Performance Examination - Asphalt

Standard Method of Test for Determining the Asphalt Binder Content of Asphalt Mixtures by the Ignition Method (AASHTO T 308-18)

Candidate Name: _____ **NICET ID:** _____

Apparatus	Trial 1	Trial 2
Ignition Furnace Capable of maintaining a temperature of 578 °C (1072 °F) Dimensions adequate to accommodate a 3500 g sample Door cannot be opened during test Method for reducing furnace emissions Vented into a hood or to the outside A fan to pull air through the furnace		
Sample Basket Allows sample to be thinly spread Allows air to flow through and around sample Sets of two or more baskets nested Sample completely enclosed with a mesh screen or perforated stainless steel plate Catch pan of sufficient size to hold baskets		
Internal Balance *(Method A only)* Thermally isolated from furnace chamber Accurate to 0.1 g Capable of weighing a 3500 g sample in addition to the baskets Data collection system (Method A only) Built-in computer program Calculates the change in mass Provides for the input of a correction factor Capable of changing the ending mass loss %age to 0.02%		
Printed Ticket *(Method A only)* Records initial specimen mass Records specimen mass loss Records temperature compensation Records correction factor Records corrected asphalt content (%) Records test time Records test temperature		
Oven Capable of maintaining a temperature of 125 ± 5 °C (257 ± 9 °F) (If not, include Maker and Identification No. under Comments.)		
Balance Conforming to AASHTO M231, Class G2 to 0.1 g		
Protective Cage Capable of surrounding baskets		

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Procedures	Trial 1	Trial 2
Calibration		
1. Calibration performed for each change in mix design or ingredients		
2. Butter mix prepared to condition bowl		
3. "Blank" aggregate specimen batched and tested for aggregate gradation		
4. Two calibration samples mixed at the design asphalt content		
5. Freshly mixed specimens placed directly into baskets		
6. Samples preheated at 125 °C for 25 minutes if allowed to cool		
7. Baskets are not preheated		
8. Specimens tested according to a method		
9. Gradation analysis performed on residual aggregate and compared to blank Asphalt contents determined		
If the asphalt contents differ by more than 0.15 %		
10. Test repeated with two more samples		
11. Highest and lowest result discarded from the four tests		
12. Calibration factor determined from the two remaining results		
13. If the calibration factor exceeds 0.5 %, test repeated at 482 ± 5°C (900 ± 8°F), and the resulting calibration factor used for further testing		
14. The test temperature is the same as that of calibration		
11. Average of the three taken and used as the calibration factor		
Sample Preparation		
1. Mixture warmed in an oven at 125 ± 5 °C (257 ± 9 °F) until it can be handled if necessary		
2. Particles of the mixture separated with spatula or trowel		
3. The sample obtained by splitting or quartering		
4. Sample mass at least: 1200 g for No. 4; 1200 g for G in.; 1500 g for ½ in.; 2000 g for ¾ in.; 3000 g for 1 in.; 4000 g for 1 ½ in.		
5. Sample mass is based on the nominal maximum aggregate size		
6. Specimen mass not more than 400 g greater than the minimum recommended mass		
7. Sample divided into suitable increments and tested if necessary		

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Candidate Name: _____ **NICET ID:** _____

Procedures (continued)	Trial 1	Trial 2
Ignition Procedure by Method A		
1. Furnace preheated to 538 °C (1000 °F) or the calibration temperature		
2. Temperature recorded before testing if the furnace does not automatically		
3. Sample dried to constant mass at 105 ± 5 °C (221 ± 9 °F)		
4. A test specimen for moisture determination obtained if necessary and moisture content determined according to T 110		
5. Calibration factor entered for the mix**.** Basket(s) placed in catch pan and weighed with guards in place		
6. Sample evenly distributed in the basket, material kept away from edges and leveled		
7. The total mass of the sample, basket, catch pan and basket guards recorded		
8. The initial mass of the specimen calculated. Initial mass entered into the furnace controller and verified		
9. Baskets placed in the furnace and chamber door closed		
10. Furnace scale agrees within 5 g of the total mass		
11. Pressing the start button locks the door and starts the blower		
12. The test continued until the change in mass does not exceed 0.01% for three consecutive minutes		
13. Ending mass loss %age of 0.02% may be used for excessive aggregate loss		
14. Corrected asphalt content (%) from the printed ticket reported. Moisture content subtracted from the printed ticket and the difference reported. Baskets removed and allowed to cool to room temperature		
15. Corrected asphalt content (% AC) calculated by the formula below: $\%\,AC = ((MB - MA) / MB \times 100) - CF$ where MB = total mass prior to ignition, MA= total mass after ignition, CF= calibration factor		
Ignition Procedure by Method B		
1. Furnace preheated to 538 °C (1000 °F), or the calibration temperature		
2. Calibration factor recorded the for the mix		
3. Sample dried to constant mass at 105 ± 5 °C (221 ± 9 °F)		

Examiner Name: _____ **Examiner Signature**: _____ **Date:** _____

Performance Examination - Asphalt

Standard Method of Test for Determining the Asphalt Binder Content of Asphalt Mixtures by the Ignition Method (AASHTO T 308-18)

Candidate Name: _____ **NICET ID:** _____

Procedures (continued)	Trial 1	Trial 2
4. A test specimen for moisture determination obtained if necessary and moisture content determined according to T 110. Basket(s) placed in catch pan and weighed with guards in place		
5. Sample evenly distributed in the basket, material kept away from edges and leveled		
6. The total mass of the sample, basket, catch pan and basket guards recorded		
7. The initial mass of the specimen calculated		
8. Sample burned in the furnace for at least 45 minutes		
9. The sample removed and allowed to cool to room temperature at least 30 minutes		
10. Sample weighed after ignition to the nearest 0.1 g		
11. The sample placed back in the furnace		
12. Sample burned for at least 15 minutes after reaching the set temperature		
13. Steps (9) through (12) repeated until the change in mass does not exceed 0.01 % of the initial sample mass		
14. Ending mass loss %age of 0.02% may be used for excessive aggregate loss		
15. Calculate corrected asphalt content (% AC) calculated by the formula below: $\%\,AC = ((MB - MA)/MB \times 100) - CF$ where MB = total mass prior to ignition, MA= total mass after ignition, CF= calibration factor		
16. Gradation		
17. Contents emptied into a flat pan, including any residual fines		
18. Gradation analysis performed according to AASHTO T30		

First Attempt: Pass: _____ Fail: _____ **Second Attempt:** Pass: _____ Fail: _____

Exam Administration: Remote _____ In-Person _____

Comments:

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Examiner Name: _____ **Examiner Signature**: _____ **Date:** _____