**Asphalt Technician Assessment & IA Split Sampling**

**HMA QC Laboratory - Summary Sheet**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Technician Name: | Click or tap here to enter text. |  | Technician ID#: | Click or tap here to enter text. |
| Technician Assessor Name: | Click or tap here to enter text. |  | Assessment Date: | Click or tap to enter a date. |
| IA Sampling Assessor Name: | Click or tap here to enter text. |  | IA Sampling Date: | Click or tap to enter a date. |
|  |  |  | HiCAMS #: | Click or tap here to enter text. |

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| **HMA QC Laboratory Technician Assessment Results** | | |
| **Test Procedure** | **Assessment Results** | **Investigation Notes (Required if Un-Acceptable)** |
| Sampling & Quartering | Choose an item. | Click or tap here to enter text. |
| Binder Content (T-308) | Choose an item. | Click or tap here to enter text. |
| Bulk Specific Gravity (T-312 and T-166/T-331) | Choose an item. | Click or tap here to enter text. |
| Theoretical Maximum Specific Gravity (T-209 or  D-6857) | Choose an item. | Click or tap here to enter text. |
| Recovered Aggregate Gradation (T-30) | Choose an item. | Click or tap here to enter text. |

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| **HMA QC Laboratory IA Split Sampling Results** | | |
| **Test Procedure** | **Assessment Results** | **Investigation Notes (Required if Un-Acceptable)** |
| Binder Content (T-308) | Choose an item. | Click or tap here to enter text. |
| Bulk Specific Gravity (T-312 and T-166/T-331) | Choose an item. | Click or tap here to enter text. |
| Theoretical Maximum Specific Gravity (T-209 or  D-6857) | Choose an item. | Click or tap here to enter text. |
| Recovered Aggregate Gradation (T-30) | Choose an item. | Click or tap here to enter text. |

Notes:

Click or tap here to enter text.

**Sampling Mix From the Truck & Reduction of Samples to Test Size**

**NCDOT IA Assessment**

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| Technician Name: | | Click or tap here to enter text. |  | Technician ID#: | | Click or tap here to enter text. | | |
| **Procedure** | | | | | | **1st Trial** | | **2nd Trial** |
| 1. | | Verify all equipment and tools meet all requirements per Standard. | | | | Choose an item. | | Choose an item. |
| 2. | | Initial point of sampling established at the high point of the cone near the middle of the truck box. | | | | Choose an item. | | Choose an item. |
| 3. | | At least three incremental sampling points established and equally spaced around the load? | | | | Choose an item. | | Choose an item. |
| 4. | | Mix temperature taken from truck as required by Section 7.5.5? | | | | Choose an item. | | Choose an item. |
| 5. | | Upper 6 - 12 inches of mix removed before extracting mix samples? | | | | Choose an item. | | Choose an item. |
| 6. | | Material from each sampling point placed into each bucket/cloth bag? | | | | Choose an item. | | Choose an item. |
| 7. | | Each bucket/cloth bag contains a minimum of 50 pounds of mix? | | | | Choose an item. | | Choose an item. |
| 8. | | Material to be retained carefully placed in cloth bags? **(QC only)** | | | | Choose an item. | | Choose an item. |
|  | | *The following 3 items should be administered Orally to ensure technician is aware of requirements:* | | | | Choose an item. | | Choose an item. |
|  | | *a. A WHITE sample card should be used to tag which bags? [QA Sample Bag]* | | | | Choose an item. | | Choose an item. |
|  | | *b. An ORANGE sample card should be used to tag which bags? [Referee Bag]* | | | | Choose an item. | | Choose an item. |
|  | | *c. All bags retained for 7 calendar days in a safe, dry place as required by the QMS Manual?* | | | | Choose an item. | | Choose an item. |
| 9. | | Mix to be tested should be emptied onto the splitting table and shaped into a conical pile? Carefully flatten the conical pile to a uniform thickness and diameter by pressing down the apex? | | | | Choose an item. | | Choose an item. |
| 10. | | Mix quartered with quarters used to weigh up samples for Gyratory Specimens, Rice Gravity, Binder Content, and Gradation testing as required in Section 7.5? | | | | Choose an item. | | Choose an item. |
| 11. | | Any remaining mix from each quarter discarded after weighing up samples? | | | | Choose an item. | | Choose an item. |

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| **Technician Assessor Name:** | Click or tap here to enter text. |  | **Assessment Date:** | Click or tap to enter a date. |
| **IA Sampling Assessor Name:** | Click or tap here to enter text. |  | **IA Sampling Date:** | Click or tap to enter a date. |

**Technician Assessment Requirements**

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| **To successfully complete each step in the above procedure within two trials.** |

**Technician Assessment Results**

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| **Technician Assessment** | **Results** | **Investigation Notes (Required if Un-Acceptable)** |
| Trial 1 | Choose an item. | Click or tap here to enter text. |
| Trial 2 | Choose an item. | Click or tap here to enter text. |

Note: An IA-Split Sampling is not required for “Sampling and Quartering”.

