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Nitrate Analysis in Difficult Matrices Using Enzymatic Reduction Method

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Low levels of nitrate in seawater and estuary water samples are difficult to detect reliably with the cadmium reduction method. NECi has recently shown that Superior Stock Nitrate Reductase (AtNaR2) is ideally suited for nitrate analysis in salty samples when applied in the Enzymatic Reduction Method. This new enzyme form, AtNaR2, has been engineered to perform well at 37°C (see Campbell et al., Environmental Chemistry Letters 4: 69-73, 2006). AtNaR2 has been adapted for use in Discrete Analyzers running at 37°C. Thus, nitrate analysis of all types of samples, including those containing high levels of salt, are now being performed in Discrete Analyzers with the NECi Enzymatic Nitrate Reduction Method. Another difficult matrix is aqueous soil extract used for determining levels of fertility in agricultural soils and the need for added nitrogen fertilizer for the upcoming growing season. A standard method for extracting soil uses 2 M KCl, which makes the sample highly salty. In the case of Ag soil nitrate analysis, NECi has applied the Enzymatic Reduction Method with AtNaR2 with great success and high reliability. In summary, the Enzymatic Reduction Method of nitrate analysis with NECi Superior Stock Nitrate Reductase (AtNaR2) is an ideal method for all types of sample matrices.

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