Material Name: AMMONIUM THIOSULFATE SOLUTION

Manufacturer Information
Koch Nitrogen International SARL
P.O. BOX 140 West Lane
Savannah, Grand Cayman
Phone: (316) 828-7672
Spill/Emergency Contact: CHEMTREC: 1-800-424-9300 (U.S)
To Request an MSDS: (316) 828-7672
Email: kochmsds@kochind.com

Chemical Family
inorganic, salt

Synonyms
ATS; 12-0-0-26S

Trade Names
AMMONIUM THIOSULFATE SOLUTION

SDS Number
7183

Human and Environmental Hazards
Causes burns.
POTENTIAL HEALTH EFFECTS

Inhalation

Short Term: burns, constriction of the windpipe, pulmonary edema, death
Long Term: burns

Skin

Short Term: burns, blisters, tissue damage
Long Term: burns, infection, inflammation, tissue damage

Eye

Short Term: burns, blindness, eye damage
Long Term: burns, blindness, eye damage

Ingestion

Short Term: burns, tissue damage
Long Term: burns, tissue damage

*** Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS ***

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Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: AMMONIA, ANHYDROUS (7664-41-7).

*** Section 4 - FIRST AID MEASURES ***

Inhalation

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

Skin

Wash with soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15-20 minutes). Get immediate medical attention. Place contaminated clothing in a closed container until laundered or discarded. Contaminated clothing should be removed and laundered before reuse. Notify person laundering clothing of contaminant's hazardous properties. Discard contaminated leather goods.

Eyes

Immediately flush eyes with plenty of water for at least 30 minutes. Hold eyelids away from the eyeball to ensure thorough rinsing. Get immediate medical attention.

Ingestion

If swallowed, drink plenty of water, do NOT induce vomiting. Do not give anything by mouth to unconscious or convulsive person. Keep warm and at rest. Get immediate medical attention.

Note to Physicians

Signs and symptoms of CNS depression, confusion and convulsions should be considered in the assessment and treatment of victims of exposure.

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

See Section 9 for Flammability Properties

Flammable Properties

Negligible fire hazard.

Extinguishing Media

carbon dioxide, regular dry chemical, regular foam, water
Fire Fighting Measures

Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Do not get water directly on material. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Thermal Decomposition Products

Combustion: ammonia, ammonium compounds, hydrogen sulfide, oxides of sulfur, sulfur

Thermal Decomposition Products

Combustion: Heating to dryness may cause the release of ammonia, ammonium sulfate, hydrogen sulfide, sulfur and oxides of sulfur. Ammonia and hydrogen sulfide may form flammable mixtures with air.

Sensitivity to Mechanical Impact

No

Sensitivity to Static Discharge

Yes

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

Occupational spill/release

Do not touch spilled material. Stop leak if possible without personal risk. Small spills: Absorb with sand or other non-combustible material. Small dry spills: Collect spilled material in appropriate container for disposal. Keep unnecessary people away, isolate hazard area and deny entry. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

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

Handling Procedures

Ground any equipment used in handling. Use non-sparking tools and equipment. Do not cut, puncture, or weld on or near this container. When using, do not eat, drink or smoke. Subject to handling regulations: U.S. OSHA 29 CFR 1910.119.
Storage Procedures

Store and handle in accordance with all current regulations and standards. Store in a cool, dry place. Store in a tightly closed container. Store in a well-ventilated area. Avoid heat, flames, sparks and other sources of ignition. Empty containers may contain product residue. Do not reuse containers without adequate precautions. Keep separated from incompatible substances.

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

Component Exposure Limits

AMMONIUM HYDROXIDE (1336-21-6)

**ACGIH:**
- 25 ppm TWA
- 35 ppm STEL

**EC:**
- 20 ppm TWA; 14 mg/m3 TWA
- 50 ppm STEL; 36 mg/m3 STEL

**UK WELs:**
- 25 ppm TWA (anhydrous); 18 mg/m3 TWA (anhydrous)
- 35 ppm STEL (anhydrous); 25 mg/m3 STEL (anhydrous)

**Germany (DFGs):**
- 20 ppm MAK; 14 mg/m3 MAK
- 40 ppm Peak; 28 mg/m3 Peak

**Germany (TRGSs):**
- 20 ppm TWA (exposure factor 2); 14 mg/m3 TWA (exposure factor 2)

Ventilation

General or local exhaust ventilation and other forms of engineering controls are the preferred means for controlling exposures. If ventilation cannot reduce airborne concentrations below acceptable limits, appropriate respiratory protection should be used.

