

AAPA National Proficiency Testing Round 2019/20

Instruction sheet for test stream 4: Resilient Modulus – Indirect Tensile Method

Description:

Laboratories have registered for the Resilient Modulus stream of the AAPA 2019/20 Proficiency Testing Round. Samples of loose mix will be sent to the participating laboratories for preparation of Resilient Modulus Samples.

Test method: **AS/NZS 2891.13.1**

Where the laboratory does not hold NATA accreditation for this Australian Standard method, results for an equivalent local test method may be reported, but please note that the proficiency z-score analysis will not be valid for such results.

To report the results, access the webform by clicking:

<http://www.123formbuilder.com/form-5244359/s4-resilient-tests>

Please note that you will need the **Laboratory ID Code**, which has been sent to you via e-mail to complete the webform.

Submit results by 30 May 2020

Procedure:

Loose asphalt mix samples will be sent to laboratories in containers. Each container has a unique sample number. Where material from two containers is used to prepare the resilient modulus samples, please report numbers of both containers.

The loose mix is a sample of AC10 C320

Stage 1: Compaction:

- Preheat the compaction moulds in the oven
- Heat the proficiency test sample provided to about 160°C
- Prepare at least 3 x 100 mm diameter Gyropac specimens, using a mass of 1,250 g.
- Condition these samples for 1hr ± 5 min in an oven at compaction temperature 150 °C ± 3°C (ensure the oven temperature allows temperature to be within this range)
- Compact each asphalt sample to 120 cycles
 - o Note:
 - All compacted specimens need to be within the height range of 35 – 70 mm
 - Mass of material may be adjusted to comply with the height range

Stage 2: Maximum Density:

- Obtain two suitably size test samples and undertake maximum density testing on the preheated mix supplied

Stage 3: Volumetrics:

- Determine the Bulk Density for each Gyropac sample
- Use these Bulk Density and Max Density values obtained to calculate the Air Voids for each sample
- For the three specimens used ensure that the air voids are within ± 0.5 % of the mean air voids
- Ensure these samples are then air-dried back to constant, before undertaking the resilient modulus

Sample numbering:

- Number the specimens selected for Resilient Modulus testing R1, R2 and R3
- For the three specimens used ensure that the air voids used are within ± 0.5 % of the mean air voids

Resilient modulus – Indirect tensile method

Settings:

- Haversine displacement load control (should be the default for this test)
- Target strain amplitude: 50 $\mu\epsilon$
- Rise time 0.04 s
- Pulse repetition period 3.0 s
- Test temperature 25 °C

Reporting:

Use webform to report

- Compacted density of each specimen
- Height of each specimen
- Diameter of each specimen
- Maximum density results used for test
- Air voids of compacted specimens based on compacted density of each specimen and maximum densities of supplied mix

Report average and coefficient of variation for five post peak pulses for:

- Resilient Modulus (MPa)
- Peak load (N) (optional)
- Recovered horizontal strain ($\mu\epsilon$) (optional)
- 10% to 90 % rise time (ms) (optional)