**Asphalt Binder Content of Hot-Mix-Asphalt by the Ignition Method**

**NCDOT T-308**

**NCDOT IA Assessment & Split Sampling**

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| Technician Name: | | | Click or tap here to enter text. | |  | Technician ID#: | | Click or tap here to enter text. | |
| **Procedure** | | | | | | | | **1st Trial** | | **2nd Trial** |
| 1. | | Verify all equipment and tools meet all requirements per NCDOT T-308 Standard. | | | | | | Choose an item. | | Choose an item. |
| 2. | | Minimum weight of sample based on the following: | | | | | | Choose an item. | | Choose an item. |
|  | | Nominal Max Particle Size (mm) | | | Minimum Weight of Sample (grams) | | |  | |  |
| 25.0 | | | 3000 | | |
| 19.0 | | | 2000 | | |
| 9.50, 4.75 | | | 1200 | | |
| 3. | | | Sample size not more than 500 grams greater than the minimum weight of sample? | | | | | Choose an item. | | Choose an item. |
| 4. | | | Ignition Furnace preheated to 1000 oF (538 °C)? | | | | | Choose an item. | | Choose an item. |
| 5. | | | Calibration Factor entered for the specific mix to be tested? | | | | | Choose an item. | | Choose an item. |
| 6. | | | Weight of specimen basket assembly recorded (including catch pan, lids, and guards)? | | | | | Choose an item. | | Choose an item. |
| 7. | | | Sample evenly distributed in baskets, material kept away from edges (not touching sides), and leveled? | | | | | Choose an item. | | Choose an item. |
| 8. | | | Total weight of sample and specimen basket assembly recorded? | | | | | Choose an item. | | Choose an item. |
| 9. | | | Initial weight of the sample calculated and recorded? | | | | | Choose an item. | | Choose an item. |
| 10. | | | Initial weight of the sample input into the ignition furnace controller and then verified? | | | | | Choose an item. | | Choose an item. |
| 11. | | | Sample and specimen basket assembly placed in the furnace and chamber door closed? | | | | | Choose an item. | | Choose an item. |
| 12. | | | Internal balance reading and chamber temperature allowed to stabilize? | | | | | Choose an item. | | Choose an item. |
| 13. | | | Internal balance reading agrees with total weight within ± 5 grams?  Note: Record weight BEFORE pressing the Start button. | | | | | Choose an item. | | Choose an item. |
| 14. | | | Pressing the start button locks the chamber door and starts the combustion blower? | | | | | Choose an item. | | Choose an item. |
| 15. | | | Test continued until stable light and audible alarm indicate the test is  complete?  Note: Change in weight does not exceed 0.01% for three consecutive minutes | | | | | Choose an item. | | Choose an item. |
| 16. | | | Pressing the Stop button unlocks the chamber door and prints the ticket? | | | | | Choose an item. | | Choose an item. |
| 17. | | | Open the chamber door, remove the specimen basket assembly, and place it on a cooling plate or block, and allow it to cool (see T30 Item #1)? | | | | | Choose an item. | | Choose an item. |
| 18. | | | Corrected asphalt content (%) from the ticket recorded? | | | | | Choose an item. | | Choose an item. |
| 19. | | | Contents of sample basket assembly emptied into a pan without any loss of material before gradation analysis is performed? | | | | | Choose an item. | | Choose an item. |

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| **Technician Assessor Name:** | Click or tap here to enter text. |  | **Assessment Date:** | Click or tap to enter a date. |
| **IA Sampling Assessor Name:** | Click or tap here to enter text. |  | **IA Sampling Date:** | Click or tap to enter a date. |

**Asphalt Binder Content of Hot-Mix-Asphalt by the Ignition Method (Continued)**

**NCDOT T-308**

**Technician Assessment Requirements**

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| **To successfully complete each step in the above procedure within two trials.** |

**Technician Assessment Results**

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| --- | --- | --- |
| **Technician Assessment** | **Results** | **Investigation Notes (Required if Un-Acceptable)** |
| Trial 1 | Choose an item. | Click or tap here to enter text. |
| Trial 2 | Choose an item. | Click or tap here to enter text. |

**IA Split Sampling Requirements**

|  |  |  |  |
| --- | --- | --- | --- |
| **Correlation** | **Acceptable**  **(<= 1.0%)** | **Un-Acceptable**  **(> 1.0%)** | **Investigation Notes**  **(greater than 1.0% difference)** |

**IA Split Sampling Results**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Technician Results** | **IA Assessor Results** | **Correlation Results** |
| Trial 1 | Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |
| Trial 2 | Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |

