AASHTO re:source (formerly AMRL)

2020 Asphalt Mixture Ignition Oven Proficiency Samples 41 and 42 Instructions for Testing and Reporting

Closing Date: February 4th, 2021

All tests should be conducted on each of the two samples according to the AASHTO or ASTM Standard Methods indicated. Report the results of a single determination only, not the average of two or more, except in cases where an average is called for in the method. For any tests that you do not perform, leave the appropriate spaces on the data sheet blank.

Directions for the individual tests on Samples No. 41(A) and No. 42(B) follow:

Please note that samples 41(A) and 42(B) are not identical. The percentages of asphalt and the aggregate gradations are different. The program is designed to obtain two independent test results, one for each numbered sample, for each test method that the laboratory chooses to perform.

Treat each sample as you would treat a typical "testing" sample. Any special handling or preparation needs will be included below.

Determining the Ignition Oven Correction (or Calibration) Factor for Asphalt Binder Content, T308-18:

Determine the asphalt binder correction factor according to the procedure described in AASHTO T308. For this round of testing, determination of the correction factor for the asphalt binder content requires testing two correction-factor specimens. The average of the two tests is the correction factor to be applied to both samples, No. 41(A) and No. 42(B). Do **not** determine an aggregate gradation correction factor for this round of testing.

For the convection-type furnace, perform testing on correction-factor specimens and on samples No. 41(A) and No. 42(B) at a temperature of 538°C (1000°F). Follow the manufacturer's instructions when using the direct IR irradiation-type furnace. Prepare three batches using the aggregate and asphalt provided. Prepare the three batches by first oven drying the aggregate provided. Then, combine the materials provided in the proportions described in the table below and mix at a temperature of ***150 to 155°C (302 to 312°F)***. Make all necessary weighing to the nearest 0.1 g. One of the batches is to be used as a butter mix. The remaining two batches are the correction-factor specimens. Mix and discard the butter mix prior to mixing any of the correction-factor specimens. To assure testing uniformity between laboratories for this round of testing, after mixing, please condition the two correction factor specimens in covered containers in an oven for a minimum of 1 hour and a maximum of 2 hours at a temperature of ***140 to 145°C (285 to 295°F).***

Mix Formula for Correction Factor Specimens	Specimen Mass	
Aggregate Size or Ingredient	Individual Mass (g)	Cumulative Mass (g)
1. 12.5 mm (½ in.)	139.0	139.0
2. 9.5 mm (3/8 in.)	132.7	271.7
3. 4.75 mm (No. 4)	256.0	527.7
4. 2.36 mm (No. 8)	439.2	966.9
5. Fine Aggregate (-2.36 mm (-No. 8))	492.9	1459.8
6 Mineral Filler	56.9	1516.7
7. Asphalt	83.4	1600.1

Test the two correction-factor specimens. The average of the two tests is the correction factor to be applied to both samples, No. 41(A), and No. 42(B). Report the correction factor to the nearest 0.01 percent.

re:
P: 240.436.4900 | F: 240.436.4899
4441 Buckeystown Pike, Suite A
Frederick, Maryland 21704-7507

Determining the Asphalt Binder Content of Hot-Mix Asphalt by the Ignition Method, T308-18 or D6307-19:

Assume the pre-mixed asphalt mixture samples provided, No. 41(A) and No. 42(B), are moisture free. Record the initial (as received) masses of the pre-mixed asphalt mixture samples No. 41(A) and No. 42(B) to the nearest 0.1 g. Test asphalt mixture samples No. 41(A) and No. 42(B) in accordance with the test method and report the asphalt binder correction (or calibration) factor determined above. Use the same correction factor for both samples, No. 41(A) and No. 42(B). Calculate and report the corrected asphalt binder content to the nearest 0.01 percent.

Mechanical Analysis of Extracted Aggregate, T30-19 or D5444-15:

Determine the mass of material removed by washing over the 75-µm (No. 200) sieve and report the result to the nearest 0.1 gram. Report, to the nearest 0.1 percent, the total material passing each of the following sieves, as percentages of the total mass of aggregate in the bituminous mixture: 12.5-mm, 9.5-mm, 4.75-mm, 2.36-mm, 1.18-mm, 600-µm, 300-µm and 150-µm. Report the total material passing the 75-µm sieve to the nearest 0.01 percent. ***The total material passing the 75-µm sieve shall include the material removed by washing and the material in the pan after dry sieving.*** Do not use an aggregate gradation correction factor for this round of testing.

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