

SAMPLING BITUMINOUS MIXTURES

(An Arizona Method)

1. SCOPE

- 1.1 This procedure describes the methods which are to be used when sampling bituminous mixtures.
- 1.2 Sampling bituminous mixtures by this procedure may involve hazardous material, operations, or equipment. This procedure does not purport to address all of the safety concerns associated with its use. It is the responsibility of the user to consult and establish appropriate safety and health practices and determine the applicability of any regulatory limitations prior to use.

2. SAMPLING PLANT-MIXED BITUMINOUS MIXTURES

- 2.1 Asphaltic Concrete and Asphaltic Concrete (Asphalt-Rubber) shall be sampled as described in Subsections 2.4 through 2.6.
- 2.2 Asphaltic Concrete Friction Course and Asphaltic Concrete Friction Course (Asphalt-Rubber) shall be sampled as described in Subsection 2.7.
- 2.3 Minimum sample sizes shall be as follows:
 - 2.3.1 For Asphaltic Concrete Friction Course mixtures or Asphaltic Concrete Friction Course (Asphalt-Rubber) mixtures, 50 pounds.
 - 2.3.2 For Asphaltic Concrete mixtures or Asphaltic Concrete (Asphalt-Rubber) mixtures designed with Marshall design procedures, 75 pounds.
 - 2.3.3 For Asphaltic Concrete mixtures designed with Gyrotory design procedures, 130 pounds.
- 2.4 A 4 foot x 1 foot x 1/16 inch steel plate, which has been prepared with a 1/8 inch hole at each corner of one end and a sufficient length of wire tied through each hole to form a loop approximately 4 feet in length, shall be placed on the roadway just ahead of the laydown machine. Except for wider mats when a sample is being taken from the middle of the mat, the

steel plate is placed so that the end with the wire is approximately one foot in from the right or left edge of the mat being laid. The sampling should be alternated between the right and left edges, and on wider mats also the middle when practical. The wire attached to the end of the plate shall be held to the ground to allow the laydown machine to pass over the plate and wire.

2.5 After the laydown machine has passed, locate the plate by raising the wire.

2.6 The sample shall be taken from the plate using a flat square point shovel. The sample shall consist of the full depth of material for one shovel width from the center portion of the plate over its entire length. Material covering the entire plate shall not be taken. A single pass of the shovel shall be made, moving along the surface of the plate until the shovel is full. Carefully deposit the bituminous mixture into a 5-gallon bucket, or other suitable container. Material which has sloughed into the resultant trench shall not be obtained. At the next undisturbed area of material on the plate, repeat shoveling and placing the material into the container. If necessary, additional material may be obtained by using an additional plate(s) in the immediate vicinity and combining all material. The use of an additional plate(s) cannot be used in lieu of splitting.

Note: As an alternate to obtaining the sample from the plate using a shovel as described above, a rectangular metal template ("cookie cutter") and metal plate of sufficient size may be used to sample the bituminous mixture. The metal template and plate shall be of sufficient size so that the desired amount of material is obtained by a single use of the template and plate at any one location. The metal plate shall be prepared with a wire(s) of sufficient length attached to each corner on one side of the metal plate (the short side when the plate is not square) so the metal plate may be located by raising the wire(s) after the laydown machine has passed. The metal plate shall be placed on the roadway at the location where the sample is to be taken, just ahead of the laydown machine. If the metal template is not square, it shall be placed on the roadway so that the longest side is in a transverse direction across the roadway. The wire(s) shall be held to the ground to allow the laydown machine to pass over the plate and wire(s). After the laydown machine has passed, locate the plate by raising the wire(s). The template is pressed through the bituminous mixture until it rests squarely upon the plate. The entire amount of

bituminous mixture is removed from the interior of the template and carefully placed into a 5-gallon bucket, or other suitable container. Obtaining multiple samples cannot be used in lieu of splitting.

- 2.7 When sampling Asphaltic Concrete Friction Course or Asphaltic Concrete Friction Course (Asphalt-Rubber), an adequate amount of material shall be taken from the truck at the mixing plant and placed into a 5-gallon bucket, or other suitable container. The sample shall be taken from at least 3 random locations, approximately 12" below the surface, within five minutes from the time the loading of the truck is completed.
- 2.8 Material that is to be tested immediately after it has been sampled shall be protected to avoid heat loss while it is being transported to the laboratory.

3. SAMPLING FINISHED BITUMINOUS PAVEMENT

- 3.1 Samples of bituminous mixture from finished pavement shall be taken through the complete thickness of the pavement or lift, in such a manner which causes minimum disturbance to the sample.
- 3.2 If coring apparatus is used, the coring bit shall be subjected to enough vertical pressure to penetrate the pavement without causing damage to equipment or disturbance of the sample. Minimum core diameter shall be 4 inches.
- 3.3 If coring equipment is not available, the sample may be taken with the use of a saw, pick, jackhammer, or other suitable means if a suitable specimen can be obtained for the intended testing.
- 3.4 All samples shall be handled carefully so that they maintain their briquette form. The samples shall be transported on a relatively flat surface, and adequately protected to preserve their shape and to prevent damage.
- 3.5 The use of ice may be found helpful in obtaining and/or preserving the condition of the specimen.

**4. SAMPLING MISCELLANEOUS PLACEMENT
OF BITUMINOUS MIXTURES**

- 4.1 The sampling of bituminous mixture used in paving slopes, median islands and other miscellaneous placement shall be accomplished by taking an adequate amount of material from the hauling vehicle by random shovelfuls.

5. SAMPLE IDENTIFICATION

- 5.1 Each sample shall be identified by an accompanying sample ticket. Sample tickets shall be filled out as required to provide necessary information. The remarks area of the sample ticket shall be used as necessary to provide additional information, including the phone number of an individual who can be contacted regarding the sample.
- 5.2 The source of the sample shall be the "original source" of the material, as indicated on the sample ticket.
- 5.3 An example of a completed sample ticket used by ADOT for construction projects is shown in Figure 1. Commonly used codes for filling out the sample ticket are shown on the back side of the sample ticket (see Figure 2).
- 5.4 The sample ticket consists of three copies. The center copy is kept by the person submitting the sample, the original copy is included inside the sample container, and the third copy is attached to the sample container. When filling out sample tickets, make certain information is clear and easily read on all three copies.

