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.

Designation: D8108 – 21

Standard Test Method for Determination of Particulate Matter Mass from Light Duty Mobile Sources (Gravimetric Method)[1]

This standard is issued under the fixed designation D8108; 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 procedure for the gravimetric determination of particulate matter (PM) collected from diluted light duty vehicle exhaust. It is applicable to mass rates from 0.32 to 32 mg/km (0.2 to 20 mg/mile).

1.2 Diluted exhaust is passed through pre-weighed filter media which is re-weighed after sampling. The difference in weight is used to determine particulate mass, which is then used with other data to calculate the distance specific emissions.

1.3 The particulate materials that are measured using this test method are generated by a vehicle following the PM standard applicable portions of the United States Environmental Protection Agency (EPA) and California Air Resources Board (CARB) driving schedules and test procedures for determining the emissions of light duty vehicles. For other jurisdictions, consult regional regulations for applicability of these test procedures. These test procedures are referenced in Annex A3 of this document.

1.4 The primary intent of this test method is to summarize the PM measurement test procedures as defined by the EPA and CARB (40 CFR Parts §1066, §1065, §86.101, and CARB test procedures for hybrid vehicle testing).

NOTE 1—Some requirements are generalized from core references for simplicity and to provide guidance for users applying the principals in this standard to regions not governed by EPA and CARB regulation. For specific details, reference the regulated procedures.

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.*

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:*[2]

D1356 Terminology Relating to Sampling and Analysis of Atmospheres

E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods

E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

2.2 *ISO Standards:*[3]

ISO 14644-1 Cleanrooms and associated controlled environments — Part 1: Classification of air cleanliness by particle concentration

2.3 *Government Regulations:*

CARB California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes – Sections F (HEVs) and G (PHEVs)[4]

EPA 40 CFR Part 86, Appendix I [5]

EPA 40 CFR Part 86.101 [5]

EPA 40 CFR Part 1065 [5]

EPA 40 CFR Part 1066 [5]

[1] This test method is under the jurisdiction of ASTM Committee D22 on Air Quality and is the direct responsibility of Subcommittee D22.03 on Ambient Atmospheres and Source Emissions.

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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 International Organization for Standardization (ISO), ISO Central Secretariat, BIBC II, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland, http://www.iso.org.

[4] Available from California Air Resources Board (CARB), 1001 I Street, Sacramento, CA 95814, https://ww2.arb.ca.gov.

[5] Available from United States Environmental Protection Agency (EPA), William Jefferson Clinton Bldg., 1200 Pennsylvania Ave., NW, Washington, DC 20460, http://www.epa.gov.

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