

Bulk Specific Gravity of Compacted Bituminous Material Using Saturated Surface-Dry Specimens WYDOT MTM No 418(AASHTO T-166 & 275)

1st Try 2nd Try

- a. Make sure balance is level and readable to four figures. (0.1 g for 100.1 - 999.9g)
- b. Make sure the suspension wire or chain is hanging freely from the bottom of the scale.
- c. Make sure that there is sufficient water to fully immerse the specimen and that the temperature of the water is $(77^{\circ} \pm 1.8^{\circ} \text{ F})$

Procedure:

- a. Carefully trim the core to isolate the lift for which the bulk specific gravity is to be determined.
- b. Immerse the core in the water for 3 - 5 minutes to determine the mass in water.
- c. Determine the saturated surface-dry mass using a damp towel to blot away excess surface water.
- d. Dry the core to a constant mass (less than .05% change) at temperature of $125^{\circ} \pm 5^{\circ} \text{ F}$ using successive mass determinations at 2 hour intervals.
- e. Determine the mass of the dry core in air.
- f. Note: If the core is known to be completely dry, determine the mass in the following order: a,c,b
- g. Calculate the percent of water absorbed. $(B-A) / (B-C) \times 100 = \% \text{ water absorbed.}$
- h. If the percent of water absorbed is less than 2% then the bulk specific gravity may be calculated.
S.G. = $A / (B-C)$

Density (lb/ft³) = S.G. x 62.4
- i. If greater than 2% water is absorbed then the waxed core procedure should be used.
Calculation:

$$S. G. = A / ((D - E) - ((D-A) / F))$$

$$\text{Density (lb/ft}^3\text{)} = S.G. \times 62.4$$

- A = Mass of sample in air
- B = Saturated surface dry mass in air
- C = Mass of sample in water
- D = Mass of waxed core sample in air
- E = Mass of waxed core sample in water
- F = Specific gravity of wax (0.90)
- SG. = Bulk specific gravity

Circle One Pass Pass
Fail Fail

Examiner's Initials _____

Student's Name _____