

ASPHALT IN-HOUSE CALIBRATION PROCEDURE # 17
DYNAMIC SHEAR RHEOMETER (DSR)

EQUIPMENT CHECKED: DYNAMIC SHEAR RHEOMETER (DSR) (AASHTO T 315)

1. SCOPE

1.1 This procedure provides instructions for checking equipment used to perform the DSR test.

2. APPARATUS

Inspection Equipment Required:

1. Certified Reference Material N 27 00000
2. Caliper
3. Water probe
4. Allen wrench

Tolerance:

Equipment shall meet the tolerances specified in test method AASHTO T 315.

3. PROCEDURE

- 3.1 Install the lower plate and lock it down with the retaining ring.
- 3.2 Install the upper plate and tighten the chuck.
- 3.3 Unlock the spindle by sliding the locking lever to the right.
- 3.4 Raise the bearing enough to move the micrometer wheel.
- 3.5 Set the micrometer wheel to zero.
- 3.6 Lower the bearing until it stops, and squeeze the handle down firmly.
- 3.7 Check for clearance. **The spindle should turn easily, but have a constant contact or "scrubbing" between the plates.**
- 3.8 Adjust the micrometer to obtain optimum clearance, if necessary.
- 3.9 Reset the zero point on the micrometer scale using the Allen wrench.
- 3.10 Raise the bearing.
- 3.11 Set the gap to 1mm +50 microns.
- 3.12 Lock the spindle by sliding the locking lever to the left.

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- 3.13 Apply the sample to the upper plate.
- 3.14 Lower the bearing completely, compressing the sample between the plates. **Excess asphalt should push out all around the plates.**
- 3.15 Trim the excess asphalt away. **Be sure to keep the edge of the trimming tool vertical against the sides of the plates.**
- 3.16 Remove the 50 microns from the gap and squeeze the handle down firmly.
- 3.17 Put the white water dam over the sample, so that the water level comes up.
- 3.18 Unlock the spindle by sliding the locking lever to the right.
- 3.19 Check to make sure you are running the right type of sample, (Original or RTFO or Certified Reference Material at 60°C) and that you are set to the right temperature.
- 3.20 Press the start button on the screen and watch it go.
- 3.21 After the test is done, lock the spindle and loosen the chuck.
- 3.22 Raise the bearing.
- 3.23 Remove the white dam from the instrument, so that the water level goes down.
- 3.24 Remove the upper plate and scrape asphalt from it **using the Teflon Spatula.**
- 3.25 Remove the retaining ring, then remove the lower plate and scrape it off **with the Teflon spatula.**
- 3.26 Clean both plates with solvent.
- 3.27 Rinse the plates with alcohol or contact cleaner to remove any remaining residue.
- 3.28 Check the dimensions of the 8 mm and 25 mm plate on each DSR.
- 3.29 Record these dimensions on the verification form.
- 3.30 Also keep a record of the results from your CRM for each DSR. If your results vary more than 10 % of the CRM, send the device for recalibration.
- 3.31 Record all the information about the Certified Reference Material and change it as needed.
- 3.32 If the calibration is made by an outside vendor, obtain all the information necessary as described on step 30 and 31.