

**Order Number**

**Customer Number**

## 1. Product and Company Identification

<b>Supplier</b>	Manufactured by EMD Biosciences, Inc. 10394 Pacific Center Court San Diego, CA 92121 (858)450-5558/(800)854-3417 FAX: (858)453-3552	<b>Catalog #</b>	482675
		<b>In Case of Emergency</b>	<b>Call Chemtrec® (800)424-9300 (within U.S.A.) (703)527-3887 (outside U.S.A.)</b>

**Product name** Nitric Oxide Donor Set

## 2. Composition and Information on Ingredients

Ingredient Name	CAS No.	Product No.	EU Symbol	R-Phrases
1) Sodium Nitroprusside	13755-38-9	RC020	T	R25
2) SIN-1, Hydrochloride	16142-27-1	RC037	Xn	R22
3) NOR-3	163180-49-2	RC038	Xi	R36/37/38
4) (+/-)-S-Nitroso-N-acetylpenicillamine	79032-48-7	RC144	Xi	R36/37/38

**Note: See section 8 for occupational exposure limits and section 11 for LC50/LD50 information.**

## 3. Hazards Identification

<b>Primary Hazards and Critical Effects</b>	: RC020	WARNING! HARMFUL IF SWALLOWED. MAY CAUSE DAMAGE TO THE FOLLOWING ORGANS: GASTROINTESTINAL TRACT. Do not ingest. Wash thoroughly after handling.
	RC037	CAUTION! MAY BE HARMFUL IF SWALLOWED. Do not ingest. Wash thoroughly after handling.
	RC038	CAUTION! MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.
	RC144	CAUTION! MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.
<b>Physical/Chemical hazards</b>	:	Not applicable
<b>Human Health Hazards</b>	: RC020 RC037 RC038, RC144	Toxic if swallowed. Harmful if ingested. Irritating to eyes, respiratory system and skin.
<b>Environmental Hazards</b>	:	Not applicable

## 4. First Aid Measures

<b>Inhalation</b>	: RC020, RC037, RC038, RC144	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
<b>Ingestion</b>	: RC020	If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
	RC037, RC038, RC144	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.

<b>Skin Contact</b>	: RC020, RC037, RC038, RC144	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
<b>Eye Contact</b>	: RC020, RC037, RC038, RC144	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
<b>Notes to Medical Doctor</b>	:	Not available.

## 5. Fire-Fighting Measures

<b>Extinguishing Media</b>	:	Use foam or all purpose dry chemicals to extinguish.
<b>Fire-Fighting Procedures</b>	:	Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.
<b>Fire/Explosion Hazards</b>	:	Not applicable.
<b>Hazardous Decomposition Products</b>	:	These products are carbon oxides (CO, CO <sub>2</sub> ), nitrogen oxides (NO, NO <sub>2</sub> ...), sulfur oxides (SO <sub>2</sub> , SO <sub>3</sub> ...), halogenated compounds. Some metallic oxides.

## 6. Accidental Release Measures

<b>Personal Precautions</b>	:	Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment (Section 8). Follow all fire fighting procedures (Section 5).
<b>Environmental Precautions and Clean-up Methods</b>	:	If emergency personnel are unavailable, contain spilled material. For small spills add absorbent (soil may be used in the absence of other suitable materials) scoop up material and place in a sealed, liquid-proof container for disposal. For large spills dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal. Minimize contact of spilled material with soils to prevent runoff to surface waterways.

**Note:** See section 1 for emergency contact information and section 13 for waste disposal.

## 7. Handling and Storage

<b>Handling</b>	:	RC020, RC037, RC038, RC144 Do not ingest. Wash thoroughly after handling. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.
<b>Storage</b>	:	Keep container tightly closed. Keep container in a cool, well-ventilated area.
<b>Packaging Materials</b>	:	Use original container.

## 8. Exposure Controls and Personal Protection

### Occupational Exposure Limits

#### Ingredient Name

RC020, RC037, RC038, RC144

#### Occupational Exposure Limits

Not available.

<b>Engineering Controls</b>	:	RC020 Open handling must be limited. Use local exhaust ventilation or handle in a ventilated enclosure.
	:	RC037, RC038, RC144 No special containment is required. Local exhaust ventilation should be provided.

