



WSDOT Test Method T 712

Standard Method of Reducing Hot Mix Asphalt Paving Mixtures

Significance

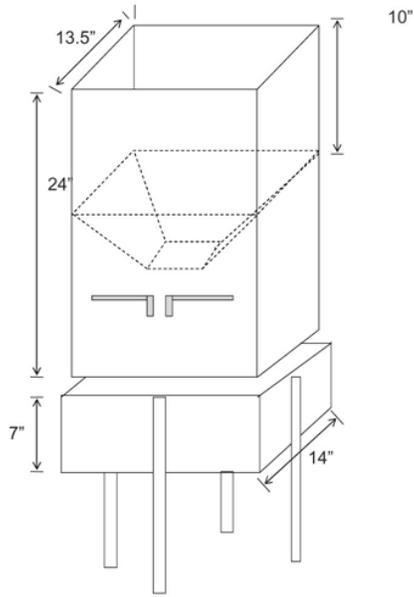
Samples of bituminous paving mixes taken in accordance with FOP for WAQTC T 168 are composites and are large to increase the likelihood that they are representative of the product being tested. Materials sampled in the field need to be reduced to appropriate sizes for testing. It is extremely important that the procedure used to reduce the field sample not modify the material properties.

1. Scope

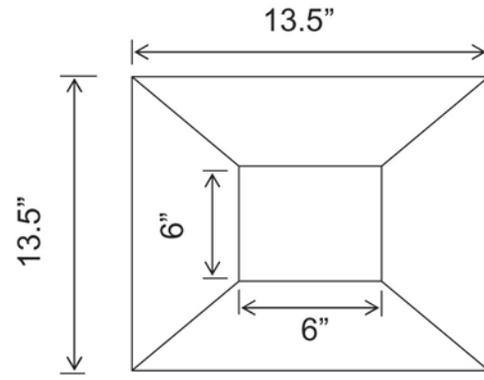
This method covers the procedure for reducing samples of Hot Mixed Asphalt (HMA). The samples are to be acquired in accordance with FOP for WAQTC T 168. The sample is to be representative of the average of the HMA being produced.

2. Apparatus

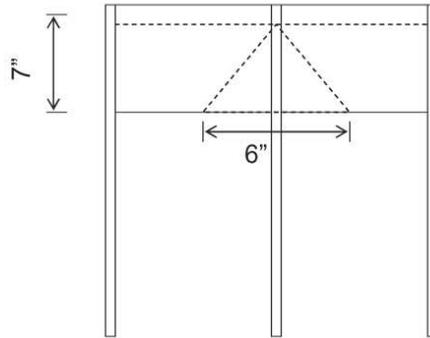
- Flat-bottom scoop.
- Broom or brush.
- Non-stick splitting surface such as metal, paper, canvas blanket or heat-resistant plastic.
- Large spatulas, trowels, metal straight edge or 12 inch dry wall taping knife, sheet metal quartering splitter.
- Mechanical Splitter – The splitter shall have four equal width chutes, which will discharge the material into four appropriate size containers. The splitter shall be designed with a receiving hopper that will hold the HMA field sample until a handle releases the material to fall through a divider and is distributed into four equal portions. The splitter shall be designed so that the HMA field sample will flow smoothly and freely through the divider without loss of materials (see Figures 1 to 3).
- Oven – An oven of appropriate size, capable of maintaining a uniform temperature within the allowable tolerance for the grade of asphalt.
- Miscellaneous equipment including trowel(s), spatula(s), hot plate, non-asbestos heat-resistant gloves or mittens, pans, buckets, cans.



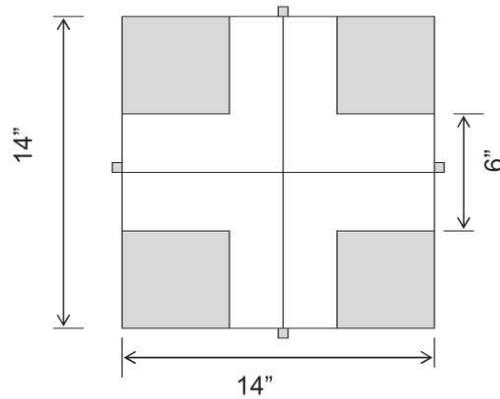
Mechanical Splitter
Figure 1



Plan View of Splitter
Figure 2



a. Elevation View of the Top Portion of the Splitter



Elevation and Plan View of Bottom Portion of Splitter
Figure 3

3. Sample Preparation

The sample must be warm enough to separate. If not, warm in an oven until it is sufficiently soft to mix and separate easily.

