



The Nitrate Elimination Co., Inc.

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**Higher plant (*Arabidopsis thaliana*) NADH: NITRATE REDUCTASE,
RECOMBINANT (EC 1.7.1.1)
EXPRESSED IN *Pichia pastoris*
PURIFIED BY AFFINITY CHROMATOGRAPHY
AtNaR2 (NECi Superior Stock NaR, S2NAR)
NECi Product: 80320 series**

Product Specifications: Immobilized Metal Affinity Chromatography (IMAC) purified yeast NADH: nitrate reductase, 6 - 13 U/mg total protein. Modified method of Barbier, GG, RC Joshi, ER Campbell & WH Campbell (2004) *Protein Expression and Purification* 37: 61-71.

Specific Activity: 20 - 40 units/mg enzyme protein

Form: Freeze-dried protein glass containing 50 mM MOPS, pH 7.0, 1 mM EDTA, sugar (MOPS = 3-[N-Morpholino]propanesulfonic acid).

Activity Supplied: Vials containing 0.5 – 5.0 U/vial, as specified by purchaser

General Information:

- **CAS #:** 9029-27-0
- **E.C #:** 1.7.1.1
- **Catalyzes NADH dependent reduction of nitrate to nitrite.**
- **Unit definition:** One unit will reduce 1.0 μ mole of nitrate to nitrite per minute in an NADH system, at pH 7.5 and 30°C.
- **Physical form:** freeze-dried protein glass
- **Storage conditions:** RT (25°C) or below
- **Shelf life in freeze-dried form:** Stable indefinitely at -20°C; Min 24 months at 4°C; Min 12 months at RT (20 – 25°C); and ~1 week at 30-40°C.
- **Shelf life in solution:** Working solution in buffer at 1 U/ml: two weeks at 4°C. Working solution containing 25% Glycerol: minimum one year at -20°C.
- **Stability problems:** Thermal denaturation; pH extremes. Use standard precautions for proteins.
- **Expected purity range:** 20 - 40 units/mg protein
- **Impurities & relative %'s:** high mw polymers of nitrate reductase, <5%; fragments of NaR.
- **Additives & relative %'s:** 50 mM MOPS/1 mM EDTA, sugar > 99% of dry weight.
- **Range of protein expected:** 75 - 150 μ g protein/U enzyme
- **Method of protein determination:** Bio-Rad protein assay
- **Range of activity expected:** Controlled at desired units per vial
- **Range of activity, U/gram solid:** 30 – 50 units per gram solid (including buffer and sugars)

This product is produced by fermentation in *Pichia pastoris* and is available in large, uniform production lots. Functionality similar to NECi NaR-1 (native Zea mays nitrate reductase) in nitrate analysis applications. **Note:** AtNaR2 is highly active at 37°C.