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1 SCOPE


- 1.1 This method describes a general procedure for sustained combustibility applicable to item 48 of SOR/2001-226.

2 APPLICABLE DOCUMENTS

- 2.1 B. Marchand, *Determination of Flammability and Flash Point for Different Methanol-Water Mixtures* for the Revised CCCR. Health Canada, Product Safety Laboratory, Project Report No. 2000-0572
- 2.2 C. Watson, *Development of a Test Method for Flammable Products according to Test L.2: Sustained Combustibility Test of the Recommendations on the Transport of Dangerous Goods*. Health Canada, Product Safety Laboratory, Project Report No. 2002-0696.
- 2.3 P. Lambert, *Sustained Burning of Flammable Product (methanol, acetone) in Mixtures of 50% or More of Water*. Health Canada, Product Safety Laboratory, Project Report No. 2000-0578.
- 2.4 United Nations, *Recommendations on the Transport of Dangerous Goods, Manual of Test and Criteria* United Nations, New York, Item 32.5.2 Test L.2: Sustained Combustibility Test, p.315 (1999).

3 REAGENTS AND APPARATUS


- 3.1 Rapid Tester (model RT-2) by Petrolab Company. (or other suitable tester)
- 3.2 Thermometer, mercury in glass, for horizontal operation, with a sensitivity not less than 1 mm/°C, or other measuring device of equivalent sensitivity permitting reading at 0.5°C.
- 3.3 Stopwatch, or other suitable timing device.
- 3.4 Syringe, capable of delivering 2.0 ml to an accuracy of ± 0.1 ml.
- 3.5 Fuel, butane.

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4 EXPERIMENTAL PROCEDURE

- 4.1 The sample to be tested should be supplied and kept in a tightly closed container prior to the test. Because of the possibility of loss of the volatile constituents, the sample should receive only minimum treatment and after removing each test portion, the sample container should be completely closed to ensure that no volatile components escape. If this closure is incomplete, an entirely new sample should be taken.
- 4.2 Ensure that the apparatus is set up in a completely draught free area and in the absence of strong light to facilitate observation of flash, flame, etc.
- 4.3 Heat the metal block by a suitable means so that its temperature, as indicated by the thermometer placed in the metal block, is maintained at the specified temperature. The test temperature is 60.5°C or 75°C (see section 4.9). Correct this temperature for the difference in barometric pressure from the standard atmospheric pressure (101.3kPa) by raising the test temperature for a high pressure, or lowering the test temperature for a lower pressure, by 1.0°C for each 4 kPa difference. (*Note 1*)
- 4.4 Light the test flame jet in the “off” position (away from test well) and adjust the size of the flame so that it is 8 mm to 9 mm high and approximately 5 mm wide.
- 4.5 Using the syringe, take 2.0 ml ± 0.1 ml of sample and immediately transfer to the test well and start the timing device.
- 4.6 If the test sample has not ignited after 60 s of heating, swing the test flame into the test position over the edge of the pool of liquid. Maintain it in this position for 15 s and then return it to the “off” position. Observe the behaviour of the test sample. The test flame should remain alight throughout the test.
- 4.7 The test should be performed in triplicate and for each test observe and record the following:
- 4.7.1 Whether there is ignition and sustained combustion or flashing, or neither, of the test portion before the test flame is moved into the test position; and
- 4.7.2 Whether the test portion ignites while the test flame is in the test position, and, if so, how long combustion is sustained after the test flame is returned to the “off” position.
- 4.8 If sustained combustion, interpreted in accordance with paragraph 5.1, is not found, repeat the complete procedure with new test portions, but with a heating time of 30 s.

Note 1: +4 kPa from standard atmospheric pressure (760 mmHg) = 789.8 mmHg
 -4 kPa from standard atmospheric pressure (760 mmHg) = 729.8 mmHg

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4.9 If sustained combustion, interpreted in accordance with paragraph 5.1, is not found at a test temperature of 60.5°C, repeat the complete procedure with new test portions, but at a test temperature of 75°C.

5 DETERMINATION AND REPORTING

5.1 Assess the test sample as either not sustaining combustion or as sustaining combustion. Sustained combustion should be reported at either of the heating times or temperatures if one of the following occurs with any of the test portions:

5.1.1 When the test flame is in the “off” position, the test portion ignites and sustains combustion; or

5.1.2 The test portion ignites while the test flame is in the test position, maintained for 15 s, and sustains combustion for more than 15 s after the test flame has been returned to the “off” position.

Note: Intermittent flashing should not be interpreted as sustained combustion. Usually combustion has either clearly ceased or continues at the end of 15 s. If in doubt, the substance would be deemed to sustain combustion.

5.2 The results of analysis should be reported in the following format:

Specimen no.	Temperature 60.5°C or 75°C	I+SC, F* or none BEFORE test flame is moved into test position	Heating Time (s)	Ignition occur with test flame in test position (y/n)	How long combustion occurs after flame has returned to the “off” position (s)
1					
2					
3					

*: I+SC - Ignition and Sustained Combustion
F - Flashing

6 QUALITY CONTROL PROCEDURE

6.1 No known control was available for this test and an in-house control could not be formulated.

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