Standard Operating Procedure: SOP-LAB-10

Sward Hardness

Rev	Date	Staff Member	Purpose
4	11/13/19	A. Stanton	Added calibration/repair procedure
3	12/17/2015	T. Brown	Clarification of calibration step & new testing device addition
2	01/27/11	L. Longorio	Added clarification for set limits
1	11/29/10	L. Longorio	Reformatted
Origination date: 09/15/08		Originator: Specs Department	

EQUIPMENT SPECIFICATIONS

Purpose: To determine the hardness of organic coatings on lane panels

Materials:

- Synthetic lane surface sample at least six inches by 36 inches.
- Gardco GS-1 Sward-type digital hardness rocker
- Draft cover
- Leveling plate with glass surface
- Isopropyl alcohol
- Kim Wipes
- Circular level
- Panel Testing Device
- Wand
- Lane panel or overlay sample to be tested, measuring 6 x 36”
- Stopwatch

Procedure:

1. Verify Calibration
    - **a.** Open laboratory notebook to a clean, unused page. Title and date the page.
    - **b.** Using a kimwipe, clean the surface of the leveling plate and the rings on the hardness rocker with isopropyl alcohol.
    - **c.** Place the leveling plate on a clean, flat surface.
    - **d.** Place the circular level on the plate.
    - **e.** Adjust the leveling screws on the plate in accordance with the circular level.
    - **f.** Place the Sward hardness rocker on the leveling plate.
    - **g.** Place the draft cover over the leveling plate so that the opening is on the left side of the rocker.
    - **h.** Use the wand and rotate the rocker to the left at about a 25-degree angle.
    - **i.** Release the rocker.
    - **j.** When the digital display on the rocker begins to count (at approximately 22 degrees), start the stopwatch.
    - **k.** Stop the stopwatch when the digital display reads 50 ±1 swings; the time should be 60 ±5 seconds.
    - **l.** Repeat steps h-k for confirmation of calibration.
    - **m.** Record calibration verification in laboratory notebook.
    - **n.** If the hardness rocker needs to be calibrated, refer to manual on calibration process.

Data Collection

1. Insert the sample into the Lane Panel Testing Device from one end, and hand-tighten the clamps.
2. Ensure the sample is level by placing the circular level in the center of the panel. Adjust hand-clamps or stability feet if necessary. (If the surface is not level and cannot be made level, place the sample on the master level).
3. Clean the sample with isopropyl alcohol and allow it to dry completely.
4. Place the Sward hardness rocker in the center of the lane panel sample.
5. Place the draft cover over the rocker on the sample so that the opening is on the left side of the rocker.
6. Use the wand and rotate the rocker to the left at about a 25-degree angle.
7. Release the rocker.
8. When the digital display stops counting (the low set limit is approximately 16 degrees), record the number of swings in the lane panel test sheet.
9. Repeat steps 6-8 two more times in the same place.

Data Analysis

1. Multiply each result by two.
2. Average each result set for each panel.
3. Average all data points for a total sample average.
4. Record all data in the lane panel test sheet.

Calibration

The sward hardness rocker does not require annual calibration as this procedure is covered with every use. If the unit is giving false readings or displaying error warnings, the sward hardness rocker will be sent to Gardco for repairs and evaluation.