### Personal Protective Equipment

<b>Respiratory System</b>	:	RC020, RC037, RC038, RC144 Use an approved, properly fitted, HEPA filter cartridge respirator, or a respirator of greater protection if there is the potential to exceed the exposure limit(s)
<b>Skin and Body</b>	:	RC020 Disposable outer garments when there is the potential for contact with the material. Work uniform or laboratory coat.
	:	RC037, RC038, RC144
<b>Hands</b>	:	RC020, RC037 Use chemical resistant, impervious gloves. Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits). Appropriate techniques should be used to remove potentially contaminated clothing.
	:	RC038, RC144 Use latex gloves. Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits).
<b>Eyes</b>	:	RC020, RC037, RC038, RC144 Safety glasses. Goggles, face shield, or other full-face protection if potential exists for direct exposure to dust.

## 9. Physical and Chemical Properties

### Kit Components

20 mg	(+/-)-S-Nitroso-N-acetylpenicillamine (RC144)
10 mg	NOR-3 (RC038)
10 mg	4-Phenyl-3-furoxanarbonitrile
20 mg	SIN-1, Hydrochloride (RC037)
100 mg	Sodium Nitroprusside (RC020)

#### Flash Point

Not applicable.

## 10. Stability and Reactivity

<b>Stability</b>	: RC020, RC037, RC038, RC144	The product is stable.
<b>Conditions and Materials to Avoid</b>	: RC020 RC038, RC144	Reactive with oxidizing agents, acids. The product is photosensitive. The product is photosensitive.
<b>Hazardous Decomposition Products</b>	: RC037	These products are halogenated compounds.

## 11. Toxicological Information

#### Toxicity Data

<u>Ingredient Name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
RC020	LDLo	20 mg/kg	Oral	Rat
	LDLo	40 mg/kg	Oral	Rabbit
RC037	LD50	480 mg/kg	Oral	Mouse
RC038	Not available.	Not available.	Not available.	Not available.
RC144	Not available.	Not available.	Not available.	Not available.

**Routes of Entry** : Absorbed through skin. Eye contact. Inhalation. Ingestion

#### Acute Effects

<b>Inhalation</b>	: RC038, RC144	Moderately irritating to the respiratory system.
<b>Ingestion</b>	: RC020 RC037	Toxic if swallowed. Harmful if swallowed.
<b>Skin Contact</b>	: RC038, RC144	Moderately irritating to the skin.
<b>Eye Contact</b>	: RC038, RC144	Moderately irritating to the eyes.

#### Chronic Effects

<b>Adverse Effects</b>	: RC020	Adverse symptoms may include: nausea/vomiting convulsive seizures.
<b>Target Organs</b>	: RC020	May cause damage to the following organs: gastrointestinal tract.
<b>Carcinogenic Effects</b>	:	Not available.
<b>Mutagenic Effects</b>	:	Not available.
<b>Developmental and Teratogenic Effects</b>	:	Not available.
<b>Reproductive Effects</b>	:	Not available.

#### Other Information

	: RC020	Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.
	: RC037, RC038, RC144	Repeated or prolonged exposure is not known to aggravate medical condition.

## 12. Ecological Information

### Ecotoxicity Data

<u>Ingredient Name</u>	<u>Species</u>	<u>Period</u>	<u>Result</u>
RC020, RC037, RC038, RC144	Not available.	Not available.	Not available.

## 13. Disposal Consideration

**Waste Handling and Disposal** : Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## 14. Transport Information

### Air

<b>Proper shipping name</b>	:	Toxic solid, organic, n.o.s.*
<b>UN/ID Number</b>	:	UN2811
<b>IATA-DGR Class</b>	:	IATA CLASS 6.1: Toxic material.
<b>IATA label</b>	:	



**Packing Group** : II

## 15. Regulatory Information

### EU Regulations

<b>Hazard Symbol(s)</b>	:	T
<b>Risk Phrases</b>	:	R25- Toxic if swallowed. R36/37/38- Irritating to eyes, respiratory system and skin.
<b>Safety Phrases</b>	:	S22- Do not breathe dust. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S36/37- Wear suitable protective clothing and gloves. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

### US Regulations

<b>Haz-Com Standard</b>	:	CLASS: Toxic. CLASS: Target organ effects.
<b>EPA</b>	:	SARA 313 toxic chemical notification and release reporting: (+/-)-S-Nitroso-N-acetylpenicillamine 25%
<b>State</b>	:	Not available.

### Canadian Regulations

<b>WHMIS</b>	:	CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC).
<b>CEPA</b>	:	No products were found.
<b>Provincial</b>	:	No products were found.

## 16. Other Information

Validated by map on 3/11/2003.

<b>Version</b>	:	1.0
<b>Date of Printing</b>	:	3/11/2003.

### Notice to Reader

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