**Bulk Specific Gravity (T-312 & T-166/T-331)**

**Preparing Asphalt Specimens by means of the Superpave Gyratory Compactor**

**NCDOT T-312**

**NCDOT IA Assessment & Split Sampling**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Technician Name: | | Click or tap here to enter text. | |  | Technician ID#: | | Click or tap here to enter text. | |
| **Procedure** | | | | | | | **1st Trial** | | **2nd Trial** |
| 1. | | Verify all equipment and tools meet all requirements per NCDOT T-312 Standard. | | | | | Choose an item. | | Choose an item. |
| 2. | | Main power of gyratory compactor switched on for manufacturer’s recommended warm-up period? | | | | | Choose an item. | | Choose an item. |
| 3. | | Daily Height Verification run, Required Angle, Pressure, and Number of Gyrations set? | | | | | Choose an item. | | Choose an item. |
| 4. | | Three gyratory mold assemblies placed in an oven set at *300 ± 25 °F (149 ± 14 ° C)* for a minimum of 30 minutes prior to estimated beginning of compaction? | | | | | Choose an item. | | Choose an item. |
| 5. | | Appropriate amount of mix weighed out to produce a compacted specimen height of 115 ± 5 mm? | | | | | Choose an item. | | Choose an item. |
| 6. | | Mix Sample Compaction Temperature (ALL Binder Grades) 10 °F lower than the Mixing temperature shown on the JMF, and then apply a range of ± 5 °F. | | | | | Choose an item. | | Choose an item. |
|  | | ***Mixes Using Binder Grade*** | | ***Compaction Temperature*** | | | ***RAP/RAS*** *- temperature based on*  *Original binder grade for mix type?* | | |
| *PG 58-28 & PG 64-22 (290°F)* | | *280 ± 5 °F (137 ± 3 ° C)* | | |
| *PG 70-22 (305°F)* | | *295 ± 5 °F (146 ± 3 ° C)* | | | ***WMA*** *– required compaction temperature is 10 °F lower than mixing temperature (range = ±5 °F)?* | | |
| *PG 76-22 (325°F)* | | *315 ± 5 °F (157 ± 3 ° C)* | | |
| 7. | | Mold assembly removed from oven and paper disc placed in bottom of mold? | | | | | Choose an item. | | Choose an item. |
| 8. | | Mix sample introduced into mold in one lift and leveled? | | | | | Choose an item. | | Choose an item. |
| 9. | | Mix temperature checked by placing a thermometer in the center of the specimen? | | | | | Choose an item. | | Choose an item. |
| 10. | | Once compaction temperature is reached, paper disc placed on top of material and mold assembly loaded into compactor? | | | | | Choose an item. | | Choose an item. |
| 11. | | Are the procedures in #6 - #9 above done as quickly as possible to prevent mix from cooling below the required compaction temperature? | | | | | Choose an item. | | Choose an item. |
| 12. | | Were the correct gyrations used for the mix type being gyrated? Make sure to look at the JMF # to see if it is the New 2018 Specs or a 2017 or older JMF. | | | | | Choose an item. | | Choose an item. |
| 13. | | Once compaction is complete, mold assembly is removed and specimen carefully extruded?  Note: Some mix types may require a cooling period of 5 - 10 mins. before complete extrusion. | | | | | Choose an item. | | Choose an item. |
| 14. | | All paper protection discs are removed from specimens as soon as possible? | | | | | Choose an item. | | Choose an item. |
| 15. | | Before reusing mold, mold placed back into an oven set at compaction  temperature for a minimum of 5 minutes? | | | | | Choose an item. | | Choose an item. |
| 16. | | All 3 specimens are placed in front of cooling fan until they cool to a temperature of 77 ± 9 ºF? | | | | | Choose an item. | | Choose an item. |
| 17. | | Specimens are properly identified with appropriate sample numbers? | | | | | Choose an item. | | Choose an item. |

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| **Technician Assessor Name:** | Click or tap here to enter text. |  | **Assessment Date:** | Click or tap to enter a date. |
| **IA Sampling Assessor Name:** | Click or tap here to enter text. |  | **IA Sampling Date:** | Click or tap to enter a date. |

**Technician Assessment Requirements**

|  |
| --- |
| **To successfully complete each step in the above procedure within two trials.** |

**Technician Assessment Results**

|  |  |  |
| --- | --- | --- |
| ­**Technician Assessment** | **Results** | **Investigation Notes (Required if Un-Acceptable)** |
| Trial 1 | Choose an item. | Click or tap here to enter text. |
| Trial 2 | Choose an item. | Click or tap here to enter text. |

**IA Split Sampling Requirements**

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| --- | --- | --- | --- |
| **Correlation** | **Acceptable**  **(<= 0.060)** | **Un-Acceptable**  **(> 0.060)** | **Investigation Notes**  **(greater than 0.060 difference)** |

**IA Split Sampling Results**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Technician Results** | **IA Assessor Results** | **Correlation Results** |
| Trial 1 | Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |
| Trial 2 | Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |

**Bulk Specific Gravity (T-312 & T-166/T-331)**

**Bulk Specific Gravity of Compacted Asphalt Mixtures**

**NCDOT T-166**

**NCDOT IA Assessment & Split Sampling**

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| Technician Name: | | Click or tap here to enter text. | |  | Technician ID#: | | | Click or tap here to enter text. | |
| **Procedure** | | | | | | | | **1st Trial** | | **2nd Trial** |
| 1. | | Verify all equipment and tools meet all requirements per NCDOT T-166 Standard. | | | | | | Choose an item. | | Choose an item. |
| 2. | | Laboratory – molded specimens? | | | | | | | | |
|  | | Cooled to temperature of 77 ± 9 °F (25 ± 5 °C)? | | | | | | Choose an item. | | Choose an item. |
| 3. | | Cored or cut samples? | | | | | | | | |
|  | | a. Sample dried to constant weight at a temperature of 125 ± 5 °F (52 ± 3 °C) until further drying does not alter the weight by more than 0.05% when weighed at 2-hour intervals? | | | | | | Choose an item. | | Choose an item. |
|  | | b. Samples saturated with water initially dried overnight in oven at a temperature of 125 ± 5 °F (52 ± 3 °C) and then weighed at 2-hour intervals? | | | | | | Choose an item. | | Choose an item. |
|  | | c. Core-Drying Apparatus: Sample weighed, run one complete cycle, reweighed, and drying continued until further drying does not alter the weight by more than 0.05%. (At least 2 cycles.) | | | | | | Choose an item. | | Choose an item. |
| 4. | | Core-Drying Apparatus | | | | | | | | |
|  | | a. Specimen placed inside vacuum chamber and lid(s) placed on chamber and moisture trap (if necessary)? | | | | | | Choose an item. | | Choose an item. |
|  | | b. Start button pressed to begin the drying process? | | | | | | Choose an item. | | Choose an item. |
|  | | c. Machine automatically stops when it senses the “dry specimen condition”? (At least 2 cycles.) | | | | | | Choose an item. | | Choose an item. |
| 5. | | Dry Weight determined to nearest 0.1 gram? | | | | | | Choose an item. | | Choose an item. |
| 6. | | Wet Weight determined to nearest 0.1 gram? | | | | | | Choose an item. | | Choose an item. |
|  | | a. The water tank Circulation Pump Shall NOT be in use while recording sample weights? | | | | | | Choose an item. | | Choose an item. |
|  | | b. Immersed for 4 ± 1 minute? | | | | | | Choose an item. | | Choose an item. |
|  | | c. Water Bath temperature at 77 ± 2 °F (25 ± 1 °C)? | | | | | | Choose an item. | | Choose an item. |
| 7. | | Saturated Surface-Dry Weight determined to nearest 0.1 gram? | | | | | | Choose an item. | | Choose an item. |
|  | | a. Quickly blotted with damp towel?  Note: Entire towel is saturated and water is wrung out until no more water can be wrung from the towel? | | | | | | Choose an item. | | Choose an item. |
|  | | b. The entire operation did not exceed 25 seconds?  (Note: timing begins once the specimen breaks the surface of the water and ends once the blotted specimen is placed on the top of the balance.) | | | | | | Choose an item. | | Choose an item. |
| 8. | | Bulk Specific Gravity (Gmb) calculated to the nearest 0.001 as follows: | | | | | | Choose an item. | | Choose an item. |
|  | | Gmb = A .  (B-C) | | Where | | | A = Weight of dry specimen in air (grams) | | | |
|  | | | B = Weight of saturated surface dry specimen in air (grams) | | | |
|  | | | C = Weight of specimen in water (grams) | | | |

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| **Technician Assessor Name:** | Click or tap here to enter text. |  | **Assessment Date:** | Click or tap to enter a date. |
| **IA Sampling Assessor Name:** | Click or tap here to enter text. |  | **IA Sampling Date:** | Click or tap to enter a date. |

**Technician Assessment Requirements**

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| **To successfully complete each step in the above procedure within two trials.** |

**Technician Assessment Results**

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| **Technician Assessment** | **Results** | **Investigation Notes (Required if Un-Acceptable)** |
| Trial 1 | Choose an item. | Click or tap here to enter text. |
| Trial 2 | Choose an item. | Click or tap here to enter text. |

**IA Split Sampling Requirements**

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| --- | --- | --- | --- |
| **Correlation** | **Acceptable**  **(<= 0.060)** | **Un-Acceptable**  **(> 0.060)** | **Investigation Notes**  **(greater than 0.060 difference)** |

**IA Split Sampling Results**

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| --- | --- | --- | --- |
|  | **Technician Results** | **IA Assessor Results** | **Correlation Results** |
| Trial 1 | Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |
| Trial 2 | Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |

**Bulk Specific Gravity (T-312 & T-166/T-331)**

**Bulk Specific Gravity (Gmb) of Asphalt Paving Mixtures by Vacuum Sealing Method**

**NCDOT T-331**

**NCDOT IA Assessment & Split Sampling**

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| Technician Name: | | Click or tap here to enter text. | |  | Technician ID#: | | Click or tap here to enter text. | |
| **Procedure** | | | | | | | **1st Trial** | | **2nd Trial** |
| 1. | | Verify all equipment and tools meet all requirements per NCDOT T-331 Standard. | | | | | Choose an item. | | Choose an item. |
| 2. | | Specimens laboratory molded – allowed to cool to temperature 77 + 90 F (25 + 50 C) | | | | | Choose an item. | | Choose an item. |
| 3. | | Cored or cut samples? | | | | | | | |
|  | | a. Sample dried to constant weight at a temperature of 125 ± 5°F (52 ± 3°C) until further drying does not alter the weight by more than 0.05% when weighed at 2-hour intervals? | | | | | Choose an item. | | Choose an item. |
|  | | b. Samples saturated with water initially dried overnight in oven at a temperature of 125 ± 5°F (52 ± 3°C) and then weighed at 2-hour intervals? | | | | | Choose an item. | | Choose an item. |
|  | | c. Automatic Drying Apparatus: Sample weighed, run one complete cycle, reweighed, and drying continued until further drying does not alter the weight by more than 0.05%. (At least 2 cycles.) | | | | | Choose an item. | | Choose an item. |
| 4. | | Appropriate size plastic bag chosen for the specimen size being tested and weight determined? | | | | | Choose an item. | | Choose an item. |
| 5. | | Weight of empty bag determined? | | | | | Choose an item. | | Choose an item. |
| 6. | | Dry Weight of specimen determined to nearest 0.1 gram? | | | | | Choose an item. | | Choose an item. |
| 7. | | Bag placed on top of Specimen Sliding Plate inside the vacuum chamber? | | | | | Choose an item. | | Choose an item. |
| 8. | | Specimen placed in bag carefully to avoid puncturing, dropping, or impacting the bag? | | | | | Choose an item. | | Choose an item. |
| 9. | | Vacuum chamber set to proper Manufacturer’s Program (Program # 1)? | | | | | Choose an item. | | Choose an item. |
| 10. | | Bag automatically sealed by the Vacuum Chamber once air is removed? | | | | | Choose an item. | | Choose an item. |
| 11. | | Air exhausted into the chamber until chamber door opens indicating atmospheric pressure within the chamber? | | | | | Choose an item. | | Choose an item. |
| 12. | | Bag inspected for loose areas, to insure a proper seal? If loose areas found, was sealing restarted? | | | | | Choose an item. | | Choose an item. |
| 13. | | Was the sample immediately transferred to water bath (with scale) at 77 ± 2°F (25 ± 1°C)? The time between the lid opening after sealing and inspection of the bag and placement of the specimen into the water tank should not exceed one (1) minute? | | | | | Choose an item. | | Choose an item. |
| 14. | | Weight of the sealed sample in water determined at 77° ± 2°F (25° ± 1°C) to the nearest 0.1 gram? | | | | | Choose an item. | | Choose an item. |
| 15. | | The water tank Circulation Pump Shall NOT be in use while recording sample weights? | | | | | Choose an item. | | Choose an item. |
| 16. | | Specimen removed from bag and its weight determined to the nearest 0.1 gram? | | | | | Choose an item. | | Choose an item. |
|  | | a. Was weight verified to be within ±5 grams of weight? | | | | | Choose an item. | | Choose an item. |
|  | | b. If not, was the specimen dried & retested with a new bag? | | | | | Choose an item. | | Choose an item. |
| 17. | | Bulk Specific Gravity (Gmb) calculated to the nearest 0.001 as follows: | | | | | Choose an item. | | Choose an item. |
|  | |  | | | | |  | |  |
|  | | Where | | A = Weight of dry specimen in air (grams) | | | | | |
| B = Weight of sealed specimen in air (grams) | | | | | |
| C = Weight of dry specimen in air - reweighed (grams) | | | | | |
| E = Weight of sealed specimen under water - reweighed (grams) | | | | | |
| F = Bag correction factor | | | | | |

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| **Technician Assessor Name:** | Click or tap here to enter text. |  | **Assessment Date:** | Click or tap to enter a date. |
| **IA Sampling Assessor Name:** | Click or tap here to enter text. |  | **IA Sampling Date:** | Click or tap to enter a date. |

**Technician Assessment Requirements**

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| --- |
| **To successfully complete each step in the above procedure within two trials.** |

**Technician Assessment Results**

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| --- | --- | --- |
| **Technician Assessment** | **Results** | **Investigation Notes (Required if Un-Acceptable)** |
| Trial 1 | Choose an item. | Click or tap here to enter text. |
| Trial 2 | Choose an item. | Click or tap here to enter text. |

**IA Split Sampling Requirements**

|  |  |  |  |
| --- | --- | --- | --- |
| **Correlation** | **Acceptable**  **(<= 0.060)** | **Un-Acceptable**  **(> 0.060)** | **Investigation Notes**  **(greater than 0.060 difference)** |

