



Ammonium Sulfide 10% Solution

ALPHA CHEMICALS PTY LTD

Chemwatch Hazard Alert Code: 4

Chemwatch: 6557-38

Version No: 4.1.6.5

Safety Data Sheet according to WHS Regulations (Hazardous Chemicals) Amendment 2020 and ADG requirements

Issue Date: 01/11/2019

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SECTION 1 Identification of the substance / mixture and of the company / undertaking

Product Identifier

Product name	Ammonium Sulfide 10% Solution
Chemical Name	Not Applicable
Synonyms	(NH ₄) ₂ S ammonium monosulfide ammonium sulphide solution; diammonium sulfide ammonium sulfide solution
Proper shipping name	AMMONIUM SULPHIDE SOLUTION
Chemical formula	Not Applicable
Other means of identification	Not Available

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Textile processing agent, developer, colouring agent for bronze and brass.
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Details of the supplier of the safety data sheet

Registered company name	ALPHA CHEMICALS PTY LTD
Address	4 ALLEN PLACE WETHERILL PARK NSW 2099 Australia
Telephone	61 (0)2 9982 4622
Fax	Not Available
Website	~
Email	shane@alphachem.com.au

Emergency telephone number

Association / Organisation	ALPHA CHEMICALS PTY LTD
Emergency telephone numbers	61 (0)418 237 771
Other emergency telephone numbers	Not Available

SECTION 2 Hazards identification

Classification of the substance or mixture

HAZARDOUS CHEMICAL. DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.


ChemWatch Hazard Ratings

	Min	Max	
Flammability	3	3	
Toxicity	3	3	
Body Contact	4	4	
Reactivity	0	0	
Chronic	0	0	

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

Poisons Schedule	Not Applicable
Classification [1]	Skin Corrosion/Irritation Category 1A, Serious Eye Damage/Eye Irritation Category 1, Flammable Liquid Category 2
Legend:	1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI

Label elements

Hazard pictogram(s)	
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Signal word	Danger
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Hazard statement(s)

H314	Causes severe skin burns and eye damage.
AUH031	Contact with acid liberates toxic gas.
H225	Highly flammable liquid and vapour.

Precautionary statement(s) Prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P260	Do not breathe mist/vapours/spray.
P264	Wash all exposed external body areas thoroughly after handling.
P280	Wear protective gloves, protective clothing, eye protection and face protection.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/intrinsically safe equipment.
P242	Use non-sparking tools.

Precautionary statement(s) Response

P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor/physician/first aider.
P370+P378	In case of fire: Use alcohol resistant foam or fine spray/water fog to extinguish.
P363	Wash contaminated clothing before reuse.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Precautionary statement(s) Storage

P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.
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SECTION 3 Composition / information on ingredients**Substances**

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
12135-76-1	10	ammonium sulfide
7732-18-5	>60	Distilled Water
Not Available		can evolve
7783-06-4		hydrogen sulfide

Legend: 1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 4. Classification drawn from C&L; * EU IOELVs available

SECTION 4 First aid measures**Description of first aid measures**

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Immediately hold eyelids apart and flush the eye continuously with 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. ▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. ▶ Transport to hospital or doctor without delay. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	<p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> ▶ Immediately flush body and clothes with large amounts of water, using safety shower if available. ▶ Quickly remove all contaminated clothing, including footwear. ▶ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre. ▶ Transport to hospital, or doctor.
Inhalation	<ul style="list-style-type: none"> ▶ If fumes or combustion products are inhaled remove from contaminated area. ▶ Lay patient down. Keep warm and rested. ▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained.

	<ul style="list-style-type: none"> Perform CPR if necessary. ▶ Transport to hospital, or doctor, without delay.
Ingestion	<p>If poisoning occurs, contact a doctor or Poisons Information Centre.</p> <ul style="list-style-type: none"> ▶ 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 ▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ▶ Seek medical advice.

Indication of any immediate medical attention and special treatment needed

For acute or short-term repeated exposures to highly alkaline materials:

- ▶ Respiratory stress is uncommon but present occasionally because of soft tissue edema.
- ▶ Unless endotracheal intubation can be accomplished under direct vision, cricothyroidotomy or tracheotomy may be necessary.
- ▶ Oxygen is given as indicated.
- ▶ The presence of shock suggests perforation and mandates an intravenous line and fluid administration.
- ▶ Damage due to alkaline corrosives occurs by liquefaction necrosis whereby the saponification of fats and solubilisation of proteins allow deep penetration into the tissue.

Alkalis continue to cause damage after exposure.

INGESTION:

- ▶ Milk and water are the preferred diluents

No more than 2 glasses of water should be given to an adult.

- ▶ Neutralising agents should never be given since exothermic heat reaction may compound injury.

