



Standard Guide for Evaluation and Assessment of Analytical Chemistry Laboratories¹

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1. Scope

1.1 This guide sets the minimum requirements which an analytical chemistry laboratory should meet to be recognized as competent to carry out specific analytical procedures.

1.2 Additional requirements and information which have to be disclosed for assessing competence or for determining compliance with other criteria may be specified by the organization or authority granting the accreditation, depending upon the specific character of the task of the laboratory.

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.*

2. Referenced Documents

2.1 ASTM Standards:

- E 50 Practices for Apparatus, Reagents, and Safety Considerations for Chemical Analysis of Metals, Ores, and Related Materials²
- E 416 Practice for Planning and Safe Operation of a Spectrochemical Laboratory²
- E 548 Guide for Generic Criteria for Evaluating Laboratory Competence³
- E 876 Practice for Use of Statistics in the Evaluation of Spectrometric Data²
- E 882 Guide for Accountability and Quality Control in the Chemical Analysis Laboratory²
- E 994 Guide for Calibration and Testing Laboratory Accreditation Systems General Requirements for Operation and Recognition³
- E 1187 Terminology Relating to Conformance Assessment³
- E 1329 Practice for Verification and the Use of Control Charts in Spectrochemical Analysis²
- E 1581 Practice for Using Pre-Control in the Instrumental Analysis Laboratory⁴

2.2 Other Documents:

- ANSI/ASQCQ90 Quality Management and Quality Assurance Standards—Guidelines for Selection and Use⁵
- ISO/IEC Guide 25 General Requirements for the Competence of Calibration and Testing Laboratories⁵

3. Terminology

3.1 *Definitions*—For definitions of terms used in this guide, refer to Terminology E 1187.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *audit*—an examination of a laboratory's operation and quality control to ascertain that it is able to obtain valid analyses.

3.2.2 *authority*—an organization that evaluates the performance of a laboratory; the authority may be a company that maintains the laboratory for its own analytical requirements.

3.2.3 *client*—an organization that requires a laboratory's service.

3.2.4 *protocol*—a set of procedures which must be followed to obtain acceptable analytical results.

3.2.5 *traceability*—the property of a result of a measurement where it can be related to appropriate standards, generally international or national standards, through an unbroken chain of comparisons.

3.2.6 *valid analysis*—analytical results obtained when a procedure follows proper protocol and statistical control is verified.

4. Significance and Use

4.1 This guide provides a mechanism for promoting confidence in analytical chemistry laboratories by demonstrating that they operate in accordance with the guide's requirements.

4.2 This guide is for use by analytical chemistry laboratories in the development and implementation of their quality systems. It may also be used by accreditation bodies, certification bodies, and others concerned with the competence of laboratories.

4.3 It is intended that analytical chemistry laboratories meeting the requirements of this guide will be in conformity with the relevant requirements of the ISO 9000 series of

¹ This guide is under the jurisdiction of ASTM Committee E01 on Analytical Chemistry for Metals, Ores, and Related Materials and is the direct responsibility of Subcommittee E01.22 on Statistics and Quality Control.

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² *Annual Book of ASTM Standards*, Vol 03.05.

³ *Annual Book of ASTM Standards*, Vol 14.02.

⁴ Discontinued 1998; see 1997 *Annual Book of ASTM Standards*, Vol 03.06.

⁵ Available from American National Standards Institute, 11 W. 42nd Street, 13th Floor, New York, NY 10036.