**IA Split Sampling Results**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Technician Results** | **IA Assessor Results** | **Correlation Results** |
| Trial 1 | Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |
| Trial 2 | Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |

**Theoretical Maximum Specific Gravity (T-209 or D-6857)**

**Maximum Specific Gravity (Gmm) of Asphalt Mixtures**

**NCDOT T-209**

**NCDOT IA Assessment & Split Sampling**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Technician Name: | | | Click or tap here to enter text. | | |  | Technician ID#: | | | Click or tap here to enter text. | |
| **Procedure** | | | | | | | | | | **1st Trial** | | **2nd Trial** |
| 1. | | Verify all equipment and tools meet all requirements per NCDOT T-209 Standard. | | | | | | | | Choose an item. | | Choose an item. |
| 2. | | Sample of 1500g (9.5, 4.75) OR 2000g (25.0, 19.0) weighed into appropriately sized container? Sample size not more than 200 grams greater than the minimum sample weight? | | | | | | | | Choose an item. | | Choose an item. |
| 3. | | | Mix spread uniformly in large flat pan and broken up so that no particles of fine aggregate portion larger than 1/4 inch? | | | | | | | Choose an item. | | Choose an item. |
| 4. | | | Sample cooled to temperature of 77 ± 9 °F (25 ± 5 °C) and then the entire amount placed in the bowl or pot and weighed? | | | | | | | Choose an item. | | Choose an item. |
| 5. | | | Water at 77 ± 2 oF (25 ± 1 °C) added until sample is covered completely? | | | | | | | Choose an item. | | Choose an item. |
| 6. | | | Entrapped air removed using partial vacuum of 27.5 ± 2.5 mm Hg for 15 ± 2 minutes? Container and contents agitated continuously by mechanical device? | | | | | | | Choose an item. | | Choose an item. |
| 7. | | | At the end of the vacuum period, was the vacuum released by increasing the pressure at a rate not to exceed 60 mm Hg (8 kPa) per second? | | | | | | | Choose an item. | | Choose an item. |
| 8. | | | Bowl/Pot Determination: | | | | | | | | | |
|  | | | a. Bowl and sample suspended in water maintained at 77 ± 2 oF (25 ± 1 °C) for 10 ± 1 minutes? | | | | | | | Choose an item. | | Choose an item. |
|  | | | b. Net weight of sample in water determined? | | | | | | | Choose an item. | | Choose an item. |
|  | | | c. The water tank Circulation Pump Shall NOT be in use while recording sample weights? | | | | | | | Choose an item. | | Choose an item. |
| 9. | | | Maximum Specific Gravity (Gmm) calculated to the nearest 0.001 as follows: | | | | | | | Choose an item. | | Choose an item. |
|  | | |  | | | | Where | | A = Weight of sample in air before vacuum (grams) | | | |
| C = Weight of sample in water after vacuum (grams) | | | |
|  | | | Dryback Procedure | | | | | | | | | |
| 10. | | | Water drained from sample and decanted through a towel or No. 200 sieve to prevent loss of fine particles? | | | | | | | Choose an item. | | Choose an item. |
| 11. | | | Large conglomerations of mix broken up by hand? | | | | | | | Choose an item. | | Choose an item. |
| 12. | | | Sample spread in a tared pan and placed in front of an electric fan to remove surface moisture? | | | | | | | Choose an item. | | Choose an item. |
| 13. | | | Sample stirred periodically? | | | | | | | Choose an item. | | Choose an item. |
| 14. | | | Sample weighed at 15-minute intervals until constant weight is reached? | | | | | | | Choose an item. | | Choose an item. |
|  | | | (Note: Constant weight is reached once loss is less than 0.05% for the 15-minute interval.) | | | | | | | | | |
| 15. | | | Maximum Specific Gravity (Gmm) calculated to the nearest 0.001 as follows: | | | | | | | Choose an item. | | Choose an item. |
|  | | |  | | Where | A = Weight of sample in air before vacuum (grams); | | | | | | |
| B = Weight of surface dry sample in air after vacuum or after Dryback (grams); | | | | | | |
| C = Weight of sample in water after vacuum (grams) | | | | | | |

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| **Technician Assessor Name:** | Click or tap here to enter text. |  | **Assessment Date:** | Click or tap to enter a date. |
| **IA Sampling Assessor Name:** | Click or tap here to enter text. |  | **IA Sampling Date:** | Click or tap to enter a date. |

**Technician Assessment Requirements**

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| **To successfully complete each step in the above procedure within two trials.** |

**Technician Assessment Results**

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| **Technician Assessment** | **Results** | **Investigation Notes (Required if Un-Acceptable)** |
| Trial 1 | Choose an item. | Click or tap here to enter text. |
| Trial 2 | Choose an item. | Click or tap here to enter text. |

**IA Split Sampling Requirements**

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| **Correlation** | **Acceptable**  **(<= 0.040)** | **Un-Acceptable**  **(> 0.040)** | **Investigation Notes**  **(greater than 0.040 difference)** |

