

## 2026 Asphalt Mixtures Marshall Design Samples 85 (A) and 86 (B) Sample Instructions

Closing Date: June 25, 2026

### General Information:

Treat each sample as you would treat a typical sample brought into the laboratory. Any special handling or preparation instructions are included below. Conduct tests on each of the two samples in accordance with the instructions below. Report the results of a single determination only, not the average of two or more unless specified in the test method or instructions.

Reporting the results to an extra decimal place beyond what is required by the test method is requested for statistical reasons and equates to more precise data that is available to analyze.

To permit an estimate of single-operator precision, the same operator should conduct an individual test on both samples. It is not necessary that the same person conduct all the tests in the sample round.

Leave the appropriate spaces on the data sheet blank for any tests you choose not to perform.

### Requirements for AASHTO Accredited Laboratories:

AASHTO accredited laboratories are required to perform every test included in an AASHTO re:source Proficiency Sample Program sample round that is also listed in each laboratory's AASHTO Accreditation scope.

[AASHTO Accreditation Policy on PSP Participation](#)

The tests that are not listed in the laboratory's accreditation scope may also be performed, but testing is not required, and the AASHTO Accreditation Program (AAP) will not evaluate the ratings.

### Sample Information:

You should have received one box of ingredients for creating test specimens for Marshall Design samples 85 (A) and 86 (B). The box should contain the following:

- One bag of 12.5-mm (1/2-in) aggregate
- One bag of 9.5-mm (3/8-in) aggregate
- One bag of 4.75-mm (No. 4) aggregate
- One bag of 2.36-mm (No. 8) aggregate
- One bag of Fine Aggregate [i.e. passing the 2.36-mm (No. 8) sieve]
- One bag of Mineral Filler
- One can of Asphalt Binder

To view an unboxing video of these samples please use the following link:

[MAR 85 \(A\) /86 \(B\) Unboxing Video](#)

### Specimen Batching:

Prepare eight individual batches: one butter batch and three compaction batches for Sample 85 (A) and the same for Sample 86 (B). The butter batches are larger than the compaction batches and will be used as the specimens for maximum specific gravity testing. The three smaller batches will be used for compaction.

The fine aggregate is provided in a moist condition to prevent segregation. Use the quartering or the miniature stockpile method (AASHTO R76/ ASTM C702, Method B or C) to batch the moist fine aggregate. Reduce the fine aggregate in its moist condition into portions slightly larger than the batch masses as the fine aggregate contains approximately 5% moisture. Oven-dry the fine aggregate portions and adjust the masses of the portions to the exact weights needed for the batches.

**Batching Table for Butter Specimens (Maximum Specific Gravity Specimens)**

Prepare the two butter batches by combining the materials provided in the manner described in the table below. Dry all material at 110°C before weighing. Make all necessary weighings to the nearest 0.1 gram.

BUTTER BATCHES	Sample 85 (A) (one required)		Sample 86 (B) (one required)	
	Individual Mass, g	Cumulative Mass, g	Individual Mass, g	Cumulative Mass, g
12.5-mm (1/2-in.)	155.3	155.3	148.5	148.5
9.5-mm (3/8-in.)	216.0	371.3	216.0	364.5
4.75-mm (No. 4)	310.5	681.8	310.5	675.0
2.36-mm (No. 8)	371.3	1053.1	378.0	1053.0
Fine aggregate (passing 2.36-mm (No. 8))	492.8	1545.9	486.0	1539.0
Mineral filler	74.3	1620.2	81.0	1620.0
Asphalt binder	91.8	1712.0	91.8	1711.8

**Batching Table for Compaction Specimens**

Prepare the six batches for compaction by combining the materials provided in the manner described in the table below. Dry all material at 110°C before weighing. Make all necessary weighings to the nearest 0.1 gram if possible.

COMPACTION BATCHES	Sample 85 (A) (three required)		Sample 86 (B) (three required)	
	Individual Mass, g	Cumulative Mass, g	Individual Mass, g	Cumulative Mass, g
12.5-mm (1/2-in.)	115.0	115.0	110.0	110.0
9.5-mm (3/8-in.)	160.0	275.0	160.0	270.0
4.75-mm (No. 4)	230.0	505.0	230.0	500.0
2.36-mm (No. 8)	275.0	780.0	280.0	780.0
Fine aggregate (passing 2.36-mm (No. 8))	365.0	1145.0	360.0	1140.0
Mineral filler	55.0	1200.0	60.0	1200.0
Asphalt binder	68.0	1268.0	68.0	1268.0

**Specimen Mixing:**

Follow the mixing procedures specified in Method AASHTO R68 or ASTM D6926. Use the following mixing temperature for samples 85 (A) and 86 (B):

**Mixing Temperature: 155 to 160°C (311 to 320°F)**

### **Specimen Conditioning/Curing:**

To assure testing uniformity between laboratories for this round of testing, after mixing, condition the specimens for maximum specific gravity and Marshall compaction in covered containers in an oven for a minimum of 1 hour and a maximum of 2 hours. Use the following conditioning temperature for samples 85 (A) and 86 (B):

**Conditioning Temperature:** 150 to 155°C (302 to 311°F)

### **Specimen Compaction:**

**PLEASE USE 75-BLOW MARSHALLS.** After mixing and conditioning, follow the standard compaction procedures specified in AASHTO R-68 or ASTM D6926. Use the following compaction temperature for samples 85 (A) and 86 (B):

**Compaction Temperature:** 145 to 150°C (293 to 302°F)

### **Test Methods:**

**Maximum Specific Gravity of Asphalt Paving Mixtures AASHTO T209-25 or ASTM D2041-19:** Use the uncompacted butter batch as the test sample. Do not use the Supplemental Procedure for Mixtures Containing Porous Aggregates. Report the specific gravity to the nearest 0.001.

**Thickness or Height of Compacted Asphalt Mixture Specimens ASTM D3549-18:** Determine the height for each of the compacted specimens in accordance with Method A. Report the overall average of the three specimens for each sample to the nearest 0.001-in.

### **Bulk Density Methods:**

If the bulk specific gravity is determined using both the Saturated Surface-Dry Method and the Vacuum Sealing Method, perform the Vacuum Sealing Method first to have dry specimens to begin the Saturated Surface-Dry Method. If the plastic bag is punctured during testing, mark the appropriate box on the data sheet and be sure to follow the procedure provided in the test method for specimens that may contain moisture.

**Bulk Specific Gravity of Compacted Asphalt Mixtures Using Saturated Surface-Dry Specimens AASHTO T166-25 or ASTM D2726-21:** Report the average bulk specific gravity of the three specimens to the nearest 0.001.

**Bulk Specific Gravity of Compacted Asphalt Mixtures Using Vacuum Sealing Method AASHTO T331-25 or ASTM D6752-25:** Report the average bulk specific gravity of the three specimens to the nearest 0.001.

**Percent Air Voids in Compacted Dense and Open Asphalt Mixtures AASHTO T269-24 or ASTM D3203-22:** Calculate the percent air voids from the maximum and average bulk specific gravities. Report the percent air voids to the nearest 0.01 percent (Line 4 for SSD, Line 5 for Vacuum).

**Resistance to Plastic Flow of Bituminous Mixtures AASHTO T245-22 or ASTM D6927-22:** Measure the flow value for each specimen and record the average flow value in units of 0.01 in. Do not correct the stability for specimen heights. When reporting, move the decimal two places to the right and report the results as a whole number. For example, report a flow of 0.12 inches as "12".

Please Contact AASHTO re:source at [psp@ashtoresource.org](mailto:psp@ashtoresource.org) or 240-436-4900 if there are questions.