4. Procedure

Initial Reduction of Field Sample

- a. Place the sample on a hard, clean, non-stick, level surface where there will be neither loss of material nor the accidental addition of foreign material. The surface may be covered with a canvas blanket, heavy paper or other suitable material. Remove the sample from the agency approved containers by dumping into a conical pile.

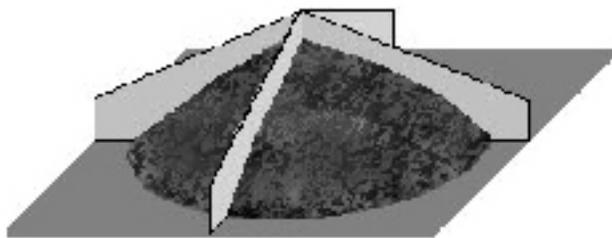


Figure 4

- b. Divide the sample into four approximately equal quarters with a spatula, trowel, flat metal plate, sheet metal quartering splitter, or mechanical splitter.
- c. For Acceptance sampling and testing only: With the quartering device in place remove all the material from each quarter. Retain opposite quarters for testing. The remaining two quarters should be placed in an agency approved containers for storage or shipment, identified as the “Retest”.

For Acceptance and Conformation sampling and testing: With the quartering device in place remove all the material from each quarter. Retain the material from one quarter for testing and the opposite quarter should be placed in an agency approved container if needed for additional testing, or discarded. The two remaining quarters should be placed in agency approved containers and shipped to the Headquarters Materials Laboratory for Conformation Testing.

Note 1: When testing lean mixes or mixes with aggregate larger than $\frac{3}{4}$ inch (19 mm), sampling as described in Method B, with no remixing and no removal of a similar amount of material from the opposite quarter, is recommended at this point to obtain samples for each acceptance test.

- d. Pay particular attention that excessive amounts of materials is not left on the splitting surface or splitting equipment.
- e. When the further reduction of the HMA is to be done, proceed according to step 2 of methods A, B, or C.

Method A – Reducing to Test Size

1. On a hard, clean, non-stick, level surface where there will be neither loss of material nor the accidental addition of foreign material. Remove the sample from the agency approved containers by dumping into a conical pile. The surface shall be covered with either a canvas blanket, heavy paper or other suitable material.
2. With the material on the canvas or paper, mix the sample thoroughly by turning the entire sample over the minimum amount of times to achieve a uniform distribution. Alternately lift each corner of the canvas or paper and pull it over the sample diagonally toward the opposite corner causing the material to be rolled. With the last turning, lift both opposite corners to form a conical pile.
3. Grasp the canvas or paper, roll the material into a loaf and flatten the top.



Figure 5

4. Pull the canvas or paper so approximately $\frac{1}{4}$ of the length of the loaf is off the edge of the counter. Allow this material to drop into a container to be saved. As an alternate, use a straight edge to slice off approximately $\frac{1}{4}$ of the length of the loaf and place in a container to be saved.

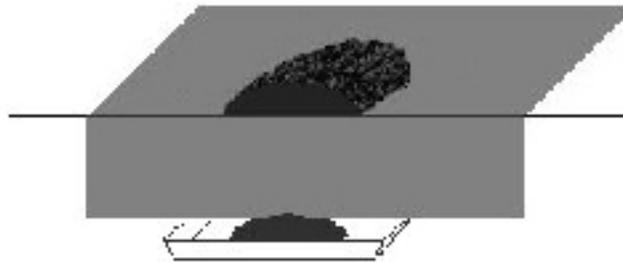


Figure 6

5. Pull additional material (loaf) off the edge of the counter and drop the appropriate size sample into a sample pan or container. As an alternate use a straightedge to slice off an appropriate size sample from the length of the loaf and place in a sample pan or container.
6. Repeat step 5 until the proper size sample has been acquired. Step 5 is to be repeated until all the samples for testing have been obtained.

Note 3: When reducing the sample to test size it is advisable to take several small increments determining the mass each time until the proper minimum size is achieved. Unless, the sample size is below the minimum or exceeds the maximum test size use the sample as reduced for the test.

