

§ 173.121

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use Method B of ASTM D 93 or alternative tests authorized in this standard;

(B) Standard Test Methods for Flash Point of Liquids by Small Scale Closed-Cup Apparatus (ASTM D 3278) (IBR; *see* §171.7 of this subchapter);

(C) Determination of Flash/No Flash—Closed Cup Equilibrium Method (ISO 1516) (IBR; *see* §171.7 of this subchapter);

(D) Determination of Flash point—Closed Cup Equilibrium Method (ISO 1523) (IBR; *see* §171.7 of this subchapter);

(E) Determination of Flash Point—Pensky-Martens Closed Cup Method (ISO 2719) (IBR; *see* §171.7 of this subchapter);

(F) Determination of Flash Point—Rapid Equilibrium Closed Cup Method (ISO 3679) (IBR; *see* §171.7 of this subchapter);

(G) Determination of Flash/No Flash—Rapid Equilibrium Closed Cup Method (ISO 3680) (IBR; *see* §171.7 of this subchapter); or

(H) Determination of Flash Point—Abel Closed-Cup Method (ISO 13736) (IBR; *see* §171.7 of this subchapter).

(2) For a liquid that is a mixture of compounds that have different volatility and flash points, its flash point shall be determined as specified in paragraph (c)(1) of this section, on the material in the form in which it is to be shipped. If it is determined by this test that the flash point is higher than $-7\text{ }^{\circ}\text{C}$ ($20\text{ }^{\circ}\text{F}$) a second test shall be made as follows: a portion of the mixture shall be placed in an open beaker (or similar container) of such dimensions that the height of the liquid can be adjusted so that the ratio of the volume of the liquid to the exposed surface area is 6 to one. The liquid shall be allowed to evaporate under ambient pressure and temperature ($20\text{ to }25\text{ }^{\circ}\text{C}$ ($68\text{ to }77\text{ }^{\circ}\text{F}$)) for a period of 4 hours or until 10 percent by volume has evaporated, whichever comes first. A flash point is then run on a portion of the liquid remaining in the evaporation container and the lower of the two flash points shall be the flash point of the material.

(3) For flash point determinations by Setaflash closed tester, the glass syringe specified need not be used as the

method of measurement of the test sample if a minimum quantity of 2 mL (0.1 ounce) is assured in the test cup.

(d) If experience or other data indicate that the hazard of a material is greater or less than indicated by the criteria specified in paragraphs (a) and (b) of this section, the Associate Administrator may revise the classification or make the material subject or not subject to the requirements of parts 171 through 185 of this subchapter.

(e) *Transitional provisions.* The Class 3 classification criteria in effect on December 31, 2006, may continue to be used until January 1, 2012.

[Amdt. 173–224, 55 FR 52634 Dec. 21, 1990]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting §173.120, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at www.fdsys.gov.

§ 173.121 Class 3—Assignment of packing group.

(a)(1) The packing group of a Class 3 material is as assigned in column 5 of the §172.101 Table. When the §172.101 Table provides more than one packing group for a hazardous material, the packing group must be determined by applying the following criteria:

Packing group	Flash point (closed-cup)	Initial boiling point
I	≤35 °C (95 °F)
II	<23 °C (73 °F)	>35 °C (95 °F)
III	≥23 °C, ≤60 °C (≥73 °F, ≤140 °F)	>35 °C (95 °F)

(2) The initial boiling point of a Class 3 material may be determined by using one of the following test methods:

(i) Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure (ASTM D 86) (IBR; *see* §171.7 of this subchapter);

(ii) Standard Test Method for Distillation Range of Volatile Organic Liquids (ASTM D 1078) (IBR; *see* §171.7 of this subchapter);

(iii) Petroleum Products—Determination of Distillation Characteristics at Atmospheric Pressure (ISO 3405) (IBR; *see* §171.7 of this subchapter);

(iv) Petroleum Products—Determination of Boiling Range Distribution—

Gas Chromatography Method (ISO 3924) (IBR; see §171.7 of this subchapter); or

(v) Volatile Organic Liquids—Determination of Boiling Range of Organic Solvents Used as Raw Materials (ISO 4626) (IBR; see §171.7 of this subchapter).

