

Safety Data Sheet **AMMONIUM THIOCYANATE**

SDS no. NH87ER92 • Version 1.0 • Date of issue: 2023-12-11

SECTION 1: Identification

GHS Product identifier

Product name AMMONIUM THIOCYANATE

Other means of identification

AMMONIUM THIOCYANATE AR
Ammonium sulfocyanide,
Ammonium rhodanide,
Ammonium sulfocyanate,
Thiocyanic acid ammonium salt

Recommended use of the chemical and restrictions on use

Analytical chemistry; manufacture of transparent artificial resins and thiourea; fertilisers; ingredients of freezing solutions; especially liquid rocket propellants; matches; double-dyeing fabrics; photography; zinc coating; improving and increasing strength of silks weighted with tin salts; weed killer and defoliant; adhesives; curing resins; pickling iron and steel; electroplating; temporary soil steriliser; polymerisation catalyst; separator of zirconium and hafnium; separator of gold and iron; detection and determination of small quantities of iron; laboratory reagent.

Supplier's details

Name	ChemSupply Australia Pty Ltd
Address	38-50 Bedford Street 5013 Gillman South Australia Australia
Telephone	08 8440 2000
email	www.chemsupply.com.au

Emergency phone number

CHEMCALL 1800 127 406 (Australia) / +64-4-917-9888 (International)

SECTION 2: Hazard identification

General hazard statement

Not classified as dangerous goods according to the Australian Dangerous Goods Code (ADG).

Classified as Hazardous according to the Globally Harmonised System of classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia.

Classification of the substance or mixture

GHS classification in accordance with: UN GHS revision 7

- Acute toxicity, dermal, Cat. 4
- Acute toxicity, inhalation, Cat. 4
- Acute toxicity, oral, Cat. 4
- Serious eye damage/eye irritation, Cat. 2A
- Hazardous to the aquatic environment, long-term (chronic), Cat. 3

GHS label elements, including precautionary statements

Pictograms



Signal word

Warning

Hazard statement(s)

H302	Harmful if swallowed
H312	Harmful in contact with skin
H319	Causes serious eye irritation
H332	Harmful if inhaled
H412	Harmful to aquatic life with long lasting effects
AUH032	Contact with acids liberates very toxic gas

Precautionary statement(s)

P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell,
P302+P352	IF ON SKIN: Wash with plenty of water/soap
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER/doctor/physician if you feel unwell.
P337+P313	If eye irritation persists: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P501	Dispose of contents/container to an approved waste disposal facility

SECTION 3: Composition/information on ingredients

Mixtures

Molecular weight: 76.12

Components

Component	CAS no.	Concentration
Ammonium thiocyanate (EC no.: 217-175-6)	1762-95-4	100 % (weight)
CLASSIFICATIONS: Acute toxicity, dermal, Cat. 4; Acute toxicity, inhalation, Cat. 4; Acute toxicity, oral, Cat. 4; Hazardous to the aquatic environment, long-term (chronic), Cat. 3; Serious eye damage/eye irritation, Cat. 2A. HAZARDS: H302 - Harmful if swallowed; H312 - Harmful in contact with skin; H319 - Causes serious eye irritation; H332 - Harmful if inhaled; H412 - Harmful to aquatic life with long lasting effects.		

SECTION 4: First-aid measures

Description of necessary first-aid measures

General advice	First Aid Facilities: Maintain eyewash fountain in work area.
If inhaled	If inhaled, remove from contaminated area to fresh air immediately. Apply artificial respiration if not breathing. If breathing is difficult, give oxygen. Immediately obtain medical aid if cough or other symptoms appear.
In case of skin contact	Immediately remove contaminated clothing and wash affected area with water for at least 15 minutes. Ensure contaminated clothing is washed before re-use. Seek medical advice /attention depending on the severity.
In case of eye contact	Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open. In all cases of eye contamination it is a sensible precaution to seek medical advice.
If swallowed	Rinse mouth thoroughly with water immediately, repeat until all traces of product have been removed. DO NOT INDUCE VOMITING. Seek medical advice if effects persist.

Most important symptoms/effects, acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Indication of immediate medical attention and special treatment needed, if necessary

Treat symptomatically based on judgement of doctor and individual reactions of the patient.

For advice in an emergency, contact a Poisons Information Centre (Phone Australia 131 126) or a doctor.

SECTION 5: Fire-fighting measures

Suitable extinguishing media

Use extinguishing media most appropriate for the surrounding fire

Specific hazards arising from the chemical

Hazards from Combustion Products: Highly toxic cyanide fumes, carbon oxides, sulfur oxides, ammonia.

