

**IA Checklist  
 OHD L-14  
 Method 1 – Density of Compacted Specimens (ROADWAY CORES)  
 Determination of Bulk Specific Gravity and Percent Absorption of  
 Compacted Specimens**

Procedure		P	F	NA
1	Cool Specimen to room temperature. (77° +/- 9°)			
2	Tare scales, with weighing apparatus attached.			
3	Bring water to specified temperature. (77° +/- 1.8°). Water bath should be equipped with an overflow to maintain constant water level.			
4	Submerge specimen in water and take a reading of the weight after 4 +/- 1 minute. Record weight to 0.1% of sample mass.			
5	Surface dry specimen with a damp towel immediately and weigh within specified tolerance, 0.1% of sample mass. Record weight.			
6	Place specimen in a dry pan of known weight and dry the specimen to a constant mass at a temperature of 125° +/- 5°F. If the dry mass is determined last and the specimens are not required to be saved or used for comparison testing, the specimens may be dried to a constant mass at 230° +/- 9°F.			
	<b>If using Vacuum Drying test procedures as an alternative to oven drying roadway cores. Use Procedures ( 7 – 15 )</b>			
7	Specimens shall be kept and stored at temperatures above 15°C (60° F).			
8	Plug the unit into a power outlet and turn on the switch.			
9	Dry the moisture trap (if necessary) and the specimen (vacuum) chamber. Run the unit without any specimens. The unit should display a pressure value that indicates a known dry point. If the unit fails to achieve a dry point pressure value, as recommended by the manufacturer, check that the lid and all hose connections are well sealed. If needed, refer to the manufacturer's troubleshooting instructions.			
10	Measure the sample temperature with a handheld infrared thermometer. Make sure the specimen temperature is above 15°C (60° F).			
11	Remove any standing water from the surface of the specimen by using a paper towel or an absorptive cloth.			
12	Place specimen inside the vacuum chamber.			
13	Place lids on the vacuum chamber and moisture trap(if applicable). Press "Start" to begin the drying process.			
14	The machine will automatically stop when the specimen is dry. The unit shall be calibrated at the factory or by the operator to sense a "dry specimen condition." The pressure is monitored throughout the drying process to ensure "dry specimen condition" pressure is achieved in the unit.			

15	Perform the vacuum drying procedure at least twice, with a mass determination after each cycle. Verify constant mass is achieved in accordance with the constant mass definition in T 166 Section 3.1.2. "Constant Mass" – shall be defined as the mass at which further drying does not alter the mass by more than 0.05 percent when weighed at 2-h intervals when using oven drying, or by more than 0.05 percent when weighed after at least two drying cycles of the vacuum-drying apparatus.			
16	Cool specimen and pan to room temperature, (77° +/- 9°).			
17	Weigh to specified tolerance, 0.1% of sample mass and record weight.			
18	Was the absorption of the specimen above or below 2.0%?			
19	Calculate the specific gravity of the specimen to tolerance, (.001), as shown below.			

Calculate the bulk specific gravity of the specimen as follows (round and report the value to the nearest 0.001).

$$G_{mb} = \frac{A}{B - C}$$

Where:

- $G_{mb}$  = Bulk Specific Gravity
- A = Dry weight of specimen in air
- B = Weight of surface-dry specimen in air
- C = Weight of specimen in water

**NOTE:** The Bulk Specific Gravity of a lab-molded specimen is commonly referred to as the Lab-molded Specific Gravity. The Bulk Specific Gravity of a roadway core is commonly referred to as the Core Specific Gravity.

Calculate the percent water absorbed by the specimen on a volume basis as follows:

$$\% \text{ Water Absorbed by Volume} = \frac{B - A}{B - C} \times 100$$

**Remarks:**