U. S. Department of Commerce
Malcolm Baldrige
Secretary

National Bureau of Standards
Ernest Ambler, Director

National Bureau of Standards

Certificate of Analysis

Standard Reference Material 3181

Anion Standard Solution Sulfate

This Standard Reference Material (SRM) is intended for use in anion ion chromatography, or any other analytical technique that requires aqueous standard solutions for calibration or as control samples. SRM 3181 is a single component solution prepared gravimetrically to contain 1000 μg sulfate per gram of solution. The certified value is based on gravimetric procedures, i.e., weight per weight composition of a high-purity salt dissolved in filtered (0.22 μm) 18 megohm water. The calculated concentration of sulfate, based on the weights of K_2SO_4 and the solution, and on the molecular weights of potassium sulfate and sulfate (174.2542 and 96.0576, respectively) is 999.7 μg/g. To confirm the gravimetric value, four bottles from the beginning, middle, and end of the filling operation were analyzed by ion chromatography. The ion chromatograph was calibrated using independently prepared standard solutions. The IC results were 1002.3 μg/g, with a relative standard deviation of 0.8%. The density of the solution was measured to be 0.998 g/mL.

Component	Concentration, (μg/g)	Source
Sulfate	1000 $\pm$5	K_2SO_4*

*The potassium sulfate was of a lot of material reserved for ion chromatographic use, which had been previously intercompared with coulometrically standardized sulfuric acid and found to be at least 99.7% pure.

Stability

This certificate is valid for six months from the shipping date provided the solutions are kept tightly capped and stored under normal conditions in an area known to be free of acid fumes and sulfur dioxide. NBS will monitor the stability of these solutions; if any changes occur that invalidate this certification, NBS will notify purchasers.

SRM 3181 was prepared by W. F. Koch and K. W. Pratt of the NBS Inorganic Analytical Research Division.

The technical and support aspects involved in the preparation, certification, and issuance of this Standard Reference Material were coordinated through the Office of Standard Reference Materials by R. W. Seward.

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Gaithersburg, MD 20899

Stanley D. Rasberry, Chief
Office of Standard Reference Materials