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Standard Terminology Relating to Nuclear Materials[1]

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1. Scope

1.1 This terminology standard contains terms, definitions, descriptions of terms, nomenclature, and explanations of acronyms and symbols specifically associated with standards under the jurisdiction of Committee C26 on Nuclear Fuel Cycle. This terminology may also be applicable to documents not under the jurisdiction of Committee C26, in which case this terminology may be referenced in those documents.

2. Terminology

abundance sensitivity, *n*—in methods of chemical analysis, the ratio of the ion beam intensity of the major isotope, *M*, to the background current at the adjacent mass positions.

(1) *Abundance sensitivity = ion current at mass M ion current at M ± 1*

activity, A, [T^{-1}], *n*—the measure of the rate of spontaneous nuclear transformations of a radioactive material. The SI unit for activity is the becquerel (Bq), defined as 1 transformation per second. The original unit for activity was the curie (Ci), defined as 3.7×10^{10} transformations per second.

alteration, *n*—any change in the form, state, or properties of materials.

analyte, *n*—im method of chemical analysis, a sample component whose presence and concentration is of interest.

becquerel (Bq), [T^{-1}], *n*—the SI unit of measure for activity, defined as 1 transformation per second.

beta radiation, *n*—an electron that was generated in the atomic nucleus during decay and has a negative charge of one.

continuing calibration blank check solution (CCB)—in methods of chemical analysis, a standard solution that has no analyte and is used to verify blank response and freedom from carryover.

continuing calibration verification check solution (CCV)—in methods of chemical analysis, a standard solution (or set of solutions) used to verify freedom from excessive instrument drift; the concentration is to be near the midrange of a linear curve.

crushed glass, *n*—in a glass leach test, small particles of glass produced by mechanically fracturing larger pieces of glass.

curie (Ci), [T^{-1}]—the original unit of measure for activity, defined as 3.7×10^{10} transformations per second.

determination, *n*—the process of carrying out a series of operations specified in the test method whereby a single value is obtained.

dose rate, [L^2 T^{-3}], *n*—a quantity of absorbed dose received in a given unit of time.

high density concrete, *n*—a concrete having a density greater than 2400 kg per cubic meter (150 lb per cubic foot).

initial calibration verification check solution (ICV)—in methods of chemical analysis, a standard solution (or a set of standard solutions) used to verify calibration standard levels; the concentration of analyte is to be near mid-range of the linear curve that is made from a stock solution having a different manufacturer or manufacturer lot identification than the calibration standards.

linear range check solution (LRS)—in methods of chemical analysis, a solution containing known concentrations of the analytes that is used to determine the upper limit of the linear range.

mass bias or fractionation, *n*—in methods of chemical analysis, the deviation of the observed or measured isotope ratio from the true ratio as a function of the difference in mass between the two isotopes.

neutron radiation, *n*—the emission of neutrons resulting from instability in the atomic nucleus. Neutrons have an atomic mass slightly heavier than a proton, but have no electrical charge.

on-peak spectral interference correction, *n*—adjustments made in observed net intensity of peak interest to compensate for error introduced by spectral interferences.

quench standard curve, *n*—in methods of radiochemical analysis, a relationship between sample quench and detection efficiency. A quench curve for an isotope in a given cocktail and vial combination is developed by counting a series of standards containing the same activity of that isotope, but each with different quench. Sample quench is typically quantified by variety of parameters.

[1] This terminology is under the jurisdiction of ASTM Committee C26 on Nuclear Fuel Cycle and is the direct responsibility of Subcommittee C26.01 on Editorial and Terminology.

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