PERSONAL PROTECTIVE EQUIPMENT

Eyes/ Face

Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Protective Clothing

Wear appropriate chemical resistant clothing.

Glove Recommendations

Wear appropriate chemical resistant gloves.
Respiratory Protection

A NIOSH approved air-purifying respirator with an appropriate cartridge or canister may be appropriate under certain circumstances where airborne concentrations are expected to exceed exposure limits.

Appropriate respirator selection should be made by a qualified professional as part of a comprehensive respiratory protection program as described in 29 CFR 1910.134.

Protection provided by air-purifying respirators is limited and should not be used in atmospheres deficient in oxygen or where airborne concentrations are immediately dangerous to life or health.

Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

*** Section 9 - PHYSICAL AND CHEMICAL PROPERTIES ***

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*** Section 10 - STABILITY AND REACTIVITY ***

Chemical Stability

Stable at normal temperatures and pressure.

Conditions to Avoid

Avoid heat, flames, sparks and other sources of ignition. May ignite or explode on contact with combustible materials.
Materials to Avoid

oxidizing materials, acids, bases

Thermal Decomposition of Products

**Combustion**: Heating to dryness may cause the release of ammonia, ammonium sulfate, hydrogen sulfide, sulfur and oxides of sulfur. Ammonia and hydrogen sulfide may form flammable mixtures with air.

Thermal Decomposition Products

**Combustion**: ammonia, ammonium compounds, hydrogen sulfide, oxides of sulfur, sulfur

Possibility of Hazardous Reactions

Will not polymerize.

*** Section 11 - TOXICOLOGICAL INFORMATION ***

Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and the following selected endpoints are published:

AMMONIUM THIOSULFATE (7783-18-8)
Oral LD50 Rat: 1950 mg/kg

WATER (7732-18-5)
Oral LD50 Rat: >90 mL/kg

AMMONIUM HYDROXIDE (1336-21-6)
Oral LD50 Rat: 350 mg/kg

AMMONIUM SULFATE (7783-20-2)
Oral LD50 Rat: 2000 mg/kg
RTECS Acute Toxicity (selected)

The components of this material have been reviewed, and RTECS publishes the following endpoints:

**AMMONIUM THIOSULFATE (7783-18-8)**
- Oral: 2890 mg/kg oral rat LD50

**WATER (7732-18-5)**
- Oral: >90 ml/kg oral rat LD50

**AMMONIUM HYDROXIDE (1336-21-6)**
- Inhalation: 17401 ppm/15 minute(s) inhalation rat LC50; 7040 mg/m3/30 minute(s) inhalation rat LC50; 18600 mg/m3/5 minute(s) inhalation rat LC50; 2000 ppm/4 hour(s) inhalation rat LC50; 9500 ppm/1 hour(s) inhalation rat LC50
- Oral: 350 mg/kg oral rat LD50

**AMMONIUM SULFATE (7783-20-2)**
- Oral: 4540 mg/kg oral rat LD50; 2840 mg/kg oral rat LD50

Acute Toxicity Level

**AMMONIUM THIOSULFATE (7783-18-8)**
- Moderately Toxic: ingestion.

**AMMONIUM HYDROXIDE (1336-21-6)**
- Toxic: ingestion.

**AMMONIUM SULFATE (7783-20-2)**
- Moderately Toxic: ingestion.

Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, OSHA, NTP, or DFG.

RTECS Irritation

The components of this material have been reviewed, and RTECS publishes the following endpoints:

**AMMONIUM HYDROXIDE (1336-21-6)**
- 44 ug eyes rabbit severe; 1 mg/30 second(s) rinsed eyes rabbit severe; 250 ug eyes rabbit severe

**AMMONIUM SULFATE (7783-20-2)**
- 50 percent/5 day(s) intermittent skin mammal
Local Effects

AMMONIUM HYDROXIDE (1336-21-6)

Corrosive: inhalation, skin, eye, ingestion.

AMMONIUM SULFATE (7783-20-2)

Irritant: inhalation, skin, eye.

Medical Conditions Aggravated by Exposure

eye disorders, immune system disorders or allergies, respiratory disorders, skin disorders and allergies

RTECS Tumorigenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

RTECS Mutagenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

*** Section 12 - ECOLOGICAL INFORMATION ***

Component Analysis - Aquatic Toxicity

AMMONIUM HYDROXIDE (1336-21-6)

Fish: 96 Hr LC50 Pimephales promelas: 8.2 mg/L

96 Hr LC50 Gambusia affinis: 15000 ug/L (Mortality)

Invertebrate: 48 Hr EC50 water flea: 0.66 mg/L; 48 Hr EC50 Daphnia pulex: 0.66 mg/L

AMMONIUM SULFATE (7783-20-2)

Fish: 96 Hr LC50 Leuciscus idus: 460 - 1000 mg/L [static]; 96 Hr LC50 Brachydanio rerio: 250 mg/L; 96 Hr LC50 Brachydanio rerio: 480 mg/L [flow-through]; 96 Hr LC50 Brachydanio rerio: 420 mg/L [semi-static]; 96 Hr LC50 Cyprinus carpio: 18 mg/L; 96 Hr LC50 Pimephales promelas: >100 mg/L; 96 Hr LC50 Oncorhynchus mykiss: 32.2-41.9 mg/L [flow-through]; 96 Hr LC50 Oncorhynchus mykiss: 5.2-8.2 mg/L [static]; 96 Hr LC50 Poecilia reticulata: 123-128 mg/L [semi-static]; 96 Hr LC50 Poecilia reticulata: 126 mg/L

96 Hr LC50 Tilapia mossambica: 75500 ug/L (Mortality)

Invertebrate: 24 Hr EC50 Daphnia magna: 423 mg/L; 48 Hr LC50 Daphnia magna: 14 mg/L
**Section 13 - DISPOSAL CONSIDERATIONS**

**Disposal Methods**

Dispose in accordance with all applicable regulations. This product, as supplied, when discarded or disposed of, is not a hazardous waste according to 40 CFR 261.
** ** Section 14 - TRANSPORT INFORMATION ** **

US DOT Information

No Classification assigned.

ADR Information

No Classification assigned.

ADR Tunnel Code Restrictions

This list contains tunnel restriction codes for those substances and/or chemically related entries which are found in chapter 3.2 of the ADR regulations.

AMMONIUM HYDROXIDE (1336-21-6)

RID Information

No Classification assigned.

IATA Information

No Classification assigned.

ICAO Information

No Classification assigned.

IMDG Information

No Classification assigned.

** ** Section 15 - REGULATORY INFORMATION ** **

Germany Water Classification

AMMONIUM THIOSULFATE (7783-18-8)

Number 193, hazard class 1 - low hazard to waters

AMMONIUM HYDROXIDE (1336-21-6)

Number 211, hazard class 2 - hazard to waters
Safety Data Sheet

Material Name: AMMONIUM THIOSULFATE SOLUTION

SDS ID: 00229958

AMMONIUM SULFATE (7783-20-2)

Number 296, hazard class 1 - low hazard to waters

EU Marking and Labelling

Symbols

C Corrosive

Risk Phrases

R34 Causes burns.
Component Analysis - Inventory

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<th>Component</th>
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</table>

EC Inventory (EINECS/ELINCS)

** ** Section 16 - OTHER INFORMATION ** **

Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RID - European Rail Transport; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

Other Information

NOTICE: This information must be communicated to the safety advisor. It is advisable to provide proper training and instructions. The warnings and the adequate safe handling methods must be given to maintenance personnel and the users. The information presented in this Safety Data Sheet is based on data considered to be accurate on the preparation date of this Safety Data Sheet. However, Safety Data Sheets cannot be used as commercial specification sheets of manufacturers or vendors. No guarantee or declaration, express or implicit, is made concerning the accuracy or the completeness of the above data and safety information, and no authorization is given or is implicit concerning the use without license of a patented invention. In addition, the provider does not assume any liability for any property or bodily damage arising from abnormal use, negligence in the application of the recommended practices, or hazards inherent in the nature of the product.
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End of Sheet 00229958