



Designation: D7202 – 22

Standard Test Method for Determination of Beryllium in the Workplace by Extraction and Optical Fluorescence Detection¹

This standard is issued under the fixed designation D7202; 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 is intended for use in the determination of beryllium by sampling workplace air and surface dust.

1.2 This test method assumes that air and surface samples are collected using appropriate and applicable ASTM International standard practices for sampling of workplace air and surface dust. These samples are typically collected using air filter sampling, vacuum sampling or wiping techniques. See Guide [E1370](#) for guidance on air sampling strategies, and Guide [D7659](#) for guidance on selection of surface sampling techniques.

1.3 Determination of beryllium in soil is not within the scope of this test method. See Test Method [D7458](#) for determination of beryllium in soil samples.

1.4 This test method includes a procedure for extraction (dissolution) of beryllium in weakly acidic medium (pH of 1 % aqueous ammonium bifluoride is 4.8), followed by field analysis of aliquots of the extract solution using a beryllium-specific-optically fluorescent dye.

1.5 The procedure is suitable for on-site use in the field for occupational and environmental hygiene monitoring purposes. The method is also applicable for use in fixed-site laboratories.

1.6 No detailed operating instructions are provided because of differences among various makes and models of suitable fluorometric instruments. Instead, the analyst shall follow the instructions provided by the manufacturer of the particular instrument. This test method does not address comparative accuracy of different devices or the precision between instruments of the same make and model.

1.7 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.8 This test method contains notes that are explanatory and not part of mandatory requirements of the standard.

1.9 *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.*

1.10 *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

[D1193](#) Specification for Reagent Water

[D1356](#) Terminology Relating to Sampling and Analysis of Atmospheres

[D4840](#) Guide for Sample Chain-of-Custody Procedures

[D5337](#) Practice for Flow Rate Adjustment of Personal Sampling Pumps

[D6966](#) Practice for Collection of Settled Dust Samples Using Wipe Sampling Methods for Subsequent Determination of Metals

[D7035](#) Test Method for Determination of Metals and Metalloids in Airborne Particulate Matter by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES)

[D7144](#) Practice for Collection of Surface Dust by Microvacuum Sampling for Subsequent Determination of Metals and Metalloids

[D7296](#) Practice for Collection of Settled Dust Samples Using Dry Wipe Sampling Methods for Subsequent Determination of Beryllium and Compounds

[D7458](#) Test Method for Determination of Beryllium in Soil and Sediment Using Ammonium Bifluoride Extraction and Fluorescence Detection

[D7659](#) Guide for Strategies for Surface Sampling of Metals and Metalloids for Worker Protection

¹ This test method is under the jurisdiction of ASTM Committee [D22](#) on Air Quality and is the direct responsibility of Subcommittee [D22.04](#) on Workplace Air Quality.

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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.