* Catharsis and emesis are absolutely contra-indicated.

* Activated charcoal does not absorb alkali.

* Gastric lavage should not be used.

Supportive care involves the following:

- ▶ Withhold oral feedings initially.
- ▶ If endoscopy confirms transmucosal injury start steroids only within the first 48 hours.
- ▶ Carefully evaluate the amount of tissue necrosis before assessing the need for surgical intervention.
- ▶ Patients should be instructed to seek medical attention whenever they develop difficulty in swallowing (dysphagia).

SKIN AND EYE:

- ▶ Injury should be irrigated for 20-30 minutes.

Eye injuries require saline. [Ellenhorn & Barceloux: Medical Toxicology]

For exposures involving sulfides and hydrogen sulfide (including gastric acid decomposition products of alkaline sulfides):

- ▶ Hydrogen sulfide anion produces its major toxic effect through inhibition of cytochrome oxidases.
- ▶ Symptoms include profuse salivation, nausea, vomiting and diarrhea. Central nervous effects may include giddiness, headache, vertigo, amnesia, confusion and unconsciousness. Tachypnoea, palpitations, tachycardia, arrhythmia, sweating, weakness and muscle cramps may also indicate overexposure.

Treatment involves:

- ▶ If respirations are depressed, application of artificial respiration, administration of oxygen (continue after spontaneous breathing is established).
- ▶ For severe poisonings administer amyl nitrite and sodium nitrite (as for cyanide poisoning) but omit sodium thiosulfate injection.
- ▶ Atropine sulfate (0.6 mg intramuscularly) may contribute symptomatic relief.
- ▶ Conjunctivitis may be relieved by installation of 1 drop of olive-oil in each eye and sometimes by 3 drops of epinephrine solution (1:1000) at frequent intervals. Occasionally local anesthetics and hot and cold compresses are necessary to control pain.
- ▶ Antibiotics at first hint of pulmonary infection.

[Gosselin et al, Clinical Toxicology of Commercial Products]

Hydrogen sulfide is metabolised by oxidation to sulfate, methylation and reaction with metallic ion- or disulfide containing proteins (principally cytochrome c oxidase). This latter reaction is associated with aerobic, cellular respiration and is largely responsible for the toxic effects

For acute or short term repeated exposures to ammonia and its solutions:

- ▶ Mild to moderate inhalation exposures produce headache, cough, bronchospasm, nausea, vomiting, pharyngeal and retrosternal pain and conjunctivitis. Severe inhalation produces laryngospasm, signs of upper airway obstruction (stridor, hoarseness, difficulty in speaking) and, in excessively, high doses, pulmonary oedema.
- ▶ Warm humidified air may soothe bronchial irritation.
- ▶ Test all patients with conjunctival irritation for corneal abrasion (fluorescein stain, slit lamp exam)
- ▶ Dyspneic patients should receive a chest X-ray and arterial blood gases to detect pulmonary oedema.

SECTION 5 Firefighting measures

Extinguishing media

- ▶ Water spray or fog.
 - ▶ Foam.
- Dry agent.
Carbon dioxide.

Special hazards arising from the substrate or mixture

Fire Incompatibility	Reacts with acids evolving toxic and flammable hydrogen sulfide gas. Reacts slowly with moisture to give off toxic, flammable hydrogen sulfide. Avoid contact with acids
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Advice for firefighters

Fire Fighting	<p>Alert Fire Brigade and tell them location and nature of hazard.</p> <ul style="list-style-type: none"> ▶ Wear full body protective clothing with breathing apparatus. ▶ Prevent, by any means available, spillage from entering drains or water courses. <p>Fight fire from a safe distance, with adequate cover. Cool fire exposed containers with water spray from a protected location. DO NOT approach containers suspected to be hot. If safe to do so, remove containers from path of fire.</p>
Fire/Explosion Hazard	<p>H₂S has a flammable range of 4.0% to 44.0% and an autoignition temperature of 260 C.</p> <ul style="list-style-type: none"> ▶ Flammable. ▶ Moderate fire hazard when exposed to heat or flame. ▶ Heating may cause expansion or decomposition leading to violent rupture of containers. ▶ May emit corrosive fumes.

	Decomposes on heating and produces toxic fumes of: hydrogen sulfide (H ₂ S) nitrogen oxides (NO _x) sulfur oxides (SO _x) and ammonia
HAZCHEM	•2W

SECTION 6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	Clean up all spills immediately. Control personal contact with the substance, by using protective equipment Shut off all possible sources of ignition and increase ventilation. Wipe up. Place in clean drum then flush area with water. Place spilled material in clean, dry, sealable, labelled container. Wash spill area with large quantities of water.
Major Spills	Pollutant <ul style="list-style-type