Section 1 - Product and Company Information

Product Name: AMINOPHYLLINE, 99%
Product Number: 216895
Brand: ALDRICH
Company: Sigma-Aldrich
Address: 3050 Spruce Street
         SAINT LOUIS MO 63103 US
Technical Phone: 800-325-5832
Fax: 800-325-5052
Emergency Phone: 314-776-6555

Section 2 - Composition/Information on Ingredient

Substance Name: 1H-PURINE-2,6-DIONE, 3,9-DIHYDRO-1,3-DIMETHYL-, COMPD. WITH 1,2-ETHANEDIAMINE
CAS #: 317-34-0
RTECS Number: XH5600000
SARA 313: No

Formula: C7H8N4O2 · 0.5(C2H8N2)
Synonyms: Aminocardol * Aminodur * Aminofilina (Spanish) * Aminophylline * Ammophyllin * Cardophyllin * Cardophyllin * Cardiofilina * Cardiomin * Carena * Cariomin * Diaphylline * 3,7-Dihydro-1,3-dimethyl-1H-purine-2,6-dione compd. with 1,2-ethanediame (2:1) * Diophyllin * Diuxanthine * DOBO * Dura-Tab S.M. * Aminophylline * Ethophylline * Ethylenediamine, compd. with theophylline (1:2) * Etilen-xantisan tabl. * Eufilina (Polish) * Euphyllin * Euphylline * Euufilin * Euphyllin * Genophyllin * Grifomin * Inophylline * Lasodex * Linampheta * Metaphyllin * Metaphylline * Methophylline * Minaphil * Miofilin * Neophyline * Peterphyllin * Phylcardin * Phyllindon * Phylocontin * 1H-Purine-2,6-dione, 3,7-dihydro-1,3-dimethyl-, compd. with 1,2-ethanediame (2:1) (9CI) * Rectalad-aminophylline * Somophyllin * Somophyllin O * Stenovasan * TAD * Tefamin * Theodrox * Theolamine * Theolone * Theomin * Theophyldine * Theophyllamine * Theophyllaminium * Theophyllin aethylenediamin (German) * Theophylline ethylenediamine * Theophyllin ethylenediamine * Theophyldine * TH/100 * Vasofilina * aminophyllin

Section 3 - Hazards Identification

EMERGENCY OVERVIEW
Toxic (USA) Harmful (EU).
Toxic if swallowed.
Target organ(s): Nerves. Heart.

HMIS RATING
HEALTH: 2*
FLAMMABILITY: 0
REACTIVITY: 0

NFPA RATING
HEALTH: 2
FLAMMABILITY: 0
REACTIVITY: 0

*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.

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. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE
Suitable: Keep tightly closed.

SPECIAL REQUIREMENTS
Air sensitive. Store under nitrogen.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS
Mechanical exhaust required. Safety shower and eye bath.

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 N99 (US) or type P2 (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 thoroughly after handling.

Section 9 - Physical/Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>At Temperature or Pressure</th>
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</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Physical State: Solid</td>
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</tr>
<tr>
<td>Color</td>
<td>White</td>
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<tr>
<td>Form</td>
<td>Powder</td>
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</tr>
<tr>
<td>Molecular Weight</td>
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<tr>
<td>pH</td>
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<tr>
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<tr>
<td>MP/MP Range</td>
<td>269.0 - 270.0 °C</td>
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<tr>
<td>Freezing Point</td>
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<tr>
<td>Vapor Pressure</td>
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<tr>
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<tr>
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<td>Odor Threshold</td>
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<td>N/A</td>
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</tr>
<tr>
<td>Evaporation Rate</td>
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</tr>
</tbody>
</table>
Section 10 - Stability and Reactivity

STABILITY
Conditions of Instability: May discolor on exposure to air.
Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS
Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, 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 harmful if absorbed through the skin.
Eye Contact: May cause eye irritation.
Inhalation: Material may be irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.
Ingestion: Harmful if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)

SIGNS AND SYMPTOMS OF EXPOSURE
Adverse reactions: nausea, vomiting, diarrhea, anorexia, dyspepsia, epigastric pain, hematemesis, dizziness, vertigo, headache, light-headedness, nervousness, insomnia, hyperreflexia, fasciculations, clonic and tonic convulsions, palpitation tachycardia, extrasystoles, hypotension, circulatory failure, increased respiratory rates, urticaria.

TOXICITY DATA

Intravenous
Man
1420 UG/KG
LDLO
Remarks: Cardiac:Other changes. Lungs, Thorax, or Respiration:Other changes.

Rectal
Child
221 MG/KG
LDLO

Oral  
Rat  
243 mg/kg  
LD50  

Intraperitoneal  
Rat  
129 MG/KG  
LD50  

Subcutaneous  
Rat  
176 MG/KG  
LD50  

Intravenous  
Rat  
104 MG/KG  
LD50  

Intramuscular  
Rat  
167 MG/KG  
LD50  
Remarks: Behavioral: Convulsions or effect on seizure threshold.

Lungs, Thorax, or Respiration: Respiratory stimulation. Gastrointestinal: Changes in structure or function of salivary glands.

Oral  
Mouse  
150 mg/kg  
LD50  
Remarks: Behavioral: Convulsions or effect on seizure threshold.

Intraperitoneal  
Mouse  
37 MG/KG  
LD50  

Subcutaneous  
Mouse  
186 MG/KG  
LD50  

Intravenous  
Mouse  
125 MG/KG  
LD50  

Intramuscular  
Mouse  
215 MG/KG  
LD50  
Rabbit
150 MG/KG
LD50
Remarks: Behavioral: Convulsions or effect on seizure threshold.

Oral
Guinea pig
184 mg/kg
LD50

Intraperitoneal
Guinea pig
130 MG/KG
LD50

Subcutaneous
Guinea pig
222 MG/KG
LD50

Intravenous
Guinea pig
143 MG/KG
LD50

CHRONIC EXPOSURE - MUTAGEN

Species: Mouse
Dose: 500 MG/L
Exposure Time: 24H
Cell Type: mammary gland
Mutation test: Cytogenetic analysis

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 III
Hazard Label: Toxic substances.
IATA
Proper Shipping Name: Toxic solid, organic, n.o.s.
IATA UN Number: 2811
Hazard Class: 6.1
Packing Group: III

Section 15 - Regulatory Information

EU ADDITIONAL CLASSIFICATION
Symbol of Danger: Xn
Indication of Danger: Harmful.
R: 22
Risk Statements: Harmful if swallowed.

US CLASSIFICATION AND LABEL TEXT
Indication of Danger: Toxic (USA) Harmful (EU).
Risk Statements: Toxic if swallowed.
Safety Statements: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

UNITED STATES REGULATORY INFORMATION
SARA LISTED: No
TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION
WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
DSL: No
NDSL: 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 2010 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.