STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
METHODS FOR SAMPLING AND TESTING AGGREGATES

AS 1141.40
LABORATORY POLISHING OF AGGREGATE USING THE VERTICAL ROAD-WHEEL MACHINE

1 SCOPE. This standard sets out the method for laboratory polishing of natural occurring or artificially produced materials which are intended to be used as, or to be a source of, pavement surfacing material. The method is a preliminary step to carrying out the procedure described in AS 1141.42.

2 REFERENCED DOCUMENTS. The following standards are referred to in this standard:

AS 1141 Methods for Sampling and Testing Aggregates
1141.42 Pendulum Friction Test (PAFV)

AS 1152 Test Sieves

AS 1487 Abrasive Grain Size

3 DEFINITIONS. For the purpose of this standard the following definitions apply:

3.1 Polished aggregate friction value (PAFV)—the friction value obtained at a temperature of 23°C, when determined in accordance with AS 1141.42, on specimens prepared and polished in accordance with this standard (see Clause 6 of AS 1141.42).

The PAFV is not to be used to describe other frictional measurements determined on pavements.

3.2 Test specimens—specimens incorporating aggregate prepared from a material for which PAFV is required.

3.3 Reference aggregate—aggregate from a specified source (see Appendix A) for which the polished aggregate friction value is known to be within the range 48 to 54.

3.4 Reference specimens—specimens incorporating reference aggregate. Two reference specimens are included in each test run and are polished and tested at the same time as the test specimens. Their function is to indicate whether the polishing and testing procedures have been correctly carried out. Each specimen is used only once as a reference specimen.

Fourteen fresh reference specimens are included during conditioning of new rubber-tyred test wheels.

3.5 Dummy specimens—specimens which have been polished and tested and would otherwise be discarded. They are used to make up the number of specimens to fourteen when less than twelve test specimens are to be polished.

4 APPARATUS.

4.1 Basic apparatus.

(a) *Accelerated polishing machine*—vertical road-wheel type (see Figs 1 to 3) rigidly mounted on a firm level base, and comprised and constructed as follows:

(i) Road wheel. The road-wheel shall accommodate 14 specimens clamped on its periphery to form a surface 45 mm wide and 406 mm diameter of exposed aggregate particles. It is rotated at 320 ± 5 r/min.

(ii) Solid rubber-tyred wheel. In the unused condition, this is 225 ± 2 mm diameter, 35 + 2, − 0 mm wide and Shore A hardness 60 ± 5. It is brought to bear on the surface of the specimens mounted on the road-wheel with a total force of 390 ± 5 N. Two rubber-tyres, to be used for polishing, are required in this method, one with the silicon carbide grit and the other with the optical emery (see Notes 1 and 2).

When in use, the rubber-tyre shall be flat on the specimens, and shall show minimum sideways movement and eccentricity.