



Designation: D8211 – 21

## Standard Test Method for Hot Surface Ignition Temperature of Gases on Flat Surface<sup>1</sup>

This standard is issued under the fixed designation D8211; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope\*

1.1 This test method covers a means for the discrimination between gases, which will ignite or not ignite when impinged on a hot surface when that surface is heated to 800 °C (1472 °F) or greater for a period of 2 min in a non-confined environment.

1.2 This test method may be applied to any non-pyrophoric substance that is a gas or liquefied gas, particularly GHS category 1B gases, at ambient temperature and pressure.

1.3 This test method should be used subject to the limitations that no single fire hazard property such as flash point, auto-ignition temperature (AIT), 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 assessments takes into account all of the factors that are pertinent to the evolution of the fire hazard of a given situation.

1.4 This standard is used to provide a quantitative measure of a gas's or liquefied gas's realistic surface ignition temperature in a non-quiet environment.

1.5 The values stated in SI units are to be regarded as standard. The values given in parentheses after SI units are provided for information only and are not considered standard.

1.6 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.* For specific hazard statements, see Section 9.

<sup>1</sup> 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 (Formerly D02.1100).

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1.7 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

### 2. Referenced Documents

#### 2.1 ASTM Standards:<sup>2</sup>

**D4175 Terminology Relating to Petroleum Products, Liquid Fuels, and Lubricants**

**E659 Test Method for Autoignition Temperature of Chemicals**

### 3. Terminology

#### 3.1 Definitions:

3.1.1 For definitions of terms used in this method, refer to Terminology **D4175**.

#### 3.2 Definitions of Terms Specific to This Standard:

3.2.1 *auto ignition temperature (AIT), n*—the lowest temperature at which a substance spontaneously ignites in normal atmosphere without an external source of ignition.

3.2.2 *camera, n*—capable of recording at least 30 frames per second.

3.2.3 *chimney, n*—a quartz cylinder tube with the following dimensions: length: 229 mm  $\pm$  10 mm (9.02 in.  $\pm$  0.39 in.); inner dimension: 70 mm  $\pm$  5 mm (2.76 in.  $\pm$  0.2 in.).

3.2.4 *environmental chamber, n*—a chamber capable of providing a draft-free environment during testing and able to provide ventilation after testing is completed; the chamber needs to be able to completely remove the test substance and any potential substance decomposition products after testing has completed.

3.2.5 *gap height, n*—the height of the chimney above the insulation and planchet shall be 4 mm.

3.2.6 *heating element, n*—a unit that is capable of heating a surface in contact with the planchet up to temperatures of at least 800 °C (1472 °F) up to 1000 °C (1832 °F).

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

\*A Summary of Changes section appears at the end of this standard