

Material Safety Data Sheet

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Version 1.2

According to 91/155/EEC

Classified as Hazardous according to the criteria of EU Annex 1 and NOHSC.

1 - Product and Company Information

Product Name	(-)-EPINEPHRINE
Product Number	E4250
Company	Sigma-Aldrich Pty. Ltd. 12 Anella Avenue Castle Hill NSW 2154 Australia
Technical Phone #	+61 2 9841 0555 (1800 800 097)
Fax	+61 2 9841 0500 (1800 800 096)
Emergency Phone #	+44 8701906777 (1800 448 465)

2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
(-)-EPINEPHRINE	51-43-4	200-098-7	None

Formula	C9H13NO3
Molecular Weight	183.21 AMU
Synonyms	Adnephrine * Adrenal * Adrenalin * l-Adrenalin * (-)-Adrenaline * l-Adrenaline * Adrenamine * Adrenan * Adrenapax * Adrenasol * Adrenine * Adrenodis * Adrenohorma * Adrenosan * Adrenutol * Adrin * Balmadren * 1,2-Benzenediol, 4-(1-hydroxy-2-(methylamino)ethyl)-, (R)- (9CI) * Bernarenin * Biorenine * Bosmin * Brevirenin * Bronkaid mist * Chelafrin * Corisol * 3,4-Dihydroxy-alpha-((methylamino)methyl)benzyl alcohol * l-1-(3,4-Dihydroxyphenyl)-2-methylaminoethanol * Drenamist * Dylephrin * Dyspne-inhal * Epifrin * Epinefrin (Czech) * Epinefrina * Epinephran * (-)-Epinephrine * l-Epinephrine * (R)-Epinephrine * l-Epinephrine (synthetic) * l-Epirenamine * Epirenan * Epitrate * Exadrin * Glaucosan * Glycirenane * Haemostasin * Haemostatin * Hektalin * Hemisine * Hemostasin * Hemostatin * Hypernephrin * Hyporenin * Intranefrin * Kidoline * Levorenin * Levorenine * Lyophrin * Metanephrin * Methylarterenol * Mucidrina * Myosthenine * Mytrate * Nephridine * Nieraline * Paranephrin * RCRA waste number P042

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT

Toxic by inhalation, in contact with skin and if swallowed.

4 - First Aid Measures

AFTER INHALATION

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

AFTER EYE CONTACT

Assure adequate flushing of the eyes by separating the eyelids with fingers.

AFTER INGESTION

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

5 - Fire Fighting Measures

EXTINGUISHING MEDIA

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

SPECIAL RISKS

Specific Hazard(s): Emits toxic fumes under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES 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.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Avoid inhalation. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Conditions of Storage: Keep tightly closed. Store in a cool dry place.
Store at 2-8°C

SPECIAL REQUIREMENTS: Light sensitive.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

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

GENERAL HYGIENE MEASURES

Wash thoroughly after handling. Wash contaminated clothing before

reuse.

PERSONAL PROTECTIVE EQUIPMENT

Special Protective Measures: Wear appropriate government approved respirator, chemical-resistant gloves, safety goggles, other protective clothing.

9 - Physical and Chemical Properties

Appearance	Color: Faintly beige Form: Fine crystals	
Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	N/A	
MP/MP Range	215 °C	
Flash Point	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	N/A	
Vapor Pressure	N/A	
SG/Density	N/A	
Partition Coefficient	N/A	
Viscosity	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	N/A	
Surface Tension	N/A	
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

10 - Stability and Reactivity

STABILITY

Conditions of Instability: May decompose on exposure to light.
Materials to Avoid: Oxidizing agents, Acid anhydrides, Acid chlorides, Acids.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Nitrogen oxides Carbon monoxide, Carbon dioxide.

11 - Toxicological Information

RTECS NUMBER: DO2625000

ACUTE TOXICITY

LDLO
Subcutaneous
Man

7 UG/KG

Remarks: Brain and Coverings:Other degenerative changes.
Cardiac:Other changes.

LD50
Skin
Rat
62 mg/kg
Remarks: Behavioral:Excitement. Behavioral:Convulsions or effect on seizure threshold. Behavioral:Somnolence (general depressed activity).

LD50
Subcutaneous
Rat
5 MG/KG
Remarks: Lungs, Thorax, or Respiration:Respiratory stimulation.

LD50
Intravenous
Rat
150 UG/KG

LD50
Intramuscular
Rat
3500 MG/KG

LD50
Intraperitoneal
Mouse
4 MG/KG

LD50
Subcutaneous
Mouse
1470 UG/KG

LD50
Intravenous
Mouse
217 UG/KG
Remarks: Skin and Appendages: Other: Hair. Behavioral:Change in motor activity (specific assay). Cardiac:Pulse rate increased without fall in BP.

LD50
Subcutaneous
Dog
5 MG/KG

LD50
Intravenous
Dog
100 UG/KG

LD50
Subcutaneous
Rabbit
4 MG/KG
Remarks: Lungs, Thorax, or Respiration:Respiratory stimulation.

