



Designation: ~~D6668 – 01 (Reapproved 2010)~~ D6668 – 01 (Reapproved 2016)

Standard Test Method for Discrimination Between Flammability Ratings of $F = 0$ and $F = 1$ ¹

This standard is issued under the fixed designation D6668; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers a means for the discrimination between solid and liquid materials which will not burn in air when exposed to a temperature of ~~1500°F (815.5°C)~~ 1500 °F (815.5 °C) for a period of ~~5 min~~ 5 min and those which will ignite and burn under the same conditions.

1.2 This test method may be applied to any substance which is a solid or liquid at ambient temperature and pressure.

1.3 The purpose of this test method is to provide a means for the classification of the flammability hazard of materials of hazard degrees ($F=0$) and ($F =1$) or both, in accordance with the definitions of degrees of flammability hazard as defined by NFPA 704 (par. 3.2.1).

1.4 This test method should be used subject to the limitations that no single fire hazard property such as flash point, ignition temperature, or the performance under the conditions of the present method shall be used to describe or appraise the fire hazard or fire risk of a material, product, assembly or system under actual fire conditions. Fire hazard properties measured under controlled laboratory conditions may, nevertheless, be employed to describe properly the response of materials, products, assemblies or systems under said controlled conditions. Properties measured under controlled laboratory conditions may be used as elements of hazard or risk assessment only when such assessment takes into account all of the factors that are pertinent to the evolution of the fire hazard of a given situation.

1.5 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.6 *This standard is used to predict or provide a quantitative measure of the fire hazard from a specified set of fire conditions involving specific materials, products, or assemblies. This assessment does not necessarily predict the hazard of actual fires which involve conditions other than those assumed in the analysis.* ~~6668-01(2016)~~

1.7 *This standard does not purport to address all of the safety concerns, if any, 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 Documents

2.1 *ASTM Standards:*²

D235 Specification for Mineral Spirits (Petroleum Spirits) (Hydrocarbon Dry Cleaning Solvent)

2.2 *NFPA Standards:*³

NFPA 704 Identification of the Hazards of Materials for Emergency Response

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

¹ This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products, Liquid Fuels, and Lubricants and is the direct responsibility of Subcommittee D02.L0.07 on Engineering Sciences of High Performance Fluids and Solids (Formally D02.1100).

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02169-7471, <http://www.nfpa.org>.

3.1.1 *burning, n*—for the purposes of this test method, burning shall be defined to include the presence of any visible flame, sparks or glowing embers when the sample is exposed to ~~1500°F (815.5°C) for 5 min~~ 1500 °F (815.5 °C) for 5 min under the conditions of the test method. Charring without visible evidence of flame, sparks, or glowing embers shall not be considered to constitute burning.

3.1.2 *flammability hazard degree one (F=1) , n*—materials that will burn in air when exposed to a temperature of ~~1500°F (815.5°C) for 5 min~~ 1500 °F (815.5 °C) for 5 min under the conditions of this test method or which, by reason of their flash point, fire point, autoignition temperature, or sustained combustibility, would be rated as *Hazard Degree One* regardless of their performance in this test method.

3.1.3 *flammability hazard degree zero (F=0) , n*—materials that will not burn in air when exposed to a temperature of ~~1500°F (815.5°C) for 5 min~~ 1500 °F (815.5 °C) for 5 min under the conditions of this test method provided that they do not exhibit properties including flash point, fire point, autoignition, or sustained combustibility which might cause them to be rated or classified as a more hazardous material (that is, *F=1* or higher).

4. Summary of Test Method

4.1 Small, measured amounts of the sample are placed on a stainless steel surface heated to ~~1500°F (815.5°C)~~ 1500 °F (815.5 °C). Reactions which occur during the ~~5 min~~ 5 min interval, thereafter, are observed and recorded.

5. Significance and Use

5.1 A material which does not exhibit any evidence of burning as defined herein under the conditions of the test procedure may be classified as *Flammability Degree of Hazard Zero* material (*F=0*) provided other properties of the material are not such as to require a higher degree of classification.

6. Test Specimen

6.1 *Liquid Sample*—~~30 mL~~ 30 mL is sufficient for the performance of this test method.

6.2 *Solid Specimens*—~~30 g~~ 30 g are sufficient for the performance of this test method.

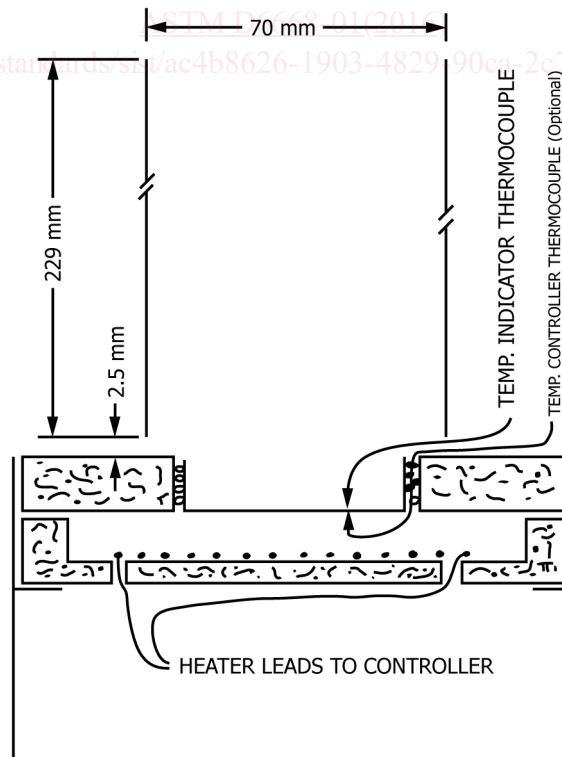


FIG. 1 Assembled Test Apparatus