



# Performance Examination - Asphalt

## Standard Method of Test for Bulk Specific Gravity (Gmb) of Compacted Hot Mix Asphalt (HMA) Using Saturated Surface-Dry Specimens (AASHTO T 166-16)

Candidate Name: \_\_\_\_\_ NICET ID: \_\_\_\_\_

Apparatus	Trial 1	Trial 2
<b>Method A</b>		
<b>Balance and suspension:</b> Conforms to M231 for the class required for principal sample mass of samples tested		
Suspension from the center of balance pan		
Suspension wire of smallest practical size		
Holder and sample completely immersed		
Can determine the constant mass of specimen to 0.05%		
<b>Water bath:</b> Equipped with an overflow outlet to maintain the constant water level and thermostatically controlled to 25.0 ± 0.5 °C (77.0 ± 0.9 °F)		
Deep enough to completely immerse holder and sample		
<b>Drying oven:</b> at 52 ± 3 °C (125 ± 5 °F)		
Room temperature: 25 ± 5 °C (77 ± 9 °F)		
<b>Method B</b>		
Balance conforms to M231 for the class required for the principal mass of samples tested		
Can determine the constant mass of specimen to 0.1%		
<b>Water bath:</b> Thermostatically controlled to 25.0 ± 0.5 °C (77.0 ± 0.9 °F)		
<b>Calibrated volumeter</b>		
<b>Tapered lid with a capillary bore</b>		
Room temperature: 25 ± 5 °C (77 ± 9 °F)		
<b>Drying oven:</b> at 52 ± 3 °C (125 ± 5 °F)		
<b>Method C (Rapid Test)</b>		
Apparatus as in Method A or Method B		
<b>Drying oven:</b> at 110 ± 5 °C (230 ± 9 °F)		
<b>Calibrated volumeter</b>		
<b>Tapered lid with a capillary bore</b>		
Room temperature: 25 ± 5 °C (77 ± 9 °F)		
<b>Drying oven:</b> at 52 ± 3 °C (125 ± 5 °F)		

Examiner Name: \_\_\_\_\_ Examiner Signature: \_\_\_\_\_ Date: \_\_\_\_\_



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Procedures	Trial 1	Trial 2
<b>Method A</b>		
1. Mass (g) of dry sample in air determined		
2. Dried overnight at 52 ± 3 °C (125 ± 5 °F) and successive two hr. intervals to constant mass (0.05%)		
3. Cooled to room temperature, 25 ± 5 °C (77 ± 9 °F), and weighed		
4. Immersed mass determined		
5. Immersed 4 ± 1 min, water at 25 ± 1 °C (77 ± 1.8 °F)		
6. Saturated surface-dry mass determined		
7. Quickly blotted with a damp towel		
8.% water absorbed determined to be less than 2%		
<b>Method B</b>		
1. Specimen dried, cooled, and weighed as in Method A		
2. Saturated surface-dry mass determined		
3. Immersed at least 10 min. at 25 ± 1 °C (77.0 ± 1.8 °F)		
4. Dried with a damp towel		
5. Specimen weighed		
6. Any water which seeps from the specimen is included in the mass		
7. Mass of volumeter filled with distilled water at 25 ± 1 °C (77.0 ± 1.8 °F) determined		
8. Weighed, saturated specimen placed into volumeter		
9. Let stand for at least 1 minute		
10. The temperature of water brought to 25 ± 1 °C (77.0 ± 1.8 °F) and volumeter covered		
11. Some water allowed to escape through the capillary bore of the tapered lid		
12. Volumeter wiped dry and volumeter and contents weighed		
13.% water absorbed determined to be less than 2%		
<b>Method C (Rapid Test):</b>		
1. Procedure same as Method A or Method B except for the determination of dry mass		
2. Dry mass determined by:		
3. Warming in oven 110 ± 5 °C (230 ± 9 °F) until soft		
4. Breaking down to 1/4 in. particles		
5. Drying in the oven to constant mass (2 hr. change less than 0.05%)		
6. Cooling to room temp. 25 ± 5 °C (77 ± 9 °F) and weighing		

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Procedures (continued)	Trial 1	Trial 2
7.% water absorbed determined to be less than 2%		
8. Labs says proper book formulas used to calculate specific gravity of the specimen		
9. For Specimens That Contain Moisture or Solvent, or Both		
10. Mass of specimen in water determined		
11. Immersed in the bath for 3 to 5 min. If specimen temperature differs from the water temperature by more than 2 °C (3.6 °F), is specimen immersed 10 to 15 min, water at 25 ± 1 °C (77 ± 1.8 °F) If not, is the bulk specific gravity corrected to 25 °C (77 °F)		
12. Sample blotted with a damp towel		
13. Mass of saturated surface-dry specimen determined		
14. Mass of oven-dry specimen determined		
15. Specimen dried in 110 ± 5 °C (230 ± 9 °F) oven to constant mass		
16. Documentation exists showing an interval of time between readings is sufficient to determine the constant mass		
17. Cooled and weighed in air		
18. For Thoroughly Dry Specimens		
19. Mass of dry specimen determined		
20. Specimen dried in air for at least one hour		
21. Mass of specimen in water determined		
22. Immersed in the bath for 3 to 5 min		
23. If specimen temperature differs from the water temperature by more than 2 °C (3.6 °F), is specimen immersed 10 to 15 min		
24. Water at 25 ± 1 °C (77 ± 2 °F)		
25. If not, is the bulk specific gravity corrected to 25 °C (77 °F)		
26. Sample blotted with a damp towel		
27. Mass of saturated surface-dry specimen determined		
28. Labs says proper book formulas used to calculate specific gravity of the specimen		

First Attempt: Pass: \_\_\_\_\_ Fail: \_\_\_\_\_ Second Attempt: Pass: \_\_\_\_\_ Fail: \_\_\_\_\_

Exam Administration: Remote \_\_\_\_\_ In-Person \_\_\_\_\_

**Comments:**

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Examiner Name: \_\_\_\_\_ Examiner Signature: \_\_\_\_\_ Date: \_\_\_\_\_