

# Ademetionine

sc-278677



The Power is Question

Material Safety Data Sheet

Hazard Alert Code Key: **EXTREME** **HIGH** **MODERATE** **LOW**

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

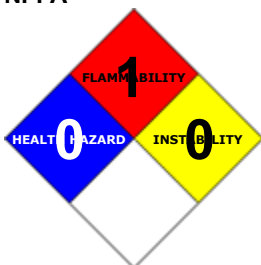
### PRODUCT NAME

Ademetionine

### STATEMENT OF HAZARDOUS NATURE

**CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.**

### NFPA



### SUPPLIER

Santa Cruz Biotechnology, Inc.  
2145 Delaware Avenue  
Santa Cruz, California 95060  
800.457.3801 or 831.457.3800

### EMERGENCY

ChemWatch

Within the US & Canada: 877-715-9305

Outside the US & Canada: +800 2436 2255

(1-800-CHEMCALL) or call +613 9573 3112

### SYNONYMS



C15-H22-N6-O5-S, "adenosine, 5' -[(3-amino-carboxypropyl)methylsulfonio]-5' -deoxy-, ", "hydroxide, inner salt, (3S)-", "(3S)-5' -[(3-amino-3-carboxypropyl)methylsulfonio]-5' -deoxyadenosine", "hydroxide, inner salt", "adenosine, 5' -[(L-3-amino-3-carboxypropyl)methylsulfonio]-5' -deoxy-, ", "hydroxide, inner salt", "5' -[(L-3-amino-3-carboxypropyl)methylsulfonio]-5' -deoxyadenosine", "hydroxide, inner salt", "5' -[(3-amino-3-carboxypropyl)methylsulfonio]-5' -deoxyadenosine hydroxide, ", "inner salt", "S-(5' -desoxyadenosin-5' -yl)-L-methionine", "2S)-2-amino-4-[[[(2S, 3S, 4R, 5R)-5-(6-aminopurin-9-yl)-3, 4-], dihydroxyoxolan-2-yl]methyl-methylsulfonio]butanoate, adenosylmethionine, methionyladenylate, L-S-adenosylmethionine, "S-adenosyl-L-methionine, hydrogen sulfate", S-adenosyl-L-methionine, "methionine, S-adenosyl-", adenosyl-L-methionine, SAM, SAM-e, SAME, Ademetionine, Ademethionine, Gumbaral, Samyr, Adomet, Heptral

## Section 2 - HAZARDS IDENTIFICATION

### CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability:	1	
Toxicity:	2	Min/Nil=0 Low=1 Moderate=2 High=3 Extreme=4
Body Contact:	0	



Reactivity: 1   
Chronic: 2 

## CANADIAN WHMIS SYMBOLS



### EMERGENCY OVERVIEW

#### RISK

Possible risk of harm to the unborn child.

#### POTENTIAL HEALTH EFFECTS

#### ACUTE HEALTH EFFECTS

##### SWALLOWED

- Accidental ingestion of the material may be damaging to the health of the individual.
- Adenosine has a depressant action in the brain, heart, kidneys and other organs and is believed to mediate its effects via four adenosine receptor subtypes (A1, A2a, A2b, and A3).  
In addition, adenosine has been shown to be involved in pain cognition, movement and sleep.

##### EYE

- Although the material is not thought to be an irritant, direct contact with the eye may cause transient discomfort characterized by tearing or conjunctival redness (as with windburn).  
Slight abrasive damage may also result.

##### SKIN

- The material is not thought to produce adverse health effects or skin irritation following contact (as classified using animal models).  
Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.
- Open cuts, abraded or irritated skin should not be exposed to this material.
- Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.  
Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

##### INHALED

- The material is not thought to produce either adverse health effects or irritation of the respiratory tract following inhalation (as classified using animal models).  
Nevertheless, adverse effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.
- Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

##### CHRONIC HEALTH EFFECTS

- Results in experiments suggest that this material may cause disorders in the development of the embryo or fetus, even when no signs of poisoning show in the mother.  
Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung.

## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
S-(5'-adenosyl)-L-methionine	29908-03-0	>98

## Section 4 - FIRST AID MEASURES

##### SWALLOWED

· If swallowed do NOT induce vomiting. · If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

##### EYE

■ If this product comes in contact with the eyes: · Wash out immediately with fresh running water. · Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

##### SKIN

■ If skin or hair contact occurs: · Flush skin and hair with running water (and soap if available). · Seek medical attention in event of

irritation.

### **INHALED**

· If dust is inhaled, remove from contaminated area. · Encourage patient to blow nose to ensure clear passage of breathing. · If irritation or discomfort persists seek medical attention.

### **NOTES TO PHYSICIAN**

■ Treat symptomatically.

## **Section 5 - FIRE FIGHTING MEASURES**

Vapour Pressure (mmHG):	Negligible
Upper Explosive Limit (%):	Not available
Specific Gravity (water=1):	Not available
Lower Explosive Limit (%):	Not available

### **EXTINGUISHING MEDIA**

· Water spray or fog.  
· Foam.

### **FIRE FIGHTING**

· Alert Emergency Responders and tell them location and nature of hazard.  
· Wear breathing apparatus plus protective gloves.

### **GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS**

· Combustible solid which burns but propagates flame with difficulty.  
· Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited.  
Combustion products include: carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), sulfur oxides (SO<sub>x</sub>), other pyrolysis products typical of burning organic material.  
May emit poisonous fumes.

### **FIRE INCOMPATIBILITY**

■ Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result.

### **PERSONAL PROTECTION**

Glasses:  
Chemical goggles.  
Gloves:  
Respirator:  
Particulate

## **Section 6 - ACCIDENTAL RELEASE MEASURES**

### **MINOR SPILLS**

· Clean up waste regularly and abnormal spills immediately.  
· Avoid breathing dust and contact with skin and eyes.  
· Wear protective clothing, gloves, safety glasses and dust respirator.  
· Use dry clean up procedures and avoid generating dust.  
· Vacuum up or sweep up. NOTE: Vacuum cleaner must be fitted with an exhaust micro filter (HEPA type) (consider explosion-proof machines designed to be grounded during storage and use).  
· Dampen with water to prevent dusting before sweeping.  
· Place in suitable containers for disposal.

### **MAJOR SPILLS**

■ Moderate hazard.  
· CAUTION: Advise personnel in area.  
· Alert Emergency Responders and tell them location and nature of hazard.

## **Section 7 - HANDLING AND STORAGE**

### **PROCEDURE FOR HANDLING**

· Avoid all personal contact, including inhalation.  
· Wear protective clothing when risk of exposure occurs.  
Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.  
· Do NOT cut, drill, grind or weld such containers.  
· In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit.

**RECOMMENDED STORAGE METHODS**

- Glass container.
- Polyethylene or polypropylene container.
- Check all containers are clearly labelled and free from leaks.

**STORAGE REQUIREMENTS**

- Observe manufacturer's storing and handling recommendations.

**Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION**

**EXPOSURE CONTROLS**

Source	Material	TWA ppm	TWA mg/m³	STEL ppm	STEL mg/m³	Peak ppm	Peak mg/m³	TWA F/CC	Notes
Canada - Ontario Occupational Exposure Limits	S-(5'-adenosyl)-L-methionine (Particles (Insoluble or Poorly Soluble) Not Otherwise)		10 (I)						
Canada - British Columbia Occupational Exposure Limits	S-(5'-adenosyl)-L-methionine (Particles (Insoluble or Poorly Soluble) Not Otherwise Classified (PNOC))		10 (N)						
Canada - Ontario Occupational Exposure Limits	S-(5'-adenosyl)-L-methionine (Specified (PNOS) / Particules (insolubles ou peu solubles) non précisées par ailleurs)		3 (R)						
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	S-(5'-adenosyl)-L-methionine (Particulates not otherwise regulated Respirable fraction)		5						
US - California Permissible Exposure Limits for Chemical Contaminants	S-(5'-adenosyl)-L-methionine (Particulates not otherwise regulated Respirable fraction)		5						(n)
US - Oregon Permissible Exposure Limits (Z-1)	S-(5'-adenosyl)-L-methionine (Particulates not otherwise regulated (PNOR) (f) Total Dust)		10						Bold print identifies substances for which the Oregon Permissible Exposure Limits (PELs) are different

than the federal Limits. PNOR means "particles not otherwise regulated."

US - Michigan Exposure Limits for Air Contaminants	S-(5'-adenosyl)-L-methionine (Particulates not otherwise regulated, Respirable dust)	5
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US - Oregon Permissible Exposure Limits (Z-1)	S-(5'-adenosyl)-L-methionine (Particulates not otherwise regulated (PNOR) (f) Respirable Fraction)	5	Bold print identifies substances for which the Oregon Permissible Exposure Limits (PELs) are different than the federal Limits. PNOR means "particles not otherwise regulated."
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US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	S-(5'-adenosyl)-L-methionine (Particulates not otherwise regulated (PNOR)(f)-Respirable fraction)	5
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Canada - Prince Edward Island Occupational Exposure Limits	S-(5'-adenosyl)-L-methionine (Particles (Insoluble or Poorly Soluble) [NOS] Inhalable particles)	10	See Appendix B current TLV/BEI Book
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ENDOELTABLE

**PERSONAL PROTECTION**



**RESPIRATOR**

•Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

**EYE**

- When handling very small quantities of the material eye protection may not be required.
- For laboratory, larger scale or bulk handling or where regular exposure in an occupational setting occurs:
  - Chemical goggles
  - Face shield. Full face shield may be required for supplementary but never for primary protection of eyes
  - Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation

immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent].

#### **HANDS/FEET**

■ Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).

· When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.

· When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.

· Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

· Rubber gloves (nitrile or low-protein, powder-free latex). Employees allergic to latex gloves should use nitrile gloves in preference.

· Double gloving should be considered.

· PVC gloves.

· Protective shoe covers. [AS/NZS 2210]

· Head covering.

Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.

- polychloroprene
- nitrile rubber
- butyl rubber
- fluorocacoutchouc
- polyvinyl chloride

Gloves should be examined for wear and/ or degradation constantly.

#### **OTHER**

· For quantities up to 500 grams a laboratory coat may be suitable.

· For quantities up to 1 kilogram a disposable laboratory coat or coverall of low permeability is recommended. Coveralls should be buttoned at collar and cuffs.

· For quantities over 1 kilogram and manufacturing operations, wear disposable coverall of low permeability and disposable shoe covers.

· For manufacturing operations, air-supplied full body suits may be required for the provision of advanced respiratory protection.

· Eye wash unit.

· Ensure there is ready access to an emergency shower.

· For Emergencies: Vinyl suit.

#### **ENGINEERING CONTROLS**

■ Enclosed local exhaust ventilation is required at points of dust, fume or vapor generation.

HEPA terminated local exhaust ventilation should be considered at point of generation of dust, fumes or vapors.

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

### **PHYSICAL PROPERTIES**

Solid.

Mixes with water.

State	Divided solid	Molecular Weight	398.44
Melting Range (°F)	Not available	Viscosity	Not Applicable
Boiling Range (°F)	Not available	Solubility in water (g/L)	Miscible
Flash Point (°F)	Not available	pH (1% solution)	Not available
Decomposition Temp (°F)	Not available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available	Vapour Pressure (mmHG)	Negligible
Upper Explosive Limit (%)	Not available	Specific Gravity (water=1)	Not available
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	Not applicable
Volatile Component (%vol)	Negligible	Evaporation Rate	Not applicable

### **APPEARANCE**

Powder; mixes with water.

## Section 10 - CHEMICAL STABILITY

## CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.

## STORAGE INCOMPATIBILITY

- Avoid reaction with oxidizing agents.

For incompatible materials - refer to Section 7 - Handling and Storage.

## Section 11 - TOXICOLOGICAL INFORMATION

S-(5'-adenosyl)-L-methionine

### TOXICITY AND IRRITATION

#### S-(5'-ADENOSYL)-L-METHIONINE:

- unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

Once SAM-e donates its methyl group to choline, in the formation of creatine, carnitine, DNA, tRNA, norepinephrine, and other compounds, it is transformed into S-adenosyl-homocysteine, (SAH). Under normal circumstances, homocysteine, in the presence of vitamin B6, vitamin B12, and folic acid (SAM-e's main co-factors), will eventually be converted back into methionine, SAM-e, or cysteine, glutathione, and other useful substances. However, if adequate amounts of these vitamins are not present, SAM-e may not break down properly. As a consequence, the full benefits of SAM-e will not be obtained, and homocysteine may increase to unsafe levels. Small studies have not shown a consistent effect of SAM-e on homocysteine levels, but more research is needed.

High levels of homocysteine have been associated with atherosclerosis (hardening and narrowing of the arteries), as well as an increased risk of heart attacks, strokes, liver damage, and possibly Alzheimer's disease. Therefore, Vitamin B supplements are often taken along with SAM-e. These vitamins help metabolize the homocysteine into other useful compounds.

Another reported side effect of SAME is insomnia, therefore the supplement is often taken in the morning. Other reports of mild side effects include lack of appetite, constipation, nausea, dry mouth, sweating, and anxiety/nervousness, but in placebo-controlled studies these side effects occur at about the same incidence in the placebo groups. Some users report increased anxiety with as little as 50 mg/day.

Adverse effects include gastrointestinal disorder, diarrhea, dyspepsia, anxiety, headache, psychiatric, insomnia, allergy, and rashes. Long-term effects are unknown. SAME is a weak DNA-alkylating agent, and may thus act as a weak carcinogen.

Potentially fatal serotonin syndrome in association of SAME with other medications has been reported.

Induction of mania has also been reported following parental administration of SAM. The apparent induction of mania in two patients with bipolar disorder (total of nine depressed patients studied has been reported. Both depression and mania can be life-threatening conditions that may cause cognitive dysfunction even after remission. There is concern that antidepressants in general can induce hypomania, mania, or both

## Section 12 - ECOLOGICAL INFORMATION

No data

## Section 13 - DISPOSAL CONSIDERATIONS

### Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

‡ Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.

- Recycle wherever possible.
- Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

## Section 14 - TRANSPORTATION INFORMATION

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: DOT, IATA, IMDG

## Section 15 - REGULATORY INFORMATION

**S-(5'-adenosyl)-L-methionine (CAS: 29908-03-0) is found on the following regulatory lists;**

"Canada - British Columbia Occupational Exposure Limits","Canada - Ontario Occupational Exposure Limits","Canada - Prince Edward Island Occupational Exposure Limits","Canada National Pollutant Release Inventory (NPRI)","US - California Permissible Exposure Limits for Chemical Contaminants","US - Michigan Exposure Limits for Air Contaminants","US - Oregon Permissible Exposure Limits (Z-1)","US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants","US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants"

**Section 16 - OTHER INFORMATION**

**LIMITED EVIDENCE**

■ Ingestion may produce health damage\*.

\* (limited evidence).

**Denmark Advisory list for selfclassification of dangerous substances**

Substance CAS Suggested codes S- (5' - adenosyl)- L- methionine 29908- 03- 0 Rep3; R63

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■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

[www.chemwatch.net/references](http://www.chemwatch.net/references).

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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