STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard METHODS OF TESTING BITUMEN AND RELATED ROADMAKING PRODUCTS

AS 2341.19 DETERMINATION OF MATTER INSOLUBLE IN QUINOLINE FOR TAR*

1 SCOPE. This standard sets out a procedure for determining the proportion of refined tar which is insoluble in quinoline.

NOTES:

1. This test is useful in evaluating and characterizing tar as one element in establishing the uniformity of shipments and sources of supply.
2. Since this method is empirical, strict adherence to all details of the procedure is necessary.

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

AS 2341.9	Determination of Water Content (Dean and Stark)
ASTM D329	Acetone
ASTM D850	Method of Test for Distillation of Industrial Aromatic Hydrocarbons and Related Materials
ASTM E1	ASTM Thermometers
BS 805	Toluenes

3 PRINCIPLE. A weighed test specimen of a sample of tar is digested in hot quinoline, then filtered. The insoluble material is washed, dried and weighed.

4 MATERIALS. The following materials are required:

(a) *Quinoline*, refined, complying with the following requirements:

(i) The quinoline shall distil from 5 percent to 95 percent within a range of 1°C that shall include the temperature of 237.4°C (after corrections for barometric pressure and emergent stem have been applied). The distillation shall be carried out in accordance with ASTM D850. A total immersion thermometer shall be used, having a range from 195°C to 305°C, graduated in 0.5°C, and conforming to the requirements for thermometer 69C as described in ASTM E1.

(ii) The quinoline shall have a density at 15°C of 1.092 kg/L to 1.098 kg/L.

(iii) The quinoline shall be clear and light in colour and shall contain less than 0.5 percent *(V/V)* of water as determined in accordance with AS 2341.9. If the quinoline contains more than 0.5 percent water, redistil the quinoline in all-glass apparatus, discarding the first 5 percent and collecting the next 90 percent. If the quinoline contains suspended matter but is clear, light in colour, and contains less than 0.5 percent water, filter the quinoline through a crucible containing 5 g of celite filter aid.

(iv) The quinoline shall be stored in a tightly closed, dark bottle.

(b) *Toluene*, pure, complying with BS 805.

(c) *Acetone*, complying with ASTM D329.

(d) *Celite analytical filter aid* (CAFA), dried to constant mass at 105°C and stored in a tightly stoppered container.

NOTE: Other grades of filtering medium are unsatisfactory because porosities differ.

5 APPARATUS. The following items of apparatus are required:

(a) *Filtering crucibles*, Selas 4001 or equivalent, porcelain, with fine porosity bottom, 25 mL to 40 mL capacity, high-form, maximum pore diameter 7 μm.

(b) *Filter apparatus*, consisting of a filter flask and tube with crucible adapter.

(c) *Waterbath*, maintained at 75 ± 5°C.

(d) *Balance*, 200 g capacity, accurate to 0.0001 g.

(e) *Drying oven*, at 105°C to 110°C.

6 CLEANING AND PREPARATION OF CRUCIBLE. Thoroughly clean out the crucible after each determination by removing the mat and washing the crucible with distilled water. Backwash with acetone, dry, and ignite in a muffle furnace for at least 12 h at about 550°C. Cool the crucible slowly to prevent cracking and place it in a desiccator while still warm until ready for use.

*Adapted from ASTM D2318, Method of Test for Quinoline-insoluble (QI) Content of Tar and Pitch.