Material does not burn. Fire or heat may produce irritating, toxic, poisonous and/or corrosive gases. Runoff may pollute waterways.

Special protective actions for fire-fighters

Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) operated in positive pressure mode. Fight fire from safe location.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Avoid inhalation and ingestion. Avoid contact with skin, eyes and clothing. Use in ventilated areas or in fumehood.

Wear protective clothing specified for normal operations (see Section 8)

Methods and materials for containment and cleaning up

Sweep up (avoid generating dust) and remove to a suitable, clearly labelled container for disposal in accordance with local regulations.

Prevent further leakage or spillage and prevent from entering drains

SECTION 7: Handling and storage

Precautions for safe handling

Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure. If ingested, seek medical advice immediately. In case of insufficient ventilation, wear suitable respiratory equipment. Ensure a high level of personal hygiene is maintained when using this product. That is; always wash hands before eating, drinking, smoking or using the toilet

Conditions for safe storage, including any incompatibilities

Corrosiveness: Highly corrosive to metals including iron, copper, and brass.

Store away from acids. Store in a cool, dry place. Store in well ventilated area. Keep containers securely sealed and protected against physical damage. Store in cool place and out of direct sunlight. Store in light resistant containers.

SECTION 8: Exposure controls/personal protection

Appropriate engineering controls

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, gas, etc.) below recommended exposure limits.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336.

Skin protection

Clean impervious clothing should be worn. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.

Hand Protection: Ensure hand protection complies with AS 2161, Occupational protective gloves - Selection, use and maintenance.

Body protection

Wear suitable protective clothing and gloves to prevent skin contact. Clean clothing or protective clothing should be worn, preferably with an apron. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.

Respiratory protection

Where ventilation is not adequate, respiratory protection may be required. Avoid breathing dust, vapours or mists. Respiratory protection should comply with AS 1716 - Respiratory Protective Devices and be selected in accordance with AS 1715 - Selection, Use and Maintenance of Respiratory Protective Devices. Filter capacity and respirator type depends on exposure levels. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

SECTION 9: Physical and chemical properties

Basic physical and chemical properties

Physical state
Appearance
Color

Solid
Colourless, hygroscopic, deliquescent crystals.
No data available.

Safety Data Sheet

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Odor	Odourless.
Odor threshold	No data available.
Melting point/freezing point	149.6 °C
Boiling point or initial boiling point and boiling range	170 °C
Flammability	No data available.
Lower and upper explosion limit/flammability limit	No data available.
Flash point	No data available.
Explosive properties	No data available.
Auto-ignition temperature	No data available.
Decomposition temperature	170 °C (anhydrous).
Oxidizing properties	No data available.
pH	4.8 - 5.8 (50 g/l H ₂ O, 20 °C)
Kinematic viscosity	No data available.
Solubility	Solubility in Water: Soluble in cold & hot water (1600 g/L @ 20 °C). Solubility in Organic Solvents: Soluble in alcohol, acetone and ammonia. Practically insoluble in trichloromethane and ethyl acetate.
Partition coefficient n-octanol/water (log value)	No data available.
Vapor pressure	No data available.
Evaporation rate	No data available.
Density and/or relative density	Specific Gravity: 1.31
Relative vapor density	No data available.
Particle characteristics	No data available.

Supplemental information regarding physical hazard classes

No data available.

Further safety characteristics (supplemental)

No data available.

SECTION 10: Stability and reactivity

Reactivity

Stable under normal conditions of storage and handling.

Chemical stability

Stable under ordinary conditions of use and storage. May decompose on exposure to light.

Possibility of hazardous reactions

Contact with acids may result in the liberation of highly toxic hydrogen cyanide. Mixtures with Pb(NO₃)₂ may explode.

Conditions to avoid

Hygroscopic.

Incompatible materials

Strong oxidizing agents, strong acids, lead nitrate, alkalis, aluminium and magnesium, chlorates, nitrates, nitric acid, organic peroxides, peroxides, sodium chlorate and potassium chlorate.

Hazardous decomposition products

Highly toxic cyanide fumes, carbon oxides, sulfur oxides, ammonia.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

Acute Toxicity - Oral: LD50 (rat): 500 mg/kg.

Ingestion: Harmful if swallowed. May cause gastrointestinal tract irritation with diarrhea, affect behaviour/central nervous system, respiration, kidneys and blood. Symptoms of poisoning by ingestion may include skin eruptions, running nose, occasional dizziness, disorientation, weakness, cramp, nausea, vomiting, mild or severe disturbance of the nervous system and even death. The probable lethal dose is between 15 - 30 grams (ingested at one time).

