



Standard Test Methods for Chemical Analysis of Cadmium¹

This standard is issued under the fixed designation E396; 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.

^{ε1} NOTE—Editorial corrections were made throughout in August 2012.

1. Scope

1.1 These test methods cover the chemical analysis of cadmium having chemical compositions with the following limits:

Element	Composition, max, %
Antimony	0.001
Arsenic	0.003
Copper	0.015
Lead	0.025
Silver	0.010
Thallium	0.003
Tin	0.010
Zinc	0.035

1.2 The test methods appear in the following order:

	Sections
Antimony by the Rhodamine B Spectrophotometric Method [0.0002 % to 0.0010 %]	62-72
Arsenic by the Molybdenum Blue Spectrophotometric Method [0.001 % to 0.005 %]	40-50
Copper by the Neocuproine Spectrophotometric Method [0.002 % to 0.030 %]	10-19
Copper, Lead, Silver, and Zinc by the Atomic Absorption Method [0.004 % to 0.02 % Cu, 0.01 % to 0.05 % Pb, 0.004 % to 0.02 % Ag and 0.01 % to 0.05 % Zn]	51-61
Lead by the Dithizone Spectrophotometric Method [0.001 % to 0.05 %]	20-29
Thallium by the Rhodamine B Spectrophotometric Method [0.0003 % to 0.005 %]	30-39
Tin by the 8-Quinolinol Spectrophotometric Method [0.0025 % to 0.0150 %]	73-82

1.3 *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.* Specific precautionary information is given in Section 6, 25.8, 35.2, and 35.3.

¹ These test methods are under the jurisdiction of ASTM Committee E01 on Analytical Chemistry for Metals, Ores, and Related Materials and are the direct responsibility of Subcommittee E01.05 on Cu, Pb, Zn, Cd, Sn, Be, their Alloys, and Related Metals.

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2. Referenced Documents

2.1 ASTM Standards:²

B440 Specification for Cadmium

D1193 Specification for Reagent Water

E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

E50 Practices for Apparatus, Reagents, and Safety Considerations for Chemical Analysis of Metals, Ores, and Related Materials

E55 Practice for Sampling Wrought Nonferrous Metals and Alloys for Determination of Chemical Composition

E60 Practice for Analysis of Metals, Ores, and Related Materials by Spectrophotometry

E88 Practice for Sampling Nonferrous Metals and Alloys in Cast Form for Determination of Chemical Composition

E135 Terminology Relating to Analytical Chemistry for Metals, Ores, and Related Materials

E173 Practice for Conducting Interlaboratory Studies of Methods for Chemical Analysis of Metals (Withdrawn 1998)³

E1601 Practice for Conducting an Interlaboratory Study to Evaluate the Performance of an Analytical Method

3. Terminology

3.1 For definitions of terms used in this test method, refer to Terminology E135.

4. Significance and Use

4.1 These test methods for the chemical analysis of cadmium are primarily intended to test such material for compliance with compositional specifications in Specification B440. It is assumed that all who use these test methods will be trained analysts capable of performing common laboratory procedures

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 The last approved version of this historical standard is referenced on www.astm.org.