
Standard Method of Test for

Flash and Fire Points by Cleveland Open Cup

AASHTO Designation: T 48-06 (2015)

ASTM Designation: D92-05a

AASHTO

AASHTO T 48-06 (2015) is identical to ASTM D92-05a except for the following provisions:

1. All references to the ASTM standards listed in the following table shall be replaced with the corresponding AASHTO standard:

<i>Referenced Standards</i>	
ASTM	AASHTO
D140	R 66
D1310	T 79

2. Add the following reference to Section 2.1:
C670, Standard Practice for Preparing Precision and Bias Statements for Test Methods for Construction Materials
3. Replace the dimensions in Figure 1 with the following:

	Millimeters		Inches	
	Min	Max	Min	Max
A—Diameter	3.8	5.4	0.15	0.21
C—Diameter	1.6	5.0	0.06	0.20
D		5.0		0.20
E	6.4, approximately		0.25, approximately	

4. Replace the dimensions in Figure 2 with the following:

	Millimeters		Inches	
	Min	Max	Min	Max
A	6.4, nominal		0.25, nominal	
C	6.4, nominal		0.25, nominal	
D—Diameter	54.5	56.5	2.15	2.22
F—Diameter	150, nominal		6, nominal	

5. Replace the dimensions in Figure 3 with the dimensions below. Do not include a dimension “G” as shown in Figure 3. However, include a dimension for the thickness of the flange of the test cup that is not included in Figure 3. This dimension for the thickness of the flange shall be designated “K” with the dimensional requirements as in the following table:

больше стандартов на www.matest.ru

	Millimeters		Inches	
	Min	Max	Min	Max
B	62.5	64.0	2.46	2.52
C	2.8	3.6	0.11	0.14
D—Radius	4, approximately		0.16, approximately	
H	2.8	3.6	0.11	0.14
J	97	101	3.8	4.0
K	1.8	3.4	0.07	0.13

6. Add the following sentence after the first sentence in Section 11.1.1:

To aid in this operation, a Filling Level Gauge (A1.7) may be used.

7. Add an additional note that immediately follows Section 11.1.1 as follows:

Note—The sample cup may be filled away from the apparatus provided the thermometer is preset with the cup in place and the sample level is correct at the beginning of the test. A shim 6.4-mm (0.25-in.) thick is useful in obtaining the correction distance from the bottom of the bulb to the bottom of the cup.

8. Replace the first sentence of Section 11.1.3 with the following:

Light the test flame, and adjust it to a diameter of 3.8 to 5.4 mm (0.15 to 0.21 in.).

9. Replace Section 11.1.4 with the following:

11.1.4 Apply heat initially at such a rate that the temperature indicated by the temperature-measuring device increases 10 to 20°C (18 to 36°F)/min. When the test specimen temperature is approximately 56°C (100°F) below the expected flash point, decrease the heat so that the rate of temperature rise during the last 28°C (50°F) before the flash point is 4 to 7°C (7 to 13°F)/min.

10. Replace the fourth sentence of Section 11.1.5 with the following:

The center of the test flame must move in a horizontal plane not more than 2.5 mm (0.10 in.) above the plane of the upper edge of the cup and pass in one direction only.

11. Replace the last sentence of Section 11.1.9 with the following:

Continue heating the test specimen at 4 to 7°C (7 to 13°F)/min and testing the material every 2°C (5°F) as described in Section 11.1.5 until the flash point is obtained.

12. Replace Section 14 with the following:

14. Precision and Bias

14.1 *Precision*—Criteria for judging the acceptability of test results for the flash point of asphalt binders obtained by this method are given in Table 1. Criteria for judging the acceptability of fire point test results can be found in ASTM D92.

14.1.1 *Single-Operator Precision (Repeatability)*—The figures in Column 2 of Table 1 are the standard deviations that have been found to be appropriate for the conditions of test described in Column 1. Two results obtained in the same laboratory, by the same operator using the same equipment, in the shortest practical period of time, should not be considered suspect unless the difference in the two results exceeds the values given in Table 1, Column 3.

14.1.2 *Multilaboratory Precision (Reproducibility)*—The figures in Column 2 of Table 1 are the standard deviations that have been found to be appropriate for the conditions of test described in Column 1. Two results submitted by two different operators testing the same material in different laboratories shall not be considered suspect unless the difference in the two results exceeds the values given in Table 1, Column 3.