**IA Split Sampling Results**

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| --- | --- | --- | --- |
|  | **Technician Results** | **IA Assessor Results** | **Correlation Results** |
| Trial 1 | Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |
| Trial 2 | Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |

**Theoretical Maximum Specific Gravity (T-209 or D-6857)**

**Maximum Specific Gravity (Gmm) of Asphalt Mixtures by Vacuum Sealing**

**NCDOT D-6857**

**NCDOT IA Assessment & Split Sampling**

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| Technician Name: | | | Click or tap here to enter text. |  | Technician ID#: | | Click or tap here to enter text. | |
| **Procedure** | | | | | | | **1st Trial** | | **2nd Trial** |
| 1. | | Verify all equipment and tools meet all requirements per NCDOT D-6857 Standard. | | | | | Choose an item. | | Choose an item. |
| 2. | | Sample of 1500g (9.5, 4.75) OR 2000g (25.0, 19.0) weighed into appropriately sized container? Sample size not more than 200 grams greater than the minimum sample weight? | | | | | Choose an item. | | Choose an item. |
| 3. | | | Mix spread uniformly in large flat pan and broken up so that no particles of fine aggregate portion larger than 1/4 inch? | | | | Choose an item. | | Choose an item. |
| 4. | | | Sample cooled to temperature of 77 ± 9 °F (25 ± 5 °C)? | | | | Choose an item. | | Choose an item. |
| 5. | | | Dry Weight of specimen determined? | | | | Choose an item. | | Choose an item. |
| 6. | | | Vacuum chamber set to proper Manufacturer’s Program (Program # 2)? | | | | Choose an item. | | Choose an item. |
| 7. | | | An appropriate internal and external bag chosen and the Combined Weight determined? | | | | Choose an item. | | Choose an item. |
| 8. | | | The entire sample placed in the internal bag, with care taken to ensure that none of the sample is lost during the transfer? | | | | Choose an item. | | Choose an item. |
| 9. | | | The empty external bag placed inside the vacuum chamber? | | | | Choose an item. | | Choose an item. |
| 10. | | | The internal bag containing the sample placed with the channel side down into the external bag? | | | | Choose an item. | | Choose an item. |
| 11. | | | The sample spread so that it is evenly distributed within the internal bag? | | | | Choose an item. | | Choose an item. |
| 12. | | | The opening of the internal bag is pushed away from the opening of the external bag to prevent the opening of the internal bag from being sealed? | | | | Choose an item. | | Choose an item. |
| 13. | | | The opening of the external bag is placed over the seal bar, ensuring that the internal bag is not over the seal bar? | | | | Choose an item. | | Choose an item. |
| 14. | | | The Vacuum Chamber closed and allowed to remove air from chamber and bag? | | | | Choose an item. | | Choose an item. |
| 15. | | | The external bag automatically sealed by the Vacuum Chamber once air is removed? | | | | Choose an item. | | Choose an item. |
| 16. | | | Air exhausted into the chamber until chamber door opens indicating atmospheric pressure within the chamber? | | | | Choose an item. | | Choose an item. |
| 17. | | | Sealed sample removed from the vacuum chamber and bag inspected for loose areas, to insure a proper seal? If loose areas found, was sealing restarted? | | | | Choose an item. | | Choose an item. |
| 18. | | | Was the sample immediately transferred to water tank (with scale) at 77 ± 2°F (25 ± 1°C)?  Note: The time between the lid opening after sealing and inspection of the bag and placement of the specimen into the water tank should not exceed one (1) minute. | | | | Choose an item. | | Choose an item. |
| 19. | | | The water tank Circulation Pump Shall NOT be in use while recording sample weights? | | | | Choose an item. | | Choose an item. |
| 20. | | | Was the sealed bag containing the sample submerged completely under water and the external bag cut open all the way across the top, leaving approximately 1 inch intact? | | | | Choose an item. | | Choose an item. |
| 21. | | | When cutting the bag open, was ALL of the bag kept completely underwater throughout the entire process? | | | | Choose an item. | | Choose an item. |
| 22. | | | Were both bags opened and held open for 10 - 15 seconds to allow water to flow into the bags? | | | | Choose an item. | | Choose an item. |
| 23. | | | Was the sample secured over the suspended holder and care taken to ensure the bags nor the suspension equipment are contacting the sides or bottom of the water tank? | | | | Choose an item. | | Choose an item. |
| 24. | | | Was water level returned to constant water level? | | | | Choose an item. | | Choose an item. |
| 25. | | | Was the weight allowed to stabilize, and the weight of the mix and bags underwater recorded to the nearest 0.1 gram? | | | | Choose an item. | | Choose an item. |
| 26. | | | Maximum Specific Gravity (Gmm) calculated to the nearest 0.001 per the manufacturer-provided software or data collection table? | | | | Choose an item. | | Choose an item. |

