



Designation: D6832 – 24

Standard Test Method for the Determination of Hexavalent Chromium in Workplace Air by Ion Chromatography and Spectrophotometric Measurement Using 1,5-diphenylcarbazide¹

This standard is issued under the fixed designation D6832; 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 specifies a method for the determination of the time-weighted average mass concentration of hexavalent chromium in workplace air samples.

1.2 This test method is applicable to the personal sampling of the inhalable fraction of airborne particles, as defined in ISO 7708, and to area (static) sampling.

1.3 The sample dissolution procedure specifies separate procedures for soluble and insoluble hexavalent chromium.

1.4 This test method is applicable to the determination of masses of 0.01 μg to 10 μg of hexavalent chromium per sample without dilution.

1.5 The concentration range for hexavalent chromium in air for which this procedure is applicable is approximately 0.1 $\mu\text{g}/\text{m}^3$ to 100 $\mu\text{g}/\text{m}^3$, assuming 1 m^3 of air sample. The range can be extended upwards by appropriate dilution.

1.6 Interconversion of trivalent and hexavalent chromium species may occur during sampling and sample preparation, but these processes are minimized to the extent possible by the sampling and sample preparation procedures employed.

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 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.*

1.9 *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 Recom-*

mendations 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
- D3195 Practice for Rotameter Calibration
- D4840 Guide for Sample Chain-of-Custody Procedures
- D8358 Guide for Assessment and Inclusion of Wall Deposits in the Analysis of Single-Stage Samplers for Airborne Particulate Matter
- E882 Guide for Accountability and Quality Control in the Chemical Analysis Laboratory
- E1370 Guide for Air Sampling Strategies for Worker and Workplace Protection

2.2 ISO Standards:³

- ISO 648 Laboratory Glassware—Single-volume pipettes
- ISO 1042 Laboratory Glassware—One-mark Volumetric Flasks
- ISO 3585 Borosilicate glass 3.3 Properties
- ISO 7708 Air Quality—Particle Size Definitions for Health-related Sampling
- ISO 8655 Piston and/or Plunger-operated Volumetric Apparatus (6 Parts)

3. Terminology

3.1 For definitions of terms used in this test method, refer to Terminology D1356.

4. Summary of Test Method

4.1 A known volume of air is drawn through a sampler to collect particulate hexavalent chromium. The sampler is designed to collect the inhalable fraction of airborne particles (see ISO 7708).

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 www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from American National Standards Institute (ANSI), 1180 Avenue of the Americas, 10th Floor, New York, NY 10036, <http://www.ansi.org>.