



## The Nitrate Elimination Co., Inc.

### TO PLACE AN ORDER:

Tel: 1-888-NITRATE (Toll Free)

1-906-296-1000

Email: [sales@nitrate.com](mailto:sales@nitrate.com)

Mail: 217 Calumet St., Lake Linden, MI 49945 USA

Secure OnLine: [www.nitrate.com](http://www.nitrate.com)

Fax: 1-906-296-8003

Website: [nitrate.com](http://nitrate.com)

## NECi 2009 PRODUCT LIST

### Superior Stock Nitrate Reductase (NaR)

Item Code Catalog #	Product Description	Price (US \$)	Qty
YNaR 800201	1.0 unit Affinity-purified enzyme. Supplied freeze-dried. One unit reduces 1 $\mu$ mol nitrate/minute @ 25°C	20.00	
AtNaR 800301	1.0 unit Affinity-purified enzyme. Supplied freeze-dried. One unit reduces 1 $\mu$ mol nitrate/minute @ 37°C NEW!	20.00	
	YNaR and AtNaR are available in different unit sizes. Call for prices. Discount schedule available for bulk and repeat orders. Call!	Inquire.	

### NEW! Nitrate Autoanalyzer Reagent Kits (ARK)

Replace your cadmium column with reliable and environmentally benign enzyme reagents.

Superior Stock Nitrate Reductase Reagents for Discrete Analyzers (DA-ARK)			
Qualified Discrete Analyzers include Konelab AquaKem and Konelab Arena and OI Analytical			
DA-ARK-1 OIP 800301-OI	Reagents (AtNaR & NADH) for 50 samples in OI Analytical instruments	30.00	
DA-ARK-1 800303-P	Reagents (AtNaR & NADH) for 330 samples in Konelab AquaKem and Konelab Arena instruments	75.00	

Superior Stock Nitrate Reductase Reagents for automated nitrate analysis (FIA, CFA)			
LA-ARK 800203-L	NEW Reagent Packs for Lachat QuikChem® – tests 50+ samples <i>Call for information about discounts on multiple packs.</i>	50.00	
FIA, CFA	<i>Call or e-mail for information about other instruments.</i>	Inquire	

### Reagents for Experienced Users

NaR Reagent Packs: 1.0 unit of enzyme plus calibrated quantities of reaction cofactors, all in freeze-dried form. Each Pack is sufficient for 20 – 50 assays depending on your assay design.			
NaR-PkY 800201-PKY	YNaR + NADH	25.00	
NaR-PKAt 800301-PkAt	AtNaR + NADH	25.00	
Corn Leaf NADH: NaR [EC 1.7.1.1]			
NaR-1 800100.5	Immunoaffinity-purified <i>Zea mays</i> NaR, freeze-dried One vial, 0.5 unit/vial	Inquire.	
Antibodies	Monoclonal and polyclonal Antibodies to higher plant NADH:NaR Abs for dicots and monocots are available	Inquire.	
L-NaRA-100 913100	NADH:NaR Enzyme Activity Assay Kit	150.00	



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## NECi 2009 Laboratory Nitrate Test Kits (L-NTK/M-NTK) for quantitative data

All kits come with nitrate standards

<b>Lab Kits (L-NTK) – Test Tube Format*</b>			
<b>Item Code Catalog #</b>	<b>Product Description</b>	<b>Price (US \$)</b>	<b>Qty</b>
L-NTK-201 911201	Standard Range, 25 tests	40.00	
L-NTK-202 911202	Low Range, 25 tests	40.00	
L-NTK-202S 911202S	Low Range, 25 tests for salt water (please specify "S" for saltwater)	45.00	
L-NTK-203 911203	Standard Range, 100 tests	110.00	
L-NTK-204 911204	Low Range, 100 tests	110.00	
L-NTK-204S 911204S	Low Range, 100 tests for salt water (please specify "S" for saltwater)	120.00	
<b>Micro Plate Format (M-NTK) One 96-well plate*</b>			
M-NTK-301 912301	Standard Range, 96 tests	125.00	
M-NTK-302 912302	Low Range, 96 tests	125.00	
M-NTK-302S 912302S	Low Range, 96 tests for salt water (please specify "S" for saltwater)	140.00	
*15% discount on L- and M- series NTK's for classroom use			
You will need pipets, photometer for reading Absorbance at 540 nm [± 10 nm], reagent grade water, 3 N HCL.			