(b) *Criteria for inclusion of viscous Class 3 materials in Packing Group III.* (1) Viscous Class 3 materials in Packing Group II with a flash point of less than 23 °C (73 °F) may be grouped in Packing Group III provided that—

(i) Less than 3 percent of the clear solvent layer separates in the solvent separation test;

(ii) The mixture does not contain any substances with a primary or a subsidiary risk of Division 6.1 or Class 8;

(iii) The capacity of the packaging is not more than 30 L (7.9 gallons); and

(iv) The viscosity and flash point are in accordance with the following table:

Flow time t in seconds	Jet diameter in mm	Flash point c.c.
20<t≤60	4	above 17 °C (62.6 °F).
60<t≤100	4	above 10 °C (50 °F).
20<t≤32	6	above 5 °C (41 °F).
32<t≤44	6	above -1 °C (31.2 °F).
44<t≤100	6	above -5 °C (23 °F).
100<t	6	-5 °C (23 °F) and below.

(2) The methods by which the tests referred to in paragraph (b)(1) of this section shall be performed are as follows:

(i) *Viscosity test.* The flow time in seconds is determined at 23 °C (73.4 °F) using the ISO standard cup with a 4 mm (0.16 inch) jet as set forth in ISO 2431 (IBR, see §171.7 of this subchapter). Where the flow time exceeds 100 seconds, a further test is carried out using the ISO standard cup with a 6 mm (0.24 inch) jet.

(ii) *Solvent Separation Test.* This test is carried out at 23 °C (73 °F) using a 100.0 mL(3 ounces) measuring cylinder of the stoppered type of approximately 25.0 cm (9.8 inches) total height and of a uniform internal diameter of approximately 30 mm (1.2 inches) over the calibrated section. The sample should be stirred to obtain a uniform consistency, and poured in up to the 100 mL (3 ounces) mark. The stopper should be inserted and the cylinder left standing undisturbed for 24 hours. After 24 hours, the height of the upper separated layer should be measured and the

percentage of this layer as compared with the total height of the sample calculated.

(c) *Transitional provisions.* The criteria for packing group assignments in effect on December 31, 2006, may continue to be used until January 1, 2012.

[Amdt. 173-224, 55 FR 52634, Dec. 21, 1990, as amended at 56 FR 66268, Dec. 20, 1991; Amdt. 173-241, 59 FR 67507, Dec. 29, 1994 Amdt. 173-255, 61 FR 50625, Sept. 26, 1996; 64 FR 10777, Mar. 5, 1999; 64 FR 51918, Sept. 27, 1999; 66 FR 45381, Aug. 28, 2001; 68 FR 75744, Dec. 31, 2003; 71 FR 78631, Dec. 29, 2006; 76 FR 3372, Jan. 19, 2011; 76 FR 43529, July 20, 2011.]

§ 173.124 Class 4, Divisions 4.1, 4.2 and 4.3—Definitions.

(a) *Division 4.1 (Flammable Solid).* For the purposes of this subchapter, *flammable solid* (Division 4.1) means any of the following three types of materials:

(1) Desensitized explosives that—

(i) When dry are Explosives of Class 1 other than those of compatibility group A, which are wetted with sufficient water, alcohol, or plasticizer to suppress explosive properties; and

(ii) Are specifically authorized by name either in the §172.101Table or have been assigned a shipping name and hazard class by the Associate Administrator under the provisions of—

(A) A special permit issued under subchapter A of this chapter; or

(B) An approval issued under §173.56(i) of this part.

(2)(i) Self-reactive materials are materials that are thermally unstable and that can undergo a strongly exothermic decomposition even without participation of oxygen (air). A material is excluded from this definition if any of the following applies:

(A) The material meets the definition of an explosive as prescribed in subpart C of this part, in which case it must be classed as an explosive;

(B) The material is forbidden from being offered for transportation according to §172.101 of this subchapter or §173.21;

(C) The material meets the definition of an oxidizer or organic peroxide as prescribed in subpart D of this part, in which case it must be so classed;

(D) The material meets one of the following conditions:

(I) Its heat of decomposition is less than 300 J/g; or