

MATERIAL SAFETY DATA SHEET

Date Printed: 08/09/2007

Date Updated: 07/25/2006

Version 1.7

Section 1 - Product and Company Information

Product Name (-)-NOREPINEPHRINE
Product Number A7257
Brand SIGMA

Company Sigma-Aldrich Canada, Ltd
Address 2149 Winston Park Drive
Oakville ON L6H 6J8 CA

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Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313 No
BENZYL ALCOHOL, ALPHA-(AMINOMETHYL)-3,4-DIHYDROXY-, (-)-	51-41-2	No

Formula C8H11NO3
Synonyms Adrenor * Aktamin *
1-2-Amino-1-(3,4-dihydroxyphenyl)ethanol *
(R)-4-(2-Amino-1-hydroxyethyl)-1,2-benzenediol *
1-alpha-(Aminomethyl)-3,4-dihydroxybenzyl alcohol *
* (-)-alpha-(Aminomethyl)protocatechuy alcohol *
Arterenol * l-Arterenol * 1,2-Benzenediol,
4-(2-amino-1-hydroxyethyl)-, (R)- (9CI) *
1-1-(3,4-Dihydroxyphenyl)-2-aminoethanol *
1-3,4-Dihydroxyphenylethanolamine * Levarterenol
* Levoarterenol * Levonoradrenaline *
Levonorepinephrine * Levophed * (-)-Noradrec *
Noradrenalin * Noradrenalina (Italian) *
(-)-Noradrenaline * D-(-)-Noradrenaline *
l-Noradrenaline * Noradrenline * Norartrinal *
(-)-Norepinephrine * L-Norepinephrine *
Norepirenamine * Sympathin E * (-)-arterenol free
base * (-)-norepinephrine

RTECS Number: DN5950000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Highly Toxic (USA) Very Toxic (EU).

Very toxic by inhalation, in contact with skin and if swallowed.

Target organ(s): Heart. Smooth muscle.

HMIS RATING

HEALTH: 3*

FLAMMABILITY: 0

REACTIVITY: 1

NFPA RATING

HEALTH: 3
FLAMMABILITY: 0
REACTIVITY: 1

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLASH POINT

N/A

AUTOIGNITION TEMP

N/A

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING

User Exposure: Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Suitable: Keep tightly closed.
Store at -20°C

SPECIAL REQUIREMENTS

Light sensitive.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

Safety shower and eye bath. Use only in a chemical fume hood.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

Hand: Compatible chemical-resistant gloves.

Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

Appearance	Physical State: Solid	
Property	Value	At Temperature or Pressure
Molecular Weight	169.2 AMU	
pH	N/A	
BP/BP Range	N/A	
MP/MP Range	220 °C	
Freezing Point	N/A	
Vapor Pressure	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
SG/Density	N/A	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	N/A	
Explosion Limits	N/A	
Flammability	N/A	

Autoignition Temp	N/A
Refractive Index	N/A
Optical Rotation	Degree of Rotation: 50 g/l Solvent: 1 M HCl -55 - -46 (+/-2)
Miscellaneous Data	N/A
Solubility	N/A

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.

Conditions of Instability: Light.

Materials to Avoid: Acids, Bases, Oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, and nitrogen oxides.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.

Skin Absorption: May be fatal if absorbed through skin.

Eye Contact: May cause eye irritation.

Inhalation: May be fatal if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.

Ingestion: May be fatal if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)

Smooth muscle. Heart.

SIGNS AND SYMPTOMS OF EXPOSURE

Exposure can cause hypertension, headache, anxiety, palpitations, and respiratory difficulty.

TOXICITY DATA

Intravenous

Rat

100 UG/KG

LD50

Remarks: Behavioral:Muscle weakness. Behavioral:Somnolence (general depressed activity). Lungs, Thorax, or Respiration:Dyspnea.

Oral

Mouse

20 mg/kg

LD50

Intraperitoneal

Mouse

6 MG/KG

LD50

Subcutaneous

Mouse

5 MG/KG
LD50

Intravenous
Mouse
550 UG/KG
LD50

CHRONIC EXPOSURE - TERATOGEN

Species: Hamster
Dose: 2 MG/KG
Route of Application: Subcutaneous
Exposure Time: (7-10D PREG)
Result: Specific Developmental Abnormalities: Hepatobiliary system.

CHRONIC EXPOSURE - MUTAGEN

Species: Human
Dose: 5800 NMOL/L
Cell Type: Other cell types
Mutation test: DNA inhibition

Species: Rat
Dose: 25 UMOL/L
Cell Type: lung
Mutation test: DNA damage

Species: Mouse
Dose: 5800 NMOL/L
Cell Type: Other cell types
Mutation test: DNA inhibition

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Result: Exposure during pregnancy can provoke uterine contractions which can result in fetal asphyxia.

Species: Rat
Dose: 8 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (7-14D PREG)
Result: Effects on Newborn: Behavioral.

Species: Rat
Dose: 60 UG/KG
Route of Application: Intravenous
Exposure Time: (8D PREG)
Result: Maternal Effects: Uterus, cervix, vagina.

Species: Mouse
Dose: 16 MG/KG
Route of Application: Subcutaneous
Exposure Time: (7-10D PREG)
Result: Effects on Fertility: Other measures of fertility

Species: Guinea pig
Dose: 10 UG/KG
Route of Application: Intravenous
Exposure Time: (63D PREG)
Result: Effects on Embryo or Fetus: Extra embryonic structures (e.g., placenta, umbilical cord). Maternal Effects: Other

effects. Vascular: Measurement of regional blood flow.

Species: Hamster

Dose: 2 MG/KG

Route of Application: Subcutaneous

Exposure Time: (7-10D PREG)

Result: Specific Developmental Abnormalities: Musculoskeletal system. Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: Toxic solids, organic, n.o.s.

UN#: 2811

Class: 6.1

Packing Group: Packing Group II

Hazard Label: Toxic substances.

PIH: Not PIH

IATA

Proper Shipping Name: Toxic solid, organic, n.o.s.

IATA UN Number: 2811

Hazard Class: 6.1

Packing Group: II

Section 15 - Regulatory Information

EU ADDITIONAL CLASSIFICATION

Symbol of Danger: T+

Indication of Danger: Very toxic.

R: 26/27/28

Risk Statements: Very toxic by inhalation, in contact with skin and if swallowed.

S: 28-36/37-45

Safety Statements: After contact with skin, wash immediately with plenty of soap-suds. Wear suitable protective clothing and gloves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Highly Toxic (USA) Very Toxic (EU).

Risk Statements: Very toxic by inhalation, in contact with skin and if swallowed.

Safety Statements: After contact with skin, wash immediately with plenty of soap-suds. Wear suitable protective clothing and gloves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US Statements: Target organ(s): Heart. Smooth muscle.

UNITED STATES REGULATORY INFORMATION
SARA LISTED: No

CANADA REGULATORY INFORMATION
DSL: Yes

Section 16 - Other Information

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.