

**Order  
Number**
**Customer  
Number**

## 1. Identification of the substance/preparation and of the company/undertaking

**Product name** : Nitric Oxide Synthase, Constitutive, Rat Neuronal, Recombinant  
**Catalog #** : 482721  
**Supplier** : Manufactured by EMD Biosciences, Inc.  
 10394 Pacific Center Court  
 San Diego, CA 92121  
 (858)450-5558/(800)854-3417  
 FAX: (858)453-3552  
**Chemical formula** : N/A  
**Synonym** : cNOS, Rat Neuronal

**Emergency telephone number** : **Call Chemtrec®**  
**(800)424-9300 (within U.S.A.)**  
**(703)527-3887 (outside U.S.A.)**

## 2. Composition / information on ingredients

**Substance/Preparation** : Substance

Chemical name*	CAS No.	EC Number	Symbol	R-Phrases
1) Nitric Oxide Synthase, Constitutive, Rat Neuronal, Recombinant	N/A	Not available.	Xn	R20/21/22, R36/37/38

## 3. Hazards identification

**Physical/chemical hazards** : Not applicable.  
**Human health hazards** : CAUTION!  
 MAY BE HARMFUL IF INHALED, ABSORBED THROUGH SKIN OR SWALLOWED.  
 MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION.

## 4. First-aid measures

### First-Aid measures

**Inhalation** : If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.  
**Ingestion** : Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.  
**Skin Contact** : In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.  
**Eye Contact** : Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

### Effects and symptoms

**Inhalation** : Hazardous in case of inhalation (lung irritant).  
**Ingestion** : Hazardous in case of ingestion.  
**Skin Contact** : Hazardous in case of skin contact (irritant, permeator). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.  
**Eye Contact** : Hazardous in case of eye contact (irritant).

**Aggravating conditions** : Repeated or prolonged exposure is not known to aggravate medical condition.

## 5. Fire-fighting measures

- Flammability of the Product** : May be combustible at high temperature.
- Extinguishing Media**
- Suitable** : SMALL FIRE: Use DRY chemical powder.  
LARGE FIRE: Use water spray, fog or foam. Do not use water jet.
- Hazardous thermal (de)composition products** : These products are nitrogen oxides (NO, NO<sub>2</sub>...).
- Special fire-fighting procedures** : Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.
- Protection of fire-fighters** : Be sure to use an approved/certified respirator or equivalent.

## 6. Accidental release measures

- Personal precautions** : Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
- Small Spill and Leak** : Absorb with an inert material and put the spilled material in an appropriate waste disposal
- Large Spill and Leak** : Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

## 7. Handling and storage

- Handling** : Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.
- Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above -70°C (-94°F).
- Packaging materials**
- Recommended use** : Use original container.

## 8. Exposure controls/personal protection

- Engineering measures** : Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.
- Hygiene measures** : Wash hands, forearms, and face thoroughly after handling compounds and before eating, smoking, using lavatory, and at the end of day.

<u>Ingredient Name</u>	<u>Occupational Exposure Limits</u>
1) Nitric Oxide Synthase, Constitutive, Rat Neuronal, Recombinant	Not available.

### Personal protective equipment

- Respiratory system** : Vapor respirator. Be sure to use an approved/certified respirator or equivalent.
- Skin and body** : Lab coat.
- Hands** : Gloves.
- Eyes** : Splash goggles.

**Protective Clothing (Pictograms)**



## 9. Physical and chemical properties

- Physical state** : Liquid. (Supplied in 50 mM HEPES, 100 uM DTT and 10% glycerol, pH 7.4.)
- Color** : Not available.
- Molecular Weight** : 150000 g/mole
- Solubility** : Not available.
- Flash point** : Not available.
- Explosive properties** : Risks of explosion of the product in presence of mechanical impact: Not available.  
Risks of explosion of the product in presence of static discharge: Not available.

## 10. Stability and reactivity

- Stability** : The product is stable.
- Conditions to avoid** : Not available.
- Hazardous Decomposition Products** : These products are nitrogen oxides (NO, NO2...).

## 11. Toxicological information

**RTECS #** : N/A

### Local effects

**Skin irritation** : Hazardous in case of skin contact (irritant).

**Acute toxicity** : LD50: Not available.  
LC50: Not available.

**Chronic toxicity** : Repeated or prolonged exposure is not known to aggravate medical condition.

**Other Toxic Effects on Humans** : Not available.  
Hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation (lung irritant).

Not available.

Material is irritating to mucous membranes and upper respiratory tract. To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated.

**Carcinogenic effects** : Not available.

**Mutagenic effects** : Not available.

**Reproduction toxicity** : Not available.

**Teratogenic effects** : Not available.

## 12. Ecological information

**Ecotoxicity** : Not available.

**Toxicity of the Products of Biodegradation** : The products of degradation are less toxic than the product itself.

## 13. Disposal considerations

**Methods of disposal; Waste of residues; Contaminated packaging** : Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## 14. Transport information

### International transport regulations

#### Land - Road/Railway

**ADR/RID Class** : Not controlled under ADR (Europe).

#### Sea

**IMDG Class** : Not controlled under IMDG.

#### Air

**IATA-DGR Class** : Not controlled under IATA.

**Special Provisions for Transport** : Not applicable.

## 15. Regulatory information

### EU Regulations

**Hazard symbol(s)** :



**Classification** : Harmful

**Risk Phrases** : R20/21/22- Harmful by inhalation, in contact with skin and if swallowed.  
R36/37/38- Irritating to eyes, respiratory system and skin.

**Safety Phrases** : S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
S36- Wear suitable protective clothing.

**Contains** : - Nitric Oxide Synthase, Constitutive, Rat Neuronal, Recombinant

**U.S. Federal Regulations**

- : TSCA: No products were found.
- SARA 302/304/311/312 extremely hazardous substances: No products were found.
- SARA 302/304 emergency planning and notification: No products were found.
- SARA 302/304/311/312 hazardous chemicals: No products were found.
- SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.
- SARA 313 toxic chemical notification and release reporting: No products were found.
- Clean Water Act (CWA) 307: No products were found.
- Clean Water Act (CWA) 311: No products were found.
- Clean air act (CAA) 112 accidental release prevention: No products were found.
- Clean air act (CAA) 112 regulated flammable substances: No products were found.
- Clean air act (CAA) 112 regulated toxic substances: No products were found.

**HCS Classification**

: CLASS: Irritating substance.

**State Regulations**

:

**WHMIS (Canada)**

: Not controlled under WHMIS (Canada).  
No products were found.

**16. Other information**

**Hazardous Material Information System (U.S.A.)**

Health	2
Fire Hazard	1
Reactivity	0
Personal Protection	h

**National Fire Protection Association (U.S.A.)**



**Notice to Reader**

*To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.*

*Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.*

**Date of issue**

Catalog # 482721

3/25/2003.

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