Standard Method of Test for

Moisture or Volatile Distillates in Hot Mix Asphalt (HMA)

AASHTO Designation: T 110-03 (2020)[1]

Technical Subcommittee: 2c, Asphalt–Aggregate Mixtures

Release: Group 3 (July)

ASTM Designation: D1461-11

AASHTO

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1. SCOPE

1.1. This method is intended for the determination, by direct measurement, of moisture or volatile fractions of the bitumen in hot mix asphalt (HMA).

1.2. The values stated in SI units are to be regarded as the standard.

1.3. *This standard may involve hazardous materials, operations, and equipment. This standard does not purport to address all of the safety concerns associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. REFERENCED DOCUMENT

2.1. *AASHTO Standard*:

- T 168, Sampling Bituminous Paving Mixtures

3. SIGNIFICANCE AND USE

3.1. This method is used for determining either the amount of moisture or the amount of volatile petroleum distillates in HMA.

4. APPARATUS

4.1. *Metal Still*—A vertical cylindrical still, as illustrated in Figure 1, having a faced flange at the top to which the head is tightly attached by means of a clamp. The head shall be made of metal and provided with a tubulation 25.4 mm (1 in.) in inside diameter.

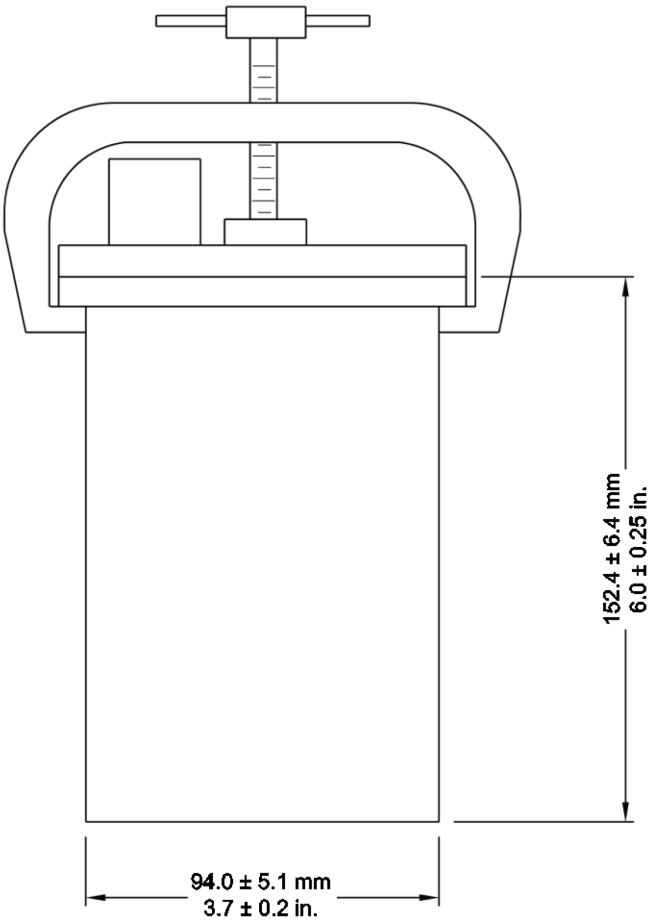

Figure 1—Metal Still

Note 1—Still diameters of up to 127 mm (5 in.) may be used if required to accommodate larger samples.

4.2. *Condenser*—Of the water-cooled reflux glass-tube type, having a condenser jacket not less than 400 mm (15.75 in.) long, with an inner tube 9.5 to 12.7 mm (0.375 to 0.50 in.) in outside diameter. The end of the condenser inserted in the receiver shall be ground off at an angle of 30 degrees from the vertical axis of the condenser or otherwise configured to fit the receiver. For mixtures with very volatile solvents, it may be necessary to supplement this water-cooled condenser with a second water-cooled condenser of approximately the same dimensions.

4.3. *Receiver*—Made of well-annealed glass, of one of the following types depending on the purpose of the test:

4.3.1. For determination of water in HMA, a glass receiver of 10- or 25-mL capacity shall be used. The receiver shall be graduated in 0.1-mL divisions with a ±0.05-mL maximum error below 1 mL and in 0.2-mL divisions with a ±0.1-mL maximum error above 1 mL as specified in Table 1 and Figures 2, 3, 4, and 5. Receivers with tapered or ball-bottom vapor tube ends require adaptors for connection to the metal still.

4.3.2. For determination of the volatile fractions of the HMA, the receiver shall conform to the dimensions shown in Figure 6.