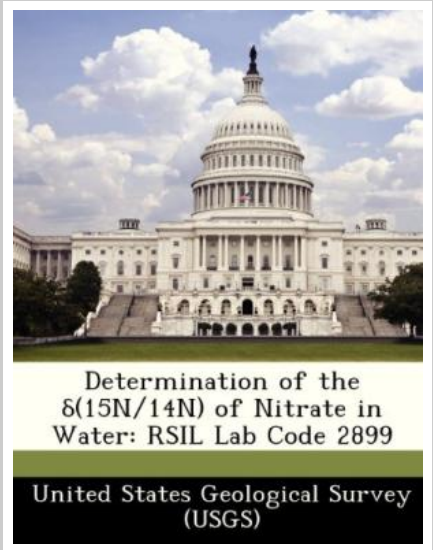

Determination of the (15n14n) of Nitrate in Water: Rsil Lab Code 2899

By -

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 38 pages. Dimensions: 9.7in. x 7.4in. x 0.1in.Summary of Procedure The purpose of Reston Stable Isotope Laboratory (RSIL) lab code 2899 is to determine the (15N14N), abbreviated as 15N, of nitrate (NO3-)in water. The 15N of dissolved NO3- is analyzed by conversion of NO3- to nitrous oxide (N2O), which serves as the analyte for mass spectrometry. A culture of denitrifying bacteria is used in the enzymatic conversion of NO3- to N2O, which follows the pathway shown in equation 1. Because the bacteria Pseudomonas aureofaciens lacks N2O reductive activity, the reaction stops at N2O, unlike the typical denitrification reaction, which goes to N2. After several hours, the conversion is complete, and the N2O is extracted from the vial, separated from water vapor by Nafion drier and from CO2 with a layered Mg(ClO4)2Ascarite trap, and trapped in a small-volume trap immersed in liquid nitrogen. After the N2O is released, it is further purified by gas chromatography (GC) before introduction to the isotope-ratio mass spectrometer (IRMS). The IRMS is a Finnigan DeltaPlus continuous flow IRMS (CF-IRMS). It has a universal triple collector, consisting of two wide cups with a narrow cup...

Reviews

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