



Standard Practices for Apparatus, Reagents, and Safety Considerations for Chemical Analysis of Metals, Ores, and Related Materials¹

This standard is issued under the fixed designation E 50; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 These practices cover laboratory apparatus and reagents that are required for the chemical analysis of metals, ores and related materials by standard methods of ASTM. Detailed descriptions of recommended apparatus and detailed instructions for the preparation of standard solutions and certain nonstandardized reagents are included. An identifying number has been assigned each apparatus (see Section 8) and reagent (see Section 25) for convenience of reference in the analytical methods. Included also are general recommendations on the purity of reagents and protective measures for the use of hazardous reagents.

1.2 The aim of these recommendations is to present descriptions of such apparatus and reagents as are common to several ASTM methods, and thus avoid needless repetition. No attempt has been made to provide a description of every apparatus and reagent prescribed in ASTM methods for the chemical analysis of metals. Other apparatus and reagents that are required will be found listed or specified in the individual methods of analysis.

1.3 These recommendations are intended to apply to the ASTM methods of chemical analysis of metals when definite reference is made to these practices, as covered in Section 3.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of whoever uses this standard to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* Specific hazards are given in Section 7 and Note 2.

NOTE 1—The use of the verb “shall” (with its obligatory third person meaning) in this standard has been confined to those aspects of laboratory safety where regulatory requirements are known to exist. Such regulations, however, are beyond the scope of these practices.

2. Referenced Documents

2.1 ASTM Standards:

D 1193 Specification for Reagent Water²

E 1 Specification for ASTM Thermometers³

E 70 Test Method for pH of Aqueous Solutions with the Glass Electrode⁴

E 77 Test Method for Inspection and Verification of Liquid-in-Glass Thermometers³

E 100 Specification for ASTM Hydrometers³

E 126 Test Method for Inspection and Verification of Hydrometers³

E 128 Test Method for Maximum Pore Diameter and Permeability of Rigid Porous Filters for Laboratory Use⁵

E 287 Specification for Burets⁵

E 288 Specification for Volumetric Flasks⁵

E 438 Specification for Glasses in Laboratory Apparatus⁵

E 542 Practice for Calibration of Volumetric Ware⁵

E 694 Specification for Volumetric Ware⁵

E 969 Specification for Glass Volumetric (Transfer) Pipets⁵

E 1044 Specification for Glass Serological Pipets (General Purpose and Kahn)⁵

E 1621 Guide for X-Ray Emission Spectrometric Analysis⁶

3. Significance and Use

3.1 The inclusion of the following paragraph, or a suitable equivalent, in any standard (preferably after the section on Scope) is due notification that the apparatus and reagents required in that standard are subject to the recommendations set forth in these practices.

“Apparatus and Reagents”—Apparatus and reagents required for each determination are listed in separate sections preceding the procedure. The apparatus, standard solutions, and certain other reagents used in more than one procedure are referred to by number and shall conform to the requirements prescribed in ASTM Practices E 50, for Apparatus, Reagents, and Safety Considerations for Chemical Analysis of Metals, Ores, and Related Materials.”

3.2 It is assumed that the users of these practices will be trained analysts capable of performing common laboratory procedures skillfully and safely. It is expected that work will be performed in a properly-equipped laboratory.

¹ These practices are under the jurisdiction of ASTM Committee E1 on Analytical Chemistry for Metals, Ores, and Related Materials and are the direct responsibility of Subcommittee E 01.20 on Fundamental Practices and Measurement Traceability.

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² *Annual Book of ASTM Standards*, Vol 11.01.

³ *Annual Book of ASTM Standards*, Vol 14.03.

⁴ *Annual Book of ASTM Standards*, Vol 15.05.

⁵ *Annual Book of ASTM Standards*, Vol 14.04.

⁶ *Annual Book of ASTM Standards*, Vol 03.06.