of the cup and its accessories. Remove all traces of solvent used to clean the apparatus.

(b) Fill the water bath and annular space between the sample cup and the water bath completely with water, or with glycerol if it is expected that the flashpoint will be near or above 100°C.

(c) With the oil cup in position, heat the apparatus to a temperature which is substantially the same as that of the preheated sample.

(d) Fill the oil cup with the sample to the level indicated by the point of the gauge, put the cover in place and fit the thermometer.