



Arrow Straight™

NO Measurement System (NO₃/NO₂)

Your Straight Line to Accurate Results™



- Nitric oxide (NO) plays a major role in a variety of mammalian biological processes including blood pressure homeostasis, immune regulation, and nervous system signal transmission. NO is very unstable and has a physiological half life of only 1 to 40 seconds. Even though there are electrochemical (amperometric) methods for detecting NO, its rapid degradation to other nitrogen oxide compounds makes it difficult to determine quantitatively with a high degree of accuracy. The amperometric method for assay of NO is expensive, time consuming, and operator dependent. NO oxidizes into two stable end products, namely nitrite (NO₂⁻) and nitrate (NO₃⁻) ions. The concentration of these two end products can be used to quantify NO production without the measurement problems caused by the transient nature of NO.

- There are various methods for quantitatively determining the concentration of both NO₂⁻ and NO₃⁻ ions. The most common methods involved the use of the Griess reagent which reacts with NO₂⁻ ion to produce a stable azo end product which is purple in color and can be quantified using colorimetric or spectrophotometric analytical techniques. There are three basic problems with this colorimetric technique. First of all, the Griess reagent only reacts with the NO₂⁻ compound thereby requiring an additional difficult step to completely reduce NO₃⁻ ion to NO₂⁻. Secondly, like with all colorimetric methods, the Griess technique can be affected by original sample color or turbidity. Thirdly, this method is very time consuming and tedious because it involved several intermediate chemical reactions.

- Recently a potentially more accurate, less time consuming, and less tedious method has been developed for assaying both NO₂⁻ and NO₃⁻ which relies on the use of ion selective electrodes for both NO₂⁻ and NO₃⁻ ions. These electrodes

have been miniaturized to be able to measure samples down to 30 to 40 microliters with detection limits down to the low microMolar range for both species. Since both NO₂⁻ and NO₃⁻ ions can be measured individually no reaction to reduce NO₃⁻ to NO₂⁻ is required. This micro electrode system comes complete with a sophisticated ion analyzer which attaches via RS232 port to a PC or laptop to give accurate concentration measurements for both ions.

EXCLUSIVE FEATURES

- Measure both NO₂⁻ and NO₃⁻ in microliter samples
- Eliminate need for Griess reagents
- Eliminate NO₃ reduction step
- Eliminate interferences from NADPH & antioxidants
- Minimize sample preparation steps
- Low detection limits for both NO₂⁻ and NO₃⁻
- Stop worrying about % recovery
- Avoid the tedious and time consuming chemical steps of the Griess reagent and NO₃ conversion
- Significant cost savings over amperometric electrochemical methods
- Quickly pays for itself versus the per sample cost of NO assay kits

SPECIFICATIONS

Nitrite micro ion electrode

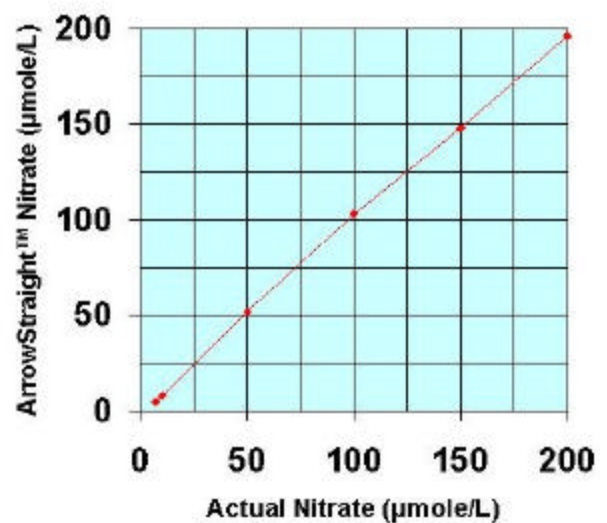
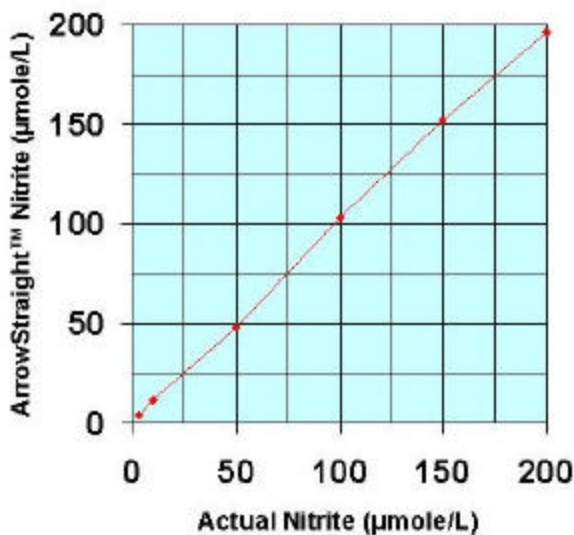
Lower detection limit: 1 microMolar
Temperature range: 0 to 50 °C
pH range: 4 to 8
Response time: 25 seconds

Nitrate micro ion electrode

Lower detection limit: 2 microMolar
Temperature range: 0 to 50 °C
pH range: 2 to 11
Response time: 25 seconds

ORDERING INFORMATION

Model ISM-146NOXM NO₃⁻ and NO₂⁻ measurement system. Includes NO₂⁻ and NO₃⁻ micro ion electrodes, micro reference electrode, electronic ionanalyzer system, software program, RS232 connector cable to PC or laptop



LAZAR  *Research Laboratories, Inc.* The micro-measurement experts™

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