Table 1—Precision Estimates

Condition	Acceptable Standard Deviation (1s) ^a	Range of Two Results (d2s) ^a
Single-Operator Precision:		
Flash Point (°C)	3	8
Multilaboratory Precision:		
Flash Point (°C)	10	28

^a These values represent the 1s and d2s limits described in ASTM Practice C670.

Note: The precision estimates for Flash Point given in Table 1 are based on the analysis of test results from eight pairs of AMRL proficiency samples. The data analyzed consisted of results from 98 to 148 laboratories for each of the eight pairs of samples. The analysis included four binder grades: PG 52-34, PG 64-16, PG 64-22, and PG 70-22. Average flash points ranged from 268.5 to 353.5°C. The details of the analysis are in the final report for NCHRP Project No. 9-26, Phase 3.

14.2 *Bias*—The procedure of this test method has no bias because flash point and fire point can be defined only in terms of this test method.

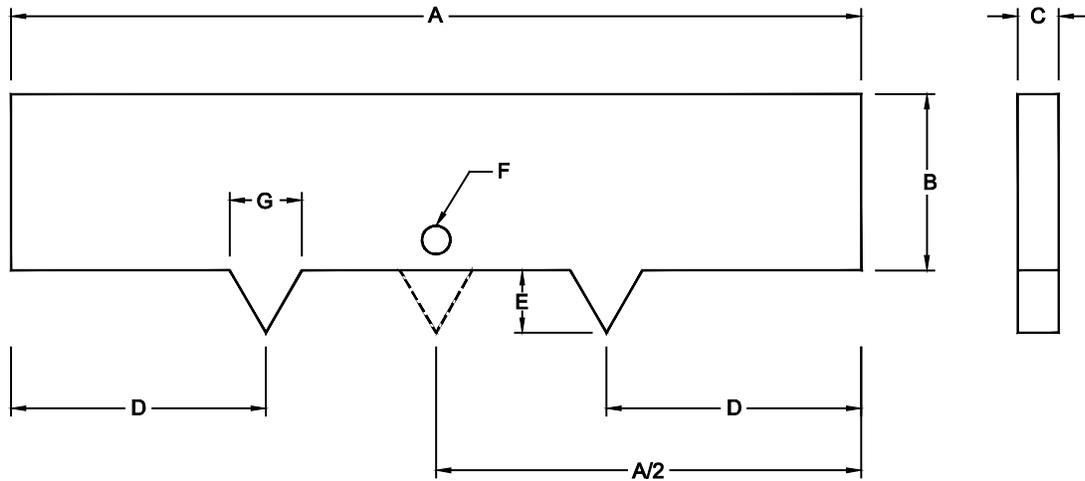
13. Replace Section A1.3 with the following:

A1.3 Ignition Source Applicator—The device for applying the test flame may be of any suitable design, but the tip shall be 1.6 to 5.0 mm (0.06 to 0.20 in.) in diameter at the end and the orifice shall have an approximate diameter of 0.8 mm (0.031 in.). The device for applying the test flame shall be so mounted to permit automatic duplication of the sweep of the test flame, the radius of swing being not less than 150 mm (6 in.) and the center of the orifice moving in a plane not more than 2.5 mm (0.10 in.) above the cup. A bead having a diameter of 3.8 to 5.4 mm (0.15 to 0.21 in.) shall be mounted in a convenient position on the apparatus so the size of the test flame can be compared to it.

14. Add an additional Section A1.7 after Section A1.6 as follows:

A1.7 Filling Level Gauge—A device to aid in the proper adjustment of the sample level in the cup. It may be made of suitable metal with at least one projection, but preferably two for adjusting the sample level in the test cup to 9 to 10 mm (0.35 to 0.39 in.) below the top edge of the cup. A hole 0.8 mm (0.031 in.) in diameter, the center of which is located not more than 2.5 mm (0.10 in.) above the bottom edge of the gauge, shall be provided for use in checking the center position of the orifice of the test flame applicator with respect to the rim of the cup. (Figure 4 shows a suitable version.)

15. Add a Figure 4 after Section A1.7.



	mm	in.	
A	100	4	Nominal
B	20	0.75	Nominal
C	3.2	0.125	Nominal
D	30	1.25	Nominal
E	9–10	0.35–0.39	Nominal
F	0.8 Dia (2.5 mm above bottom edge)	0.03125 Dia (0.10 in. above bottom edge)	Maximal
G	10	0.375	Nominal

Figure 4—Filling Level Gauge