QA MANUAL SUPPLEMENTAL TO THE 2020 QA MANUAL

(06/4/24)

The following modifies the 2020 Quality Assurance Manual (Dated 10/19).

IN SECTION 580.00, IDAHO FIELD OPERATING PROCEDURES

Add the following to the end of the section:

ID FOP FOR AASHTO T 308 – DETERMINING THE ASPHALT BINDER CONTENT OF ASPHALT MIXTURES BY THE IGNITION METHOD

Overview

Add the following after the first paragraph:

> This procedure outlines the Idaho-specific modifications to the WAQTC Field Operating Procedure (FOP) for AASHTO T 308, "Standard Method of Test for Determining the Asphalt Binder Content of Hot Mix Asphalt (HMA) by the Ignition Oven." A key modification addresses the change in ignition furnace temperature introduced in the 2024 ITD 405 Special Provisions for asphalt pavement. This IMWFOP provides guidance for projects under both the 2024 and earlier versions of the ITD 405 specification.

Apparatus

Replace the following:

> Ignition Furnace: A forced-air ignition furnace that heats the specimens by either the convection or direct IR irradiation method. The convection-type furnace must be capable of maintaining the temperature between at least 530 and 545°C (986 and 1013°F) and have a temperature control accurate within ±5°C (±9°F).

With:

> Ignition Furnace: A forced-air ignition furnace that heats the specimens by either the convection or direct IR irradiation method. The convection-type furnace must meet the following requirements:
>
> - Temperature Range: Capable of maintaining the temperature within ±7°C (±12.6°F) of the furnace set point temperature, as specified in Table 1.
> - Temperature Control Accuracy: ±5°C (±9°F).

Refer to Table 1 for the appropriate furnace set point temperature based on the project specifications.

Add the following Table 1 after the revised paragraph:

Table 1. Ignition Furnace Set Point Temperature Requirements

ITD 405 Special Provision	Furnace Set Point Temperature (°C)
2024 and later	426
2021 and earlier	538 or 482[1]

[1] For projects using the 2021 and earlier ITD 405 Special Provisions, the furnace set point temperature is 538°C unless the aggregate is determined to be high loss. High loss aggregates require a lower furnace set point temperature of 482°C to prevent aggregate degradation during testing. See Annex – Correction Factors Procedure Section to determine the appropriate furnace set point temperature.

General

Delete the following:

1. For the convection-type furnace, preheat the ignition furnace to 538 ± 5°C (1000 ± 9°F) or to the temperature determined in the Correction Factors Annex of this method. Manually record the furnace temperature (set point) before the initiation of the test if the furnace does not record automatically. For the direct IR irradiation-type furnace, use the same burn profile as used during the correction factor determination.

Add the following to Step 1:

1. Determine the required ignition furnace set point temperature based on contract requirements. (Note B)
2. For the convection-type furnace, preheat the ignition furnace to the set point temperature determined in Step 1. Manually record the furnace temperature (set point) before the initiation of the test if the furnace does not record automatically. For the direct IR irradiation-type furnace, use the same burn profile as used during the correction factor determination.

Note B – The Idaho Transportation Department's 2024 Special Provisions for 405 Superpave Hot Mix Asphalt Specification lowered the ignition furnace temperature set point to 426°C (800°F). If this version is in the contract, the set point temperature is 426°C (800°F). For all other versions the set point temperature is 538 ± 5°C (1000 ± 9°F) or to the temperature determined in the Correction Factors Annex of this method.

Procedure – Method A (Internal Balance)

Delete the following from Step 15:

> Asphalt binder content percentage can also be calculated using the formula from "Method B" Step 16.

Add the following Steps 16 & 17

> 16. Using Mi and Mf from above and formula in the "Calculation" portion of Method B calculate the asphalt binder content percent. Compare the results from the "Calculation" portion of Method A with the result from the "Calculation" portion from Method B. If the asphalt binder content from Method B is within 0.15% of the binder content from Method A use the results from Method A (Internal Balance) / printed ticket. If the difference is greater than 0.15% use the asphalt binder content percent as calculated from Method B's formula.
>
> 17. Discrepancy Investigation and Corrective Action: If a discrepancy exceeding 0.15% between Method A and Method B is observed, immediately investigate the source of the variation. Document the investigation findings and any corrective actions taken. If the source of variation cannot be identified and corrected, take the ignition furnace out of service until it has been inspected, repaired, or recalibrated by a qualified technician. Document the furnace's out-of-service status.

Annex – Correction Factors

Add the following paragraphs after "(Mandatory Information":

> **For projects using the 2024 ITD 405 Special Provision and later:** Follow the batching procedures outlined in Section 405.03.B.3. of the applicable project 405 Special Provisions. The furnace temperature for these projects is 426 ± 9 °C.
>
> **For projects using the 2021 ITD 405 Special Provision and earlier:** Correction factors are based on a furnace temperature of 538 ± 9 °C. Refer to the applicable project Special Provision for specific guidance and Idaho IR-157.

Add the following to Procedure, Step 4:

> Combining Aggregates for Producing Calibration Factor Samples. All samples shall be the same gradation and shall be combined sieve by sieve down to and including the material passing the No. 200 sieve.