

KTMR-08 **MOISTURE RESISTANCE OF GLASS BEADS FOR PAVMENT MARKINGS (Kansas Test Method KTMR-08)**

a. SCOPE.

This is a laboratory procedure to determine if glass beads for pavement markings have been treated as specified to allow free flow under moist conditions.

b. REFERENCED DOCUMENTS

b.1. AASHTO M231, Weighing Devices Used in the Testing of Materials

b.2. ASTM E1293, Standard Specification for Glass Measuring Pipets

c. APPARATUS.

c.1. Small sample splitter.

c.2. General purpose drying oven, capable of maintaining $110 \pm 5^{\circ}\text{C}$.

c.3. Balance capable of meeting AASHTO M231, Class G2.

c.4. Standard one pint screw cap mason jar with two-piece cover consisting of a flat cover plate with sealing gasket attached, and a screw ring to hold the cover plate on the jar.

c.5. Special 60° brass funnel with a 4-inch stem. Inside diameter of the stem shall be 0.25 ± 0.004 inches. Solder the top of the funnel to one of the screw rings from a jar cover so that the funnel can be screwed on the top of the jar. Keep the inside surface of the funnel polished smooth.

c.6. Measuring pipet, Class B, 0.1 mL according to ASTM E1293, or an automatic pipet of similar capacity and accuracy.

d. PROCEDURE.

d.1. Using a sample splitter and balance, obtain a representative 300 ± 2 g sample of the beads.

d.2. Transfer the sample to the pint jar and place the uncovered jar and sample in a drying oven at $110^{\circ} \pm 5^{\circ}\text{C}$ for a minimum of 16 hours.

d.3. Remove the jar from the oven and immediately seal it with one of the jar cover plates and screw ring. Allow to cool to room temperature.

- d.4.** If, after cooling, the beads have stuck together forming lumps, shake the jar vigorously until all lumps are broken up. This must be done without removing the cover.
- d.5.** After breaking up lumps, remove the cover and quickly add 0.09 mL of tap water from the measuring pipet. Immediately seal the jar with the cover and screw ring, and shake jar and contents vigorously for 20 seconds.
- d.6.** Over the next four hours, vigorously shake the beads in the sealed jar for 20 seconds at the end of the first, second, and third hour of standing.
- d.7.** At the end of the fourth hour, without shaking, remove the cover and quickly screw the special funnel to the top of the jar.
- d.8.** Invert the jar to a vertical position over a waste basket.
- d.9.** The beads must flow from the jar through the stem of the funnel. It is permissible to tap the funnel to start the flow, but if it is necessary to keep tapping the funnel to keep the beads flowing, they do not pass the test. A small number of beads sticking to the sides of the jar or laying on the jar shoulder will not be cause for failure.
- d.10.** Report the results of this test as either “Pass” or “Fail”.

(MTU - Chemistry)