

MATERIALS LABORATORY
ODOT Test Method 429-95

Method of Test for
ELASTIC RECOVERY

PURPOSE

- 1.1 The elastic recovery is a measure of material's ability to recover after elongation, or to resist permanent deformation.

APPARATUS

- 2.1 Ductilometer meeting AASHTO T 51.
- 2.2 3 Mold assemblies: base plate, end, and standard size pieces meeting AASHTO T 51.
- 2.3 Release agent for mold pieces as required by AASHTO T 51.
- 2.4 Scraper Knife (putty knife).
- 2.5 Thermometer.
- 2.6 A pair of scissors.

PROCEDURE

- 3.1 Regulate the ductilometer to the test temperature of 10° C (50° F). Make sure the pointer is on zero.
- 3.2 Coat the base plate and insides and tops of the side pieces with release agent. Assemble the mold end pieces and side pieces on the base plate.
- 3.3 Prepare the sample by carefully heating until it is fluid enough to pour.
- 3.4 Stir the sample well.
- 3.5 Pour the material into the molds in a thin stream, back and forth until the molds are slightly over-filled.
- 3.6 Cool the molds 30 to 40 minutes.
- 3.7 Place the molds in the ductilometer bath (at the specified temperature).
- 3.8 After 30 minutes slice off the excess bitumen with the heated putty knife. Replace the samples in the bath.
- 3.9 After 85 to 90 minutes, remove the samples from the base plate, remove the side pieces, and attach the clips to the pins in the ductilometer.
- 3.10 Turn on the motor, engage the screw, and pull the samples at a speed of 5 cm per minute just until the pointer reaches 20 cm, then stop the motor, and immediately start the timer.
- 3.11 Hold the stretched sample at 20 cm for exactly 5 minutes.

- 3.12 With a pair of scissors, cut the samples in the middle, and restart the timer.
- 3.13 At the end of 60 minutes, slide the shelf back so that the two ends of the cut sample just meet. Record the elongation in cm at the pointer.

CALCULATION

$$\% \text{ Elastic Recovery} = \frac{(20 - x)}{(20)} \times 100 \quad \text{Where 'x' is the elongation recorded in Section 2.13 above.}$$