

GDT 44

A. Scope

For a complete list of GDTs, see the Table of Contents.

Use this test method to determine a value of torsional strain. The strain is directly proportional to the coefficient of friction between a 60 Durometer Neoprene disk and a sample of emulsified asphalt mixed with Ottawa sand.

B. Apparatus

The apparatus consists of the following:

1. **Testing Machine:** The machine consists of two steel disks. Mount the sample on the bottom disk and mount the 50 Durometer Neoprene on the top disk.
The top disk is attached on an 18 in long, 3/4 in round (450 mm long, 19 mm) round steel shaft that is stationary. The sample is rotated at 11 revolutions per minute in contact with the Neoprene disk. The torsional strain in the top shaft is measured in micro-inches per inch (micro-meters per meter) by an SR 4 Baldwin Lima Hamilton strain indicator.
2. **Oven:** Use a constant-temperature oven, thermostatically controlled at 140 °, ± 5 °F (60 °, ± 3 °C).
3. **Mixing Bowl and Spoon (WB-12 and WS-14)**
4. **Felt:** Use a smooth roofing felt (50 to 60 lbs (23 to 27 kg) weight).
5. **Balance:** Use a balance with a capacity of 5 lbs (2.5 kg) and sensitive to 0.001 lb (0.5 g) (WB-4).
6. **Mask:** Use a circular metal mask 1/4 in (6 mm) thick, having a 6-1/2 in (163 mm) inside circular opening with an 8 in (200 mm) outside diameter.

C. Sample Size and Preparation

1. Prepare at least four specimens for this test.
2. Weigh into a mixing bowl 0.25 lbs (120 g) of emulsified asphalt. The emulsified asphalt must be representative of that to be used on the project.
3. Add a 1.35 lbs (600 g), oven-dry sample of standard Ottawa sand and 0.25 oz (7 g) of hydrated lime to the emulsified asphalt.
4. Mix thoroughly.
5. Add water until reaching the desired consistency (the slurry should flow freely but not separate).
6. Place the circular mask over a previously cut 8 in (200 mm) diameter piece of roofing felt and then pour the slurry onto the felt.
7. Squeegee the slurry over the surface of the mask until a uniform surface is obtained.
8. Let the emulsion dry until it sets.
9. Remove the mask.
10. Place the specimen in an oven at 60 °C (140 °F) for a minimum of 12 hours.
11. Remove the specimen and allow it to cool to room temperature.
12. Submerge the specimen in water at room temperature for a minimum of 12 hours.

D. Procedures

1. Place the specimen in the testing machine immediately after removing it from the water bath.
2. Determine the wet static friction by turning the specimen by hand in contact with the neoprene disk and reading the value from the SR-4 strain indicator.
3. Determine the wet sliding friction by turning the specimen at 11 revolutions per minute in contact with the neoprene disk and reading the value from the SR-4 strain indicator.

E. Calculations

No specific calculations are required for this test.

F. Report

Report the average of four tests as the results in micro-inches/inch (micro-meters/meter).