LD50
Intravenous
Rabbit

50 UG/KG

Remarks: Lungs, Thorax, or Respiration:Respiratory stimulation.

SIGNS AND SYMPTOMS OF EXPOSURE

Laboratory experiments in animals have shown fetotoxic results.

ROUTE OF EXPOSURE

Inhalation: Material is irritating to mucous membranes and upper respiratory tract.

Multiple Routes: May be fatal if inhaled, swallowed, or absorbed through skin. Causes eye and skin irritation.

TARGET ORGAN INFORMATION

Smooth muscle. Heart.

CHRONIC EXPOSURE - MUTAGEN

Rat

2500 NMOL/L

Cell Type: lung

DNA damage

Mouse

100 NMOL/L

Cell Type: Other cell types

DNA inhibition

Mouse

2500 NG/L

Cell Type: Other cell types

Other mutation test systems

Mouse

100 MG/L

Cell Type: lymphocyte

Mutation in mammalian somatic cells.

CHRONIC EXPOSURE - TERATOGEN

Species: Rat

Dose: 1 MG/KG

Route of Application: Intraperitoneal

Exposure Time: (13D PREG)

Result: Specific Developmental Abnormalities: Musculoskeletal system. Effects on Embryo or Fetus: Fetal death.

Species: Rat

Dose: 10 UG/KG

Route of Application: Intravenous

Exposure Time: (20D PREG)

Result: Specific Developmental Abnormalities: Cardiovascular (circulatory) system.

Species: Rat

Dose: 1 MG/KG

Route of Application: Intramuscular

Exposure Time: (10D PREG)

Result: Specific Developmental Abnormalities: Central nervous system. Specific Developmental Abnormalities: Musculoskeletal system.

Species: Hamster

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

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat
Dose: 50 UG/KG
Route of Application: Intraperitoneal
Exposure Time: (1D MALE)
Result: Effects on Fertility: Mating performance (e.g., # sperm positive females per # females mated; # copulations per # estrus cycles).

Species: Rat
Dose: 6 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (7-14D PREG)
Result: Effects on Newborn: Behavioral.

Species: Rat
Dose: 2400 UG/KG
Route of Application: Subcutaneous
Exposure Time: (1-6D PREG)
Result: Effects on Newborn: Live birth index (# fetuses per litter; measured after birth). Effects on Newborn: Growth statistics (e.g., reduced weight gain). Effects on Newborn: Behavioral.

Species: Rat
Dose: 5 MG/KG
Route of Application: Intramuscular
Exposure Time: (10D PREG)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Species: Rat
Dose: 2 MG/KG
Route of Application: Intramuscular
Exposure Time: (10D PREG)
Result: Maternal Effects: Other effects. Nutritional and Gross Metabolic: Weight loss or decreased weight gain.

Species: Rat
Dose: 5760 UG/KG
Route of Application: Implant
Exposure Time: (14-21D PREG)
Result: Effects on Newborn: Germ cell effects (in offspring).

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

Species: Rabbit
Dose: 2400 UG/KG
Route of Application: Subcutaneous
Exposure Time: (6-7D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death,

e.g., stunted fetus). Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea).

Species: Rabbit
Dose: 5500 UG/KG
Route of Application: Subcutaneous
Exposure Time: (3D PRE)
Result: Effects on Fertility: Other measures of fertility

Species: Rabbit
Dose: 15 MG/KG
Route of Application: Subcutaneous
Exposure Time: (15D MALE)
Result: Paternal Effects: Testes, epididymis, sperm duct.

Species: Rabbit
Dose: 7500 UG/KG
Route of Application: Subcutaneous
Exposure Time: (15D MALE)
Result: Effects on Fertility: Male fertility index (e.g., # males impregnating females per # males exposed to fertile nonpregnant females).

Species: Rabbit
Dose: 90 UG/KG
Route of Application: Intravaginal
Exposure Time: (1D PRE)
Result: Effects on Fertility: Other measures of fertility

Species: Hamster
Dose: 2 MG/KG
Route of Application: Subcutaneous
Exposure Time: (7-10D PREG)
Result: Effects on Fertility: Other measures of fertility

12 - Ecological Information

No data available.

13 - Disposal Considerations

SUBSTANCE DISPOSAL

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.

14 - Transport Information

RID/ADR

UN#: 2811
Class: 6.1
PG: II
Proper Shipping Name: Toxic solid, organic, n.o.s.

IMDG

UN#: 2811
Class: 6.1
PG: II
Proper Shipping Name: Toxic solid, organic, n.o.s.
Marine Pollutant: No

Severe Marine Pollutant: No
Technical Name: Required

IATA

UN#: 2811
Class: 6.1
PG: II
Proper Shipping Name: Toxic solid, organic, n.o.s.
Inhalation Packing Group I: No
Technical Name: Required

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

INDICATION OF DANGER: T
Toxic.

R-PHRASES: 23/24/25

Toxic by inhalation, in contact with skin and if swallowed.

S-PHRASES: 36/37/39-45

Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 3

16 - Other Information

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 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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