State of Nevada
Department of Transportation
Materials Division

METHOD FOR DETERMINATION OF DRY FILM THICKNESS OF EPOXY OR WATERBORNE PAVEMENT MARKING MATERIALS

SCOPE

This test method is an adaptation of ASTM D 1005-95, and covers the measurement of dried film thickness of pavement marking materials using hand-held micrometers.

APPARATUS

The measuring apparatus shall consist of a hand-held anvil type micrometer. The anvils of the micrometer shall be circular and approximately 1/4 in. (6 mm) in diameter, with flat bottoms. The micrometer shall have a resolution of at least 0.0001", 0.1 mil (0.0025 mm, 2.5 micron).

Test panel made of aluminum with dimensions of approximately 3" x 12" x 0.075" (75mm x 300mm x 2mm). Obtain the panels from the District Progress Labs.

Black permanent marker (Sharpie)

PROCEDURE

Follow the manufacturers recommendations for the initial setup and operation of the micrometer. Prior to making any measurements, verify the data display reads 0 when anvils are fully closed.

Using the marker, outline the area of the plate to be covered by striping material on the back of the test panel. Then mark and sequentially number 6 evenly spaced points in a grid pattern within the area enclosed by the outlined limits. Measure the plate thickness using the micrometer at each location and record the measured thickness value on the plate next to the corresponding numbered location.

Secure the aluminum test panel to the pavement just prior to the application of the striping material, perpendicular to the striping line at the designated sample location with the numbered points and thickness values facing down. Align the plate so the approximate area of material outlined above will match the actual application. Use duct tape to secure each end of the panel to the pavement, keeping the tape away from the area of the plate that will receive the paint.

Note: Paint thickness is determined on samples without reflective beads. Ensure that the striping vehicle operator sees the plate and stops the application of beads prior to passing over the test panel.

Once the striping applicator has passed and applied the striping material to the plate, allow the material to sufficiently dry so that the paint will not run or smear. Remove the test panel from the roadway. The panel should be placed in a location that allows the paint material to further dry and be protected from damage during transportation back to the field office or to the location where the thickness measurements will be taken.

MEASURING PROCEDURE

Using the micrometer, measure the thickness of the test panel and paint material at each of the 6 areas previously marked and measured. Record the results on the plate next to the corresponding point with the permanent marker. Subtract the two values recorded at each point and then average the results of each of the 6 locations to determine the overall paint thickness. Record the average overall paint thickness to the nearest mil or micron on Form # 040-021.

Conversion: 1 mil = 0.001 inch
1 micron = 0.001 mm

Example: Plate Thickness: Micrometer Reading = 0.07670 in
Paint and Plate Thickness: Micrometer Reading = 0.09570 in

Paint and Plate Thickness – Plate Thickness = 0.019 in

0.019in / 0.001inches per mil = 19 mil

Paint Thickness = 19 mil**

** Average with the 5 remaining values to determine reported value for paint thickness.

Refer to Section 632 of the contract specifications for minimum thickness values.