National Institute of Standards & Technology

Certificate of Analysis

Standard Reference Material 3141a

Spectrometric Standard Solution

Potassium

This Standard Reference Material (SRM) is intended for use in atomic absorption spectrometry, optical emission (plasma) spectrometry, spectrophotometry, or any other analytical technique that requires aqueous standard solutions for calibrating instruments. SRM 3141a is a single element solution prepared gravimetrically to contain 10.00 mg/mL of potassium with a nitric acid concentration (V/V) of one percent. The certified values are based on gravimetric procedures, i.e., weight per volume composition of the high-purity salt dissolved in NIST high-purity reagents.

Metal	Concentration[a] (mg/mL)	Source Purity, %	Acid Conc. (V/V) Approximate
K	10.00 $\pm$ 0.03	SRM 999 (99.98)	HNO_3, 1 %

[a]The uncertainty listed for an element is based on judgement and represents an estimate of the combined effects of any errors, attributable to weighing, dilutions, interelement effects, and purity of the metal or compound. (No attempt was made to derive exact statistical results as the imprecisions of most analytical methods are much larger than the errors listed above).

Procedures for Use

Stability: This certificate is valid for one year from the shipping date provided the solutions are kept tightly capped and stored under normal laboratory conditions. NIST will monitor the stability of these solutions; if any changes occur that invalidate this certification, NIST will notify purchasers.

Preparation of Working Standard Solutions: All solutions should be brought to 22 $\pm$ 1 °C before use and all glass or plastic surfaces coming into contact with the standard must have been previously cleaned. A working standard solution can be prepared from the SRM solution by serial dilution. Dilutions should be made with certified volumetric class A flasks and 5 or 10 mL class A pipets. All volumetric transfers of solutions should be performed using a proven analytical technique. Each dilution should be acidified with an appropriate high-purity acid and diluted to calibrated volume using high-purity water. The stability of the working standard solution will depend on the final acid concentration; therefore, care should be exercised to ensure that the final acid concentration of the dilution closely approximates that of the SRM. To achieve the highest accuracy, the analyst should prepare daily working solutions from 100 µg/mL dilutions of the original SRM solution.

Notice to Users: The same acid mixture as listed on this SRM certificate should be used in making appropriate dilutions and working standards. For some instrumental techniques, small differences in acid type and concentration of the standard and sample may lead to erroneous results.

SRM 3141a was prepared by T.A. Butler of the NIST Inorganic Analytical Research Division. Atomic absorption and emission spectrometric analyses were made by T.A. Butler.

The technical and support aspects involved in the preparation, certification, and issuance of this Standard Reference Material were coordinated through the Standard Reference Materials Program by J.S. Kane.

Gaithersburg, MD 20899
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Standard Reference Materials Program