



Standard Terminology Relating to Analytical Chemistry for Metals, Ores, and Related Materials¹

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1. Scope

1.1 This is a compilation of terms commonly used in analytical chemistry for metals, ores, and related materials. Terms that are generally understood or defined adequately in other readily available sources are either not included or their sources are identified.

1.2 A definition is a single sentence with additional information included in a Discussion.

1.3 Definitions identical to those published by another standards organization or ASTM committee are identified with the name of the organization or the identifying document and ASTM committee.

1.4 Definitions specific to a particular field (such as *emission spectrometry*) are identified with an italicized introductory phrase.

2. Referenced Documents

2.1 ASTM Standards:

E 180 Practice for Determining the Precision of ASTM Methods for Analysis and Testing of Industrial Chemicals²

E 876 Practice for Use of Statistics in the Evaluation of Spectrometric Data³

E 1914 Practice for Use of Terms Relating to the Development and Evaluation of Methods for Chemical Analysis³

2.2 ISO Standard:

ISO Guide 30—Terms and Definitions Used in Connection with Reference Materials⁴

3. Significance and Use

3.1 Definitions given in Section 4 are intended for use in all standards on analytical chemistry for metals, ores, and related materials. The definitions should be used uniformly and consistently. The purpose of this terminology is to promote clear understanding and interpretation of the standards in which definitions are used.

¹ This terminology is under the jurisdiction of ASTM Committee E-1 on Analytical Chemistry for Metals, Ores, and Related Materials and is the direct responsibility of Subcommittee E01.23 on Terminology.

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² *Annual Book of ASTM Standards*, Vol 15.05.

³ *Annual Book of ASTM Standards*, Vol 03.06.

⁴ Available from American Standards Institute, 11 West 42nd St., 13th Floor, New York, NY 10036.

4. Terminology Definitions

absorbance, *n*—in *spectrometry*, the logarithm to the base 10 of the reciprocal of the transmittance, *T*.

$$A = \log_{10}(1/T) = -\log_{10} T \quad (1)$$

absorption (of electromagnetic radiation), *n*—a decrease in radiant energy when passing through matter, resulting in a corresponding increase in the energy of the absorbing system.

absorption spectrometry, *n*—the branch of spectroscopy pertaining to the absorption of electromagnetic radiation by atoms, ions, radicals, and molecules.

analytical curve—see **calibration curve**.

analyte, *n*—in *methods of chemical analysis*, the component determined by a method.

analytical gap, *n*—in *optical emission spectrometry*, the region between two electrodes in which the specimen is excited and from which radiant energy is used for analysis.

analytical line, *n*—the particular wavelength of an element used in determining the presence or concentration of that element.

anneal, *vt*—in *fire assay*, to heat and then gradually cool a metal to remove internal stresses and make the material less brittle.

arc, condensed—see **triggered capacitor discharge**.

arc, continuous dc, *n*—a self-maintaining dc discharge.

arc line—not recommended, see **atom line**.

arc, noncapacitive ac, *n*—in *optical emission spectrometry*, a series of separate electrical discharges, individually self-initiating or initiated separately by another means, in which each current pulse has a polarity that is reversed from the previous one.

arc, noncondensed, intermittent dc—see **arc, noncapacitive, intermittent dc**.

atom line, *n*—a spectral line resulting from radiation emitted during electron transition as an excited atom returns to a lower energy level.

atomic absorption spectrometry, *n*—the branch of spectroscopy pertaining to the absorption of electromagnetic radiation by free atoms.

buffer, *n*—in *spectrometric analysis*, a substance that tends to minimize the effects of one or more elements on the emission of other elements.

burn, *n*—in *emission spectrometry*, (1) that portion of a solid