**Notes on Nitrate Units: Nitrate units can be confusing. Use this table to interconvert units.**

Nitrate is reported in different units depending on your field of use and where you live.

	<b>US EPA</b>	<b>Europe, California</b>	<b>Molar</b>
Low range limit	1.0 ppm nitrate-N	4.4 ppm nitrate	71 µM nitrate
Standard range limit	10.0 ppm nitrate-N	44 ppm nitrate	710 µM nitrate

NECi uses the US EPA unit of ppm nitrate-N (nitrate-nitrogen). The EPA limit for potable water is 10.0 ppm nitrate-N.

**Custom kits and reagent packages are available for commercial clients and OEM partners.  
Call us to discuss discount pricing for bulk orders.  
Dealer and distributor inquiries are always welcome.**



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## NEW! NECi 2009 Nitrate Test Kits for Agriculture (Ag-NTK)

Item Code Catalog #	Product Description	Pack Size (suffix & price)				Price
		-100 \$29.95	-108 \$49.95	-120 99.95	-xx Ask!	
Order by Pack size, add suffix -100, -108, -120 to catalog no.	-100: Four samples + one nitrate standard -108: Eight pack (8 samples + 2 standards) -120: Twenty pack (20 samples + 5 standards) -xx: Custom pack size, Inquire					
AW-NTK 921001-__	Agriculture Water farm wells & tap water, water samples, runoff					
S-NTK 922001-__	Soil testing NMP, PSNT					
P-NTK 923001-__	Plant samples for nutrient levels, harvest decisions etc					
DF-NTK (dry) 924001-__	Dry Forage corn stalks, silage, standing hay Avoid nitrate toxicity!					
LF-NTK (sap) 925001-__	Livestock Feed corn stalks, silage, standing hay Avoid nitrate toxicity!					

## NECi 2009 Nitrate Test Kits for Environmental, Citizens Monitoring, and Consumer Users

### Environmental Field Test Kits

Item Code Catalog #	Product Description	Pack Size (see Ag-NTK)				Price Per kit
		-100 \$24.95	-108 \$44.95	-120 \$74.95	-xx Ask!	
Order by Pack Size	Test environmental samples: water, salt water, rivers, lakes, streams, wells					
CM-NTK 931001-__	Low Range: (0.05 – 2.0 ppm nitrate-N)					
E-NTK 932001-__	Standard Range: (0.5 – 10.0 ppm nitrate-N)					

### Consumer Test Kits

Item Code Catalog #	Product Description	Pack Size (see Ag-NTK)		Price Per kit
		-01 \$12.95	-05 \$49.95	
One test or five tests	Test your tap and well drinking water. One nitrate standard included.			
C-NTK 933001-__	Tap and Home Water Supplies Tap water, residential wells, water samples (0.5-10.0 ppm nitrate-N)			



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## Measuring Nitrate? Use NECi Enzymes!

**NECi'S enzyme-based nitrate analysis is accurate, reliable, economical, and environmentally benign. Safe for you and for the environment!**

### CHOOSING THE RIGHT NITRATE TEST KIT (NTK)

NECi NaR-based Nitrate Test Kits are safe, accurate, and easy to use. No special safety protection or waste-disposal precautions are required. Reliable information, no toxic waste.