Method B – Reducing to Test Size

1. On a hard, clean, non-stick, level surface where there will be neither loss of material nor the accidental addition of foreign material. Remove the sample from the agency approved containers by dumping into a conical pile. The surface shall be covered with either a canvas blanket, heavy paper or other suitable material. (See Note 1.)
2. With the material on the canvas or paper, mix the sample thoroughly by turning the entire sample over the minimum amount of times to achieve a uniform distribution. Alternately lift each corner of the canvas or paper and pull it over the sample diagonally toward the opposite corner causing the material to be rolled. With the last turning, lift both opposite corners to form a conical pile.
3. Quarter the conical pile using a quartering device or straightedge.

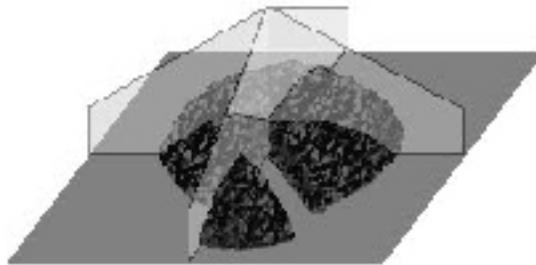


Figure 7

4. With the quartering device in place using a suitable straight edge slice through the quarter of the HMA from the apex of the quarter to the outer edge. Pull or drag the material from the quarter holding one edge of the straight edge in contact with the quartering device. Two straightedges may be used in lieu of the quartering device.
5. Slide or scoop the material into a sample pan. Repeat steps 4 and 5 removing a similar amount of material from the opposite quarter. Steps 4 and 5 are to be repeated until all the samples for testing have been obtained.

Note 4: When reducing the sample to test size it is advisable to take several small increments determining the mass each time until the proper minimum size is achieved. Unless, the sample size is below the minimum or exceeds the maximum test size use the sample as reduced for the test.

Method C – Reducing to Test Size

1. On a hard, clean, non-stick, level surface where there will be neither loss of material nor the accidental addition of foreign material. Remove the sample from the agency approved containers by dumping into a conical pile. The surface shall be covered with either a canvas blanket, heavy paper or other suitable material.
2. With the material on the canvas or paper, mix the sample thoroughly by turning the entire sample over the minimum amount of times to achieve a uniform distribution. Alternately lift each corner of the canvas or paper and pull it over the sample diagonally toward the opposite corner causing the material to be rolled. With the last turning, lift both opposite corners to form a conical pile.
3. Quarter the conical pile using a quartering device or straightedge.
4. Remove the opposite quarters saving the material for future use.
5. Repeat step 2 through 4 until the proper size sample has been achieved.
6. When additional test specimens are required, dump the removed material into a conical pile as in step 1 and repeat steps 2 through 5. This process may be repeated until the sample have has been reduced to testing size for all tests.
7. Sample Identification
 - a. Each sample submitted for testing shall be accompanied by a transmittal letter completed in detail. Include the contract number, acceptance and mix design verification numbers, mix ID.
 - b. Samples shall be submitted in standard sample boxes, secured to prevent contamination and spillage.
 - c. Sample boxes shall have the following information inscribed with indelible-type marker: Contract number, acceptance and mix design verification numbers, mix ID.
 - d. The exact disposition of each quarter of the original field sample shall be determined by the agency.

Performance Exam Checklist

Reducing Samples of Hot Mix Asphalt to Testing Size WSDOT Test Method T 712

Participant Name _____ Exam Date _____

Procedure Element

Yes No

1. The tester has a copy of the current procedure on hand?
2. Sample warmed if not sufficiently soft?

Method A

3. Sample placed on paper on clean, hard, and level surface?
4. Sample mixed thoroughly?
5. Rolled into loaf and then flattened?
6. At least $\frac{1}{4}$ of loaf removed by slicing off or dropping off edge of counter?
7. Proper sample size quantity of material sliced off or dropped off edge of counter onto sample container?

Method B

8. Sample thoroughly mixed and conical pile formed?
9. Divided into 4 equal portions with quartering device or straightedge?
10. Two straight edges or a splitting device and one straight edge used?
11. Was material sliced from apex to outer edge of the quarter?
12. Similar amount of material taken from opposite quarter?
13. Process continued until proper test size is obtained?

Method C

13. Sample thoroughly mixed and conical pile formed?
14. Divided into 4 equal portions with quartering device or straightedge?
15. Two diagonally opposite quarters removed and saved?
16. Cleared spaces scraped clean?
17. Process repeated until proper test size is obtained?
18. Were opposite quarters and combined to make sample?

First Attempt: Pass Fail Second Attempt: Pass Fail

Signature of Examiner _____

Comments: