

**State of Nevada  
Department of Transportation  
Materials Division**

**METHOD OF TEST FOR RESISTANCE OF COMPACTED BITUMINOUS MIXTURE TO  
MOISTURE-INDUCED DAMAGE (LOTTMAN)**

Follow AASHTO Test No. T 283-89 (1993) in its entirety with the following exceptions:

**APPARATUS**

Delete: Aluminum pans having a surface area of 48400 – 64500 square millimeters (75 – 100 square inches) in the bottom and a depth of approximately 25 mm (1 in.).

Replace with: Metal pans having a surface area of 48400 – 64500 square millimeters (75 – 100 square inches) in the bottom and a depth of approximately 25 mm (1 in.).

**PREPARATION OF LABORATORY TEST SPECIMENS**

Delete: After mixing, the mixture shall be placed in an aluminum pan having a surface area of 48400 – 64500 square millimeters (75 – 100 square inches) in the bottom and a depth of approximately 25 mm (1 in.) and cooled at room temperature for  $2 \pm 0.5$  hours. Then the mixture shall be placed in a  $60^{\circ}\text{C}$  ( $140^{\circ}\text{F}$ ) oven for 16 hours for curing. The pans should be placed on spacers to allow air circulation under the pan if the shelves are not perforated.

Replace with: After mixing, the mixture shall be placed in a metal pan having a surface area of 48400 – 64500 square millimeters (75 – 100 square inches) in the bottom and a depth of approximately 25 mm (1 in.). Then the mixture shall be placed in a  $60^{\circ}\text{C} \pm 3^{\circ}\text{C}$  ( $140^{\circ}\text{F} \pm 5^{\circ}\text{F}$ ) oven for  $15 \pm 3$  hours for curing.

Delete: After curing, place the mixture in an oven at  $135^{\circ}\text{C}$  ( $275^{\circ}\text{F}$ ) for 2 hours prior to compaction. Compact the specimens in accordance with one of the following methods: T 245, T 247, or ASTM D 3387. The mixture shall be compacted to  $7 \pm 1.0$  percent air voids or a level of voids expected in the field. This level of voids can be obtained by adjusting the number of blows in T 245; adjusting foot pressure, number of tamps, leveling load, or some combination in T 247; and adjusting the number of revolutions in ASTM D 3387. The exact procedure must be determined experimentally for each mixture before compacting the specimens for each set.

Replace with: After curing, place the mixture in an oven at  $110^{\circ}\text{C} \pm 3^{\circ}\text{C}$  ( $230^{\circ}\text{F} \pm 5^{\circ}\text{F}$ ). When mixture reaches  $110^{\circ}\text{C} \pm 3^{\circ}\text{C}$  ( $230^{\circ}\text{F} \pm 5^{\circ}\text{F}$ ), compact in accordance with Nevada Test Method T342 to  $8 \pm 1.0$  percent air voids or a level of voids expected in the field.

Delete: After extraction from the molds, the test specimens shall be stored for 72 to 96 hours at room temperature.

Replace with: After extraction from the molds, place the compacted specimens into a suitable pan and place pan into a  $25^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$  ( $77^{\circ}\text{F} \pm 1^{\circ}\text{F}$ ) environmental chamber for 15 hours minimum.

## **PRECONDITIONING OF TEST SPECIMENS**

Delete: The dry subset will be stored at room temperature until testing. The specimens shall be wrapped with plastic or placed in a heavy duty leakproof plastic bag. The specimens shall then be placed in a  $25^{\circ}\text{C}$  ( $77^{\circ}\text{F}$ ) water bath for a minimum of 2 hours and then tested as described in Section 10.

Replace with: The dry subset shall be stored in an environmental chamber at  $25^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$  ( $77^{\circ}\text{F} \pm 1^{\circ}\text{F}$ ) until indirect tensile testing is required.

Delete: Place the specimen in the vacuum container supported above the container bottom by a spacer. Fill the container with distilled water at room temperature so that the specimens have at least one inch of water above their surface. Apply a vacuum of 13-67 kPa absolute pressure (10-26 in. Hg partial pressure) for a short time (5 to 10 minutes). Remove the vacuum and leave the specimen submerged in water for a short time (5 to 10 minutes).

Replace with: Place the specimen in the vacuum container supported above the container bottom by a spacer. Fill the container with potable water at room temperature so that the specimens have at least one inch of water above their surface. Apply sufficient vacuum to obtain the required saturation level of 55 to 80 percent. Remove the vacuum and leave the specimen submerged in water for a short time (3 to 5 minutes).