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| **Technician Assessor Name:** | Click or tap here to enter text. |  | **Assessment Date:** | Click or tap to enter a date. |
| **IA Sampling Assessor Name:** | Click or tap here to enter text. |  | **IA Sampling Date:** | Click or tap to enter a date. |

**Technician Assessment Requirements**

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| **To successfully complete each step in the above procedure within two trials.** |

**Technician Assessment Results**

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| **Technician Assessment** | **Results** | **Investigation Notes (Required if Un-Acceptable)** |
| Trial 1 | Choose an item. | Click or tap here to enter text. |
| Trial 2 | Choose an item. | Click or tap here to enter text. |

**IA Split Sampling Requirements**

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| --- | --- | --- | --- |
| **Correlation** | **Acceptable**  **(<= 0.040)** | **Un-Acceptable**  **(> 0.040)** | **Investigation Notes**  **(greater than 0.040 difference)** |

**IA Split Sampling Results**

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|  | **Technician Results** | **IA Assessor Results** | **Correlation Results** |
| Trial 1 | Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |
| Trial 2 | Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |

**Sieve Analysis of Recovered Aggregate Gradation**

**NCDOT T-30**

**NCDOT IA Assessment & Split Sampling**

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| Technician Name: | | | Click or tap here to enter text. |  | Technician ID#: | | Click or tap here to enter text. | |
| **Procedure** | | | | | | | **1st Trial** | | **2nd Trial** |
| 1. | | Verify all equipment and tools meet all requirements per NCDOT T-30 Standard. | | | | | Choose an item. | | Choose an item. |
| 2. | | Sample consists of all aggregate from ignition oven burn and has been cooled to 120 °F (49 °C) or less prior to washing? | | | | | Choose an item. | | Choose an item. |
| 3. | | | Material weighed to nearest 0.1 gram? | | | | Choose an item. | | Choose an item. |
| 4. | | | Sample placed in container and covered with water? | | | | Choose an item. | | Choose an item. |
| 5. | | | Wetting Agent added? | | | | Choose an item. | | Choose an item. |
| 6. | | | Contents of container agitated vigorously?  OR If automatic aggregate washer used, was agitation limited to a maximum of 10 minutes? | | | | Choose an item. | | Choose an item. |
| 7. | | | Wash water poured over nest of TWO sieves (No. 16 over a No. 200 sieve)? | | | | Choose an item. | | Choose an item. |
| 8. | | | Care taken to avoid decantation of coarser particles? No. 200 sieve not overflowed or overloaded? | | | | Choose an item. | | Choose an item. |
| 9. | | | Washing continued until wash water is clear? | | | | Choose an item. | | Choose an item. |
| 10. | | | All material retained on nested sieves flushed back into container (NOT onto the No. 200 sieve)? | | | | Choose an item. | | Choose an item. |
| 11. | | | Washed aggregate dried to constant weight in an oven (or a hot plate) set at a temperature between 220 – 325°F (105 – 163°C)? | | | | Choose an item. | | Choose an item. |
| 12. | | | Material cooled to 120 °F (49 °C) or less after drying? | | | | Choose an item. | | Choose an item. |
| 13. | | | Material weighed to nearest 0.1 gram? | | | | Choose an item. | | Choose an item. |
| 14. | | | Material shaken on specified sieves for 10 minutes (including No. 200)? | | | | Choose an item. | | Choose an item. |
| 15. | | | Each fraction of aggregate weighed cumulatively, including minus No. 200? | | | | Choose an item. | | Choose an item. |
| 16. | | | Does final total weight after sieving check within 0.2% of total weight after washing? | | | | Choose an item. | | Choose an item. |
| 17. | | | Sizes larger than No. 200 reported to nearest whole percent (1.0)? | | | | Choose an item. | | Choose an item. |
| 18. | | | Minus No. 200 reported to nearest 0.1 percent? | | | | Choose an item. | | Choose an item. |

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| **Technician Assessor Name:** | Click or tap here to enter text. |  | **Assessment Date:** | Click or tap to enter a date. |
| **IA Sampling Assessor Name:** | Click or tap here to enter text. |  | **IA Sampling Date:** | Click or tap to enter a date. |

**Technician Assessment Requirements**

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| **To successfully complete each step in the above procedure within two trials.** |

**Technician Assessment Results**

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| **Technician Assessment** | **Results** | **Investigation Notes (Required if Un-Acceptable)** |
| Trial 1 | Choose an item. | Click or tap here to enter text. |
| Trial 2 | Choose an item. | Click or tap here to enter text. |

**IA Split Sampling Requirements**

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| --- | --- | --- | --- |
| **Correlation** | **Acceptable**  **(<= 3.0%)** | **Un-Acceptable**  **(> 3.0%)** | **Investigation Notes**  **(greater than 3.0% difference)** |

**IA Split Sampling Results**

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| --- | --- | --- | --- |
|  | **Technician Results** | **IA Assessor Results** | **Correlation Results** |
| Trial 1 | Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |
| Trial 2 | Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |