

# Australian Standard®

## Methods of sampling and testing asphalt

### Method 13.1: Determination of the resilient modulus of asphalt—Indirect tensile method

**1 SCOPE** This Standard sets out the method for the laboratory determination of the resilient modulus of asphalt using repeated load indirect tensile techniques.

**2 REFERENCED DOCUMENTS** The following documents are referred to in this Standard:

AS

- |          |  |
|----------|--|
| 1545     | Methods for the calibration and grading of extensometers                                       |
| 2193     | Methods for the calibration and grading of force-measuring systems of testing machines         |
| 2891     | Methods of sampling and testing asphalt  |
| 2891.1   | Method 1: Sampling of asphalt  |
| 2891.2.2 | Method 2.2: Sample preparation—Compaction of asphalt test specimens using a gyratory compactor |
| 2891.9.3 | Method 9.3: Determination of bulk density of compacted asphalt—Mensuration method              |
| 4115     | Hand torque tools  |

**3 DEFINITION** For the purpose of this Standard the definition below applies.

**3.1 Resilient horizontal deformation**—the difference between the peak horizontal deformation associated with a load pulse and the horizontal deformation at the end of the rest time of that load pulse (see Figure 1).

**4 APPARATUS** The following apparatus is required:

- (a) *Testing machine*—pneumatic or hydraulic testing machine that is capable of applying an approximately triangular shaped or haversine load pulse with a rise time (defined as the time required for the load pulse to rise from 10% to 90% of the peak force) in the range of 0.025 s to 0.1 s with an accuracy of  $\pm 0.005$  s. The machine shall be capable of applying load pulses with peak load adjustable over the range 0.4 kN to 3.9 kN with an accuracy of  $\pm 0.05$  kN. The pulse repetition period shall be adjustable over the range 0.5 s to 10 s  $\pm 0.005$  s. (See Figure 1 for pulse shapes). The machine shall be capable of applying this load pulse for at least 10 cycles for each specimen (see Note 1).
- (b) *Temperature cabinet*—a temperature-controlled cabinet that is capable of holding the loading frame, at least three test specimens and a dummy specimen (see Note 2) and with sufficient internal space to permit adjustment of the frame, displacement measuring devices and specimens.

The cabinet shall be capable of maintaining a temperature of  $25^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$  and shall be fitted with an external device which indicates the temperature inside the cabinet (see Note 2).



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