<p><b>Agricultural NTK (Ag-NTK)</b> Designed for fast results in the field.</p>	<p>There's an Ag-NTK for any type of ag sample: Plants, soils, well, feed, runoff. Let us help you maximize yield <i>and</i> stay in compliance.</p> <ul style="list-style-type: none"> <li>• Use P-NTK series for plant tissue testing</li> <li>• Use S-NTK series for soils</li> <li>• Use AW-NTK for well and tap water, ponds, and ag runoff</li> <li>• Use LF-NTK or DF-NTK series to test feed for nitrate toxicity</li> </ul>
<p><b>Environmental Field NTK (E-NTK)</b> <i>New design</i> based on our Ag Kit line. Simplicity, accuracy and safety in field nitrate testing.</p>	<p>Designed for on-site and classroom use. Fresh or salt water, any aqueous extract. E-NTK reagents are an <b>ETV®-verified</b> technology!</p> <ul style="list-style-type: none"> <li>• Use E-NTK-series to test for compliance with EPA standards</li> <li>• Use CM-NTK-series to test environmental water samples</li> <li>• Skill level: advanced middle school and up</li> <li>• Accuracy: ~1 ppm for Std Range, ~0.1 ppm for Low Range kits. <i>Salt water, too! Just ask!</i></li> </ul>
<p><b>Lab NTK (L-NTK/M-NTK)</b> For the demanding user with lab equipment.</p> <ul style="list-style-type: none"> <li>• Test tube and 96-well microplate kit formats.</li> <li>• ARK Reagent Packs for autoanalyzers (DA, CFA, FIA). • Or design your own assay.</li> </ul>	<p>The best nitrate test kits available. These kits and reagent packs provide quantitative data, even in difficult samples. Fresh and salt water – anything aqueous.</p> <ul style="list-style-type: none"> <li>• <i>Standard Range NTK</i> are unaffected by highly colored samples, common water contaminants, or pH extremes.</li> <li>• <i>Low Range NTK</i> let you test nitrate levels down to 0.05 ppm in the lab or in the Field, <i>even in salt water!</i></li> <li>• Skill level: use of pipets and a colorimeter required.</li> <li>• Accuracy: to 2 decimal places (e.g. 0.55 ppm).</li> </ul>
<p style="text-align: center;"><b>Store All Kits refrigerated or in a cool, dry place (below 75° F)</b></p>	

**How Enzyme-based Nitrate Analysis Works:** Enzymes are biodegradable proteins, safe for the user and the environment. The enzyme used in our Nitrate Test Kits and Reagents is a purified form of Nitrate Reductase (NaR). The NaR reaction is diagrammed like this:



*NADH (nicotinamide adenine dinucleotide) is a derivative of a B vitamin.*

Other test kits use the toxic metals cadmium or zinc for this step. A few competitors use a different form of NaR that requires more expensive NADPH as its cofactor. NECi's NaR is more stable. The resulting nitrite reacts with Color Reagents (the Griess Reaction) to form a pink color easily detected by eye or by a photometer at 540nm ± 10nm.

In Ag and Environmental kits, you'll compare the color to that of the nitrate standards (supplied with each kit) to determine the nitrate content of your samples.

#### ABOUT NECi

NECi, The Nitrate Elimination Company, Inc., was founded in 1993. We develop and manufacture Green Chemistry Reagents and Kits for nitrate analysis and testing based on the enzyme Nitrate Reductase

**Biotechnology People can Use.**



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**Nitrate testing? Think Enzymes! Enzyme-based nitrate analysis is accurate, reliable, economical, and environmentally benign.**

#### Nitrate Test Kits for:

- ✓ Analytical Chemists
- ✓ Biomedical Research
- ✓ Compliance Monitoring
- ✓ Consumers
- ✓ Crop & Soil Consultants
- ✓ Environmental Chemists
- ✓ Environmental Monitoring
- ✓ Farmers
- ✓ Livestock Feed Safety
- ✓ Oceanographers
- ✓ Plant & Soil science
- ✓ Quality Control
- ✓ **New!** Reagent Packages for Automated Nitrate Analysis

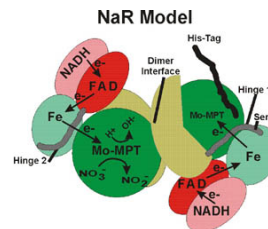
#### Measure nitrate in:

- ✓ Agricultural samples
- ✓ **Anything** aqueous
- ✓ Biological samples
- ✓ Drinking water
- ✓ Groundwater
- ✓ Seawater
- ✓ Streams, Lakes, Rivers
- ✓ Wastewater

NECi's nitrate detection reagents and test kits are based on the enzyme Nitrate Reductase (NaR). Our new and improved Superior Stock Nitrate Reductase enzyme makes our technology even better: better stability, longer shelf-life, improved performance in salty samples for all our Nitrate Test Reagent products. We offer Test Kits for any skill level: from novice user to demanding lab applications.

#### **NECi's latest offering:**

- **Superior Stock Nitrate Reductase (AtNaR)** a new form of NaR which is very active at 37°C.



- **Discrete Analyzer Reagent Kits (DA-ARK)** for running NECi NaR Nitrate Analysis Method in qualified discrete analyzer instruments.
- **Agricultural Nitrate Test Kits (Ag-NTK):** maximize yield, stay in compliance, and protect livestock health. Try our user-friendly Nitrate Test Kits for agricultural water, soil, and crop samples.

**NECi's science** is based on the academic research program of Dr. Wilbur H. Campbell, Emeritus Professor, Michigan Technological University. Dr. Campbell's academic programs were supported by the US Dept. of Agriculture and the National Science Foundation. NECi was founded in 1993 by Dr. and Mrs. Campbell.

#### **NECi's R&D efforts have been funded by the SBIR program**

- ☼ Nitrate test kits have been developed with funding from the **US Dept of Agriculture (USDA)**
- ☼ Automated nitrate analysis reagent systems (ARKs) are being developed with **USDA** support
- ☼ Recombinant Superior Stock Nitrate Reductase (NaR) was developed with funding from the General Medical Sciences institute of the **National Institutes of Health (NIH)**
- ☼ Nitrate Biosensor R&D projects have been funded by **NIH** and the **US Dept of Energy**
- ☼ Immobilized enzyme technology for biocatalytic removal of nitrate from water was funded by **US EPA**

#### **Collaboration Partners:**

James M Cregg, Keck Graduate Institute of Applied Life Sciences, CA  
Charles T MacKown, US Dept of Agriculture Grazinglands Research Station, OK  
Charles J Patton, US Geological Survey, Nat'l Water Quality Lab, Denver, CO



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## NECi ORDER FORM

- Remember to add "S" to the item number if you are measuring nitrate in salt water.
- 15% discount on L and M-series NTK's for classroom use!
- All products are available at discount prices for bulk orders. Just call to discuss.

Qty.	Catalog #	Product Description	Price	Total

### ORDER INFORMATION (Please print clearly)

<b>Bill to Name</b>			<b>Ship to Name</b>		
Company			Company		
Address			Address		
City State Zip			City State Zip		
Phone		Fax	Email		
<b>Shipping to US Addresses</b> <small>(For international orders please inquire)</small>					Calculate Cost (optional)
<input type="checkbox"/> USPS Priority: about \$8.00 <input type="checkbox"/> UPS 2-Day Air <input type="checkbox"/> UPS Next Day Air or dry ice service <b>For orders under \$100 only</b> <b>Varies</b> <b>Price varies, please inquire</b>					
<b>Payment</b> (Indicate tax exempt number, if applicable)					Sub Total
<input type="checkbox"/> Visa <input type="checkbox"/> MasterCard <input type="checkbox"/> PO# <input type="checkbox"/> Check					6% tax (MI only)
<b>PO or Card #</b>				Exp. Date ___/___	Shipping
Name on card					Grand Total

*Thank you for your order!*

We can provide Instructions for nitrate determinations in salt water, plant extracts, soil samples, etc.

Visit our website for protocols and to request copies of our technical publications.

All of our products are available for Dealer, Distributor, OEM arrangements.

For contract enzyme production services, contact Ellen R Campbell, Vice President, 1.906.296.1000 or [ellenr@nitrate.com](mailto:ellenr@nitrate.com).