Inhalation: Harmful by inhalation. Causes irritation to mucous membranes and upper respiratory tract irritation. Symptoms may include coughing, shortness of breath.

// ----- From the Suggestion report (09/01/2024, 4:17 PM) ----- //
The ATE (dermal) of the mixture is: 1100 mg/kg bw

// ----- From the Suggestion report (09/01/2024, 4:17 PM) ----- //
The ATE (gas inhalation) of the mixture is: 4500 ppmV

// ----- From the Suggestion report (09/01/2024, 4:17 PM) ----- //
The ATE (oral) of the mixture is: 500 mg/kg bw

Skin corrosion/irritation

Harmful in contact with skin. May cause skin irritation. Symptoms include redness, itching, scaling, pain and occasional blistering. May experience similar symptoms as to poisoning by ingestion. Non-sensitizer for skin.

Serious eye damage/irritation

Causes serious eye irritation, with symptoms including redness and pain.

Respiratory or skin sensitization

No data available.

Germ cell mutagenicity

No data available.

Carcinogenicity

No data available.

Reproductive toxicity

No data available.

Summary of evaluation of the CMR properties

No data available.

Specific target organ toxicity (STOT) - single exposure

No data available.

Specific target organ toxicity (STOT) - repeated exposure

No data available.

Aspiration hazard

No data available.

Additional information

Chronic Effects: Symptoms of chronic poisoning by skin contact may include skin eruptions and other symptoms associated with ingestion of the substance. Repeated ingestion of small amounts may cause hives, abnormal bleeding, weight loss, mental effects, and an enlarged thyroid.

Ammonium thiocyanate: guinea pig LD50 oral 500mg/kg (500mg/kg) Gigiena Truda i Professional'nye Zabolevaniya. Labor Hygiene and Occupational Diseases. Vol. 30(10), Pg. 51, 1986.

human TDLo oral 430mg/kg (430mg/kg) BEHAVIORAL: "HALLUCINATIONS, DISTORTED PERCEPTIONS"

GASTROINTESTINAL: NAUSEA OR VOMITING

GASTROINTESTINAL: OTHER CHANGES Deutsches Archiv fuer Klinische Medizin. Vol. 102, Pg. 606, 1911.

mammal (species unspecified) LC inhalation > 100mg/m3 (100mg/m3) Gigiena Truda i Professional'nye Zabolevaniya. Labor Hygiene and Occupational Diseases. Vol. 30(10), Pg. 51, 1986.

mouse LD50 intraperitoneal 500mg/kg (500mg/kg) National Technical Information Service. Vol. AD277-689,

mouse LD50 oral 500mg/kg (500mg/kg) Gigiena Truda i Professional'nye Zabolevaniya. Labor Hygiene and Occupational Diseases. Vol. 30(10), Pg. 51, 1986.

rat LD50 oral 750mg/kg (750mg/kg) Gigiena Truda i Professional'nye Zabolevaniya. Labor Hygiene and Occupational Diseases. Vol. 30(10), Pg. 51, 1986.

SECTION 12: Ecological information

Toxicity

Acute Toxicity - Fish: LC50 - Oncorhynchus mykiss (rainbow trout) - 65 mg/l - 96 h (static test)

Acute Toxicity - Daphnia: EC50 - Daphnia magna (Water flea) - 3.56 mg/l - 48 h (static test) (OECD Test Guideline 202)

Acute Toxicity - Algae: EC50 - Selenastrum capricornutum (green algae) - 116 mg/l - 72 h (static test) (OECD Test Guideline 201)

Mobility in soil

Not available.

SECTION 13: Disposal considerations

Disposal methods

Product disposal

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers.

Other disposal recommendations

Do not discharge this material into waterways, drains and sewers.

SECTION 14: Transport information

ADG (Road and Rail)

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

Australia SUSMP

Poison Schedule: S5

SECTION 16: Other information

Further information/disclaimer

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Preparation information

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Standard for the Uniform Scheduling of Medicines and Poisons, Commonwealth of Australia

National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.'

Safe Work Australia, 'National Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals', July 2020.

Safe Work Australia, 'National Guide for Classifying Hazardous Chemicals', July 2020.

Safe Work Australia, Workplace Exposure Standards for Airborne Contaminants, December 2019

Safe Work Australia, Hazardous Chemical Information System (HCIS), hcis.safeworkaustralia.gov.au

IATA, Dangerous Goods Regulations (DGR)

IMO, International Maritime Dangerous Goods Code (IMDG)