

# Nitrate in Drinking Water

Orion 4-Star pH/ISE  
Benchtop Meter

## Environmental

Nitrate is a colorless, odorless and tasteless compound found in some natural water bodies. Accurate testing of the level is important to determine the proper course of treatment. Thermo Electron Corporation offers a nitrate test method to support the increasing regulations mandated by the U.S. EPA.



For instructions on nitrate measurement using Orion products, download our Star Series meter information at [www.thermo.com/water](http://www.thermo.com/water).



## Orion 4-Star pH/ ISE for Nitrate in Drinking Water

Nitrate can be expressed as either nitrate or nitrate-nitrogen. The correct management of fertilizers, manures and other nitrogen sources will minimize the contamination of drinking water supplies. Since nitrate naturally occurs as a form of nitrogen in soil, it is essential to all life. A vital part of the nitrogen cycle takes place in our environment when nitrate forms. Plants use nitrate from the soil to satisfy nutrient requirements and nitrate is always present in their leaves and stems. The high mobility of nitrate allows it to leach into water that people or animals drink, potentially causing serious illness. The level nitrate adopted

by the U.S. EPA as the standard in Primary Drinking Water Regulations is less than 10mg/L of nitrate-nitrogen. The Orion 4-Star pH/ ISE meter (Cat. No. 1115000) and the Orion ionplus® Nitrate electrode (Cat. No. 9707BNWP) offer fast, accurate results with superior technology. The Orion 4-Star pH/ ISE meter has a waterproof locking miniDIN probe connector, advanced self-tests on meter operation and 200 datalogging capability. The Orion conductivity meter and probes are ideally suited for soil, water and wastewater analysis and offer an easy and clear user interface.

# Orion 4-Star pH/ISE

Thermo Electron's advanced technology offers you superior quality with the Orion 4-Star pH/ISE meter (Cat. No. 1115000) and simpler, faster measurements with the Orion ionplus® nitrate electrode (Cat. No. 9707BNWP) than with any other analytical techniques.

## Orion 4-Star pH/ISE Specifications:

Specifications		Benefit
<b>pH</b>		
Readout Range / Resolution	-2.000 to 19.999 or 0 to 14 in aqueous solutions / 0.1,0.01,0.001	Calibration point flexibility
Relative Accuracy	± 0.002	For exceptional accuracy
SMART STABILITY™ and SMART AVERAGING™	Resolution dependent / automatic	Optimized accuracy, precision & response time
AUTO-CAL™ and/or Manual Calibration	1 to 5 points; US/NIST, DIN, and custom buffers recognized	Protocol compliance
<b>ISE</b>		
Range / Resolution	0 to 19900 / 1,2, or 3 significant digits	Wide operating range/Increased accuracy
Relative Accuracy	± 0.2 mV or 0.05%, whichever is greater	
SMART STABILITY™ and SMART AVERAGING™	Resolution dependent / automatic	Optimized accuracy, precision, & response time
Units	M, mg/L, %, ppb, or no units	Choice of reporting units
# ISE Cal points	1 to 5	
<b>Special ISE Calibration Features</b>	Linear point to point, selectable auto-blank non-linear, low concentration range	
<b>Temperature</b>		
Range / Resolution	-5 to 105 °C / 0.1 up to 99.9 °C, 1.0 over 99.9 °C	Allows for temperature variations
Relative Accuracy	± 0.1 °C	
Temperature Compensation	Auto/Manual	
<b>Display</b>	Custom backlit LCD, for easy viewing	Easy to read
<b>Special GLP Software Features</b>		
# Of Data Logging Points	200 points by time, stability or manual read with time/date stamp	Expanded data storage available
Calibration Log	Last 10 Calibrations	Establish audit trail
User Method Storage	10 Saved	For easy retrieval of routine tests
<b>Power</b>	Universal power adapter and battery power 4 x AA batteries	Data is secure
<b>Regulatory and Safety</b>	CE, CSA, UL, TÜV, FCC Class A limits	Meets all necessary regulations
<b>Environmental Operating Conditions</b>		
Ambient Operating Temperature	5 to 45 °C	
Relative Humidity	5 to 85% Non-Condensing	
IP Rating	IP54, splashproof and dustproof	
<b>Warranty</b>	36 months (from date of purchase)	Reduces service cost

## Equipment needed for pH/ISE measurement using the Orion 4-Star pH/ISE meter:

Above data generated under optimal/controlled circumstances.

Description	Orion Cat. No.
Nitrate Application Package (includes all items listed below)	1010108
Star Series Method Note: Nitrate in Drinking Water	M-1007-E
4-Star pH/ ISE benchtop meter	1115000
Orion ionplus® nitrate electrode	9707BNWP
Optimum Results F, Reference Fill Solution, 5x60 mL	900046
Nitrate ISA	930711
Nitrate Interference Suppressant	930710
Nitrate Standard, 100 ppm as N	930707
Benchtop Stirrer	096019
Benchtop Electrode Stand	1110001

**Thermo**  
ELECTRON CORPORATION

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