

# Ammonium sulfate solution

sc-291897



The Power to Question

## Material Safety Data Sheet

Hazard Alert Code  
Key:

EXTREME

HIGH

MODERATE

LOW

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### PRODUCT NAME

Ammonium sulfate solution

### 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

H8-N2-O4-S, (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>, "ammonium sulphate solution", "diammonium sulfate solution", "sulphuric acid diammonium salt", "sulphate of ammonia solution"

## Section 2 - HAZARDS IDENTIFICATION

### CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability	0	
Toxicity	2	
Body Contact	3	
Reactivity	0	
Chronic	0	

Min/Nil=0  
Low=1  
Moderate=2  
High=3  
Extreme=4



### CANADIAN WHMIS SYMBOLS



## EMERGENCY OVERVIEW

### RISK

Harmful if swallowed.  
Risk of serious damage to eyes.  
Irritating to respiratory system and skin.  
Harmful to aquatic organisms.

## POTENTIAL HEALTH EFFECTS

### ACUTE HEALTH EFFECTS

#### SWALLOWED

- Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.
- Sulfates are not well absorbed orally, but can cause diarrhoea.
- Large doses of ammonia or injected ammonium salts may produce diarrhoea and may be sufficiently absorbed to produce increased production of urine and systemic poisoning.  
Symptoms include weakening of facial muscle, tremor, anxiety, reduced muscle and limb control.

#### EYE

- If applied to the eyes, this material causes severe eye damage.

#### SKIN

- This material can cause inflammation of the skin on contact in some persons.
- Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.

#### INHALED

- If inhaled, this material can irritate the throat and lungs of some persons.
- Although inhalation is not thought to produce harmful effects (as classified under EC Directives), the material may still produce health damage, especially where pre-existing organ (e.g. liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally confined to doses producing mortality rather than those producing morbidity (disease, ill-health).

## CHRONIC HEALTH EFFECTS

- There is some evidence that inhaling this product is more likely to cause a sensitization reaction in some persons compared to the general population.
- No human exposure data available. For this reason health effects described are based on experience with chemically related materials.

As with any chemical product, contact with unprotected bare skin; inhalation of vapor, mist or dust in work place atmosphere; or ingestion in any form, should be avoided by observing good occupational work practice.

## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
<a href="#">ammonium sulfate</a>	7783-20-2	10-50
<a href="#">water</a>	7732-18-5	Balance

## 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.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.

### 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.

- Seek medical attention without delay; if pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

#### **SKIN**

If skin contact occurs

- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

#### **INHALED**

- If fumes, aerosols or combustion products are inhaled remove from contaminated area.
- Other measures are usually unnecessary.

#### **NOTES TO PHYSICIAN**

- Treat symptomatically.

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

Upper Explosive Limit (%)	Not applicable
Specific Gravity (water=1)	1.003 - 1.2298
Lower Explosive Limit (%)	Not applicable
Relative Vapor Density (air=1)	as water

#### **EXTINGUISHING MEDIA**

- There is no restriction on the type of extinguisher which may be used.

#### **FIRE FIGHTING**

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves for fire only.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use fire fighting procedures suitable for surrounding area.

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

- Non combustible.
- Not considered to be a significant fire risk, however containers may burn.
- In a fire may decompose on heating and produce toxic / corrosive fumes.

Reacts vigorously with oxidizing agents and strong alkalis.

Decomposes on heating and produces toxic fumes of ammonia, nitrogen oxides (NOx) and sulfur oxides (SOx).

#### **FIRE INCOMPATIBILITY**

Avoid reaction with strong oxidizers, zinc-clad, copper and copper bearing materials.

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

#### **MINOR SPILLS**

- Clean up all spills immediately.
- Avoid breathing vapors and contact with skin and eyes.
- Control personal contact by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.

#### **MAJOR SPILLS**

Minor hazard.

- Clear area of personnel.
- Alert Fire Brigade and tell them location and nature of hazard.
- Control personal contact by using protective equipment as required.
- Prevent spillage from entering drains or water ways.

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

#### **PROCEDURE FOR HANDLING**

- Limit all unnecessary personal contact.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Avoid contact with incompatible materials.

#### **RECOMMENDED STORAGE METHODS**

- Glass container is suitable for laboratory quantities

Plastic container.

### STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m <sup>3</sup>	STEL ppm	STEL mg/m <sup>3</sup>	Peak ppm	Peak mg/m <sup>3</sup>	TWA F/CC	Notes
Canada - Ontario Occupational Exposure Limits	ammonium sulfate (Particles (Insoluble or Poorly Soluble) Not Otherwise)		10 (I)						
Canada - British Columbia Occupational Exposure Limits	ammonium sulfate (Particles (Insoluble or Poorly Soluble) Not Otherwise Classified (PNOC))		10 (N)						
Canada - Ontario Occupational Exposure Limits	ammonium sulfate (Specified (PNOS) / Particules (insolubles ou peu solubles) non précisées par ailleurs)		3 (R)						
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	ammonium sulfate (Particulates not otherwise regulated Respirable fraction)		5						
US - California Permissible Exposure Limits for Chemical Contaminants	ammonium sulfate (Particulates not otherwise regulated Respirable fraction)		5						(n)
US - Oregon Permissible Exposure Limits (Z-1)	ammonium sulfate (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	ammonium sulfate (Particulates not otherwise regulated, Respirable dust)	5
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US - Oregon Permissible Exposure Limits (Z-1)	ammonium sulfate (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	ammonium sulfate (Particulates not otherwise regulated (PNOR)(f)- Respirable fraction)	5
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The following materials had no OELs on our records

- water CAS7732-18-5

**PERSONAL PROTECTION**



**EYE**

No special equipment for minor exposure i.e. when handling small quantities.

- OTHERWISE
- Safety glasses with side shields.

**HANDS/FEET**

No special equipment needed when handling small quantities.

OTHERWISE Wear chemical protective gloves, eg.

**OTHER**

No special equipment needed when handling small quantities

OTHERWISE

- Overalls
- Eyewash unit.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

Use appropriate NIOSH-certified respirator based on informed professional judgement. In conditions where no reasonable estimate of exposure can be made, assume the exposure is in a concentration IDLH and use NIOSH-certified full face pressure demand SCBA with a minimum service life of 30 minutes, or a combination full facepiece pressure demand SAR with auxiliary self-contained air supply. Respirators provided only for escape from IDLH atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used.

**ENGINEERING CONTROLS**

■ Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

### PHYSICAL PROPERTIES

Liquid.

Mixes with water.

State	Liquid	Molecular Weight	132.1
Melting Range (°F)	32- minus4	Boiling Range (°F)	>212
Solubility in water (g/L)	Miscible	Flash Point (°F)	Not applicable
pH (1% solution)	5.5	Decomposition Temp (°F)	>212(235 solid)
pH (as supplied)	<7	Autoignition Temp (°F)	Not applicable
Vapor Pressure (mmHG)	as water	Upper Explosive Limit (%)	Not applicable
Specific Gravity (water=1)	1.003 - 1.2298	Lower Explosive Limit (%)	Not applicable
Relative Vapor Density (air=1)	as water	Volatile Component (%vol)	Not applicable
Evaporation Rate	Not available		

### APPEARANCE

Odorless liquid; mixes with water. Solutions 0.5 to 50% solute weight per cent water. Exempted from Poisons Scheduling at Appendix B S.U.S.D.P.

## Section 10 - CHEMICAL STABILITY

### CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

### STORAGE INCOMPATIBILITY

- Segregate from strong alkalis.

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

## Section 11 - TOXICOLOGICAL INFORMATION

ammonium sulfate solution

### TOXICITY AND IRRITATION

- Not available. Refer to individual constituents.

### CARCINOGEN

ammonium sulfate	US - Rhode Island Hazardous Substance List	IARC
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## Section 12 - ECOLOGICAL INFORMATION

Harmful to aquatic organisms.

### Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
ammonium sulfate	HIGH	No Data Available	LOW	HIGH

## Section 13 - DISPOSAL CONSIDERATIONS

### Disposal Instructions

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

- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Management Authority for disposal.

- Bury residue in an authorised landfill.
- Recycle containers if possible, or dispose of in an authorised landfill.

## Section 14 - TRANSPORTATION INFORMATION

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

## Section 15 - REGULATORY INFORMATION

### Regulations for ingredients

#### ammonium sulfate (CAS: 7783-20-2) is found on the following regulatory lists;

"Canada CEPA Environmental Registry Substance Lists - List of substances on the DSL that meet the ecological criteria for categorization (English)", "Canada Domestic Substances List (DSL)", "Canada Ingredient Disclosure List (SOR/88-64)", "Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)", "GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "International Council of Chemical Associations (ICCA) - High Production Volume List", "US - California Air Toxics ""Hot Spots"" List (Assembly Bill 2588) Substances for which emissions must be quantified", "US - California Toxic Air Contaminant List Category IV", "US - Pennsylvania - Hazardous Substance List", "US - Rhode Island Hazardous Substance List", "US - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values", "US DOE Temporary Emergency Exposure Limits (TEELs)", "US EPA High Production Volume Chemicals Additional List", "US FDA CFSAN GRAS Substances evaluated by the Select Committee on GRAS Substances (SCOGS)", "US Food Additive Database", "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

#### water (CAS: 7732-18-5) is found on the following regulatory lists;

"Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)", "IMO IBC Code Chapter 18: List of products to which the Code does not apply", "International Fragrance Association (IFRA) Survey: Transparency List", "OSPAR National List of Candidates for Substitution – Norway", "US - Pennsylvania - Hazardous Substance List", "US DOE Temporary Emergency Exposure Limits (TEELs)", "US FMA Air Freshener Fragrance Ingredient Survey Results", "US NFPA 30B Manufacture and Storage of Aerosol Products - Chemical Heat of Combustion", "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory", "US TSCA Section 8 (a) Inventory Update Rule (IUR) - Partial Exemptions"

**No data for ammonium sulfate solution (CW: 62016)**

## Section 16 - OTHER INFORMATION

### LIMITED EVIDENCE

■ Cumulative effects may result following exposure\*.

■ Possible respiratory sensitizer\*.

\* (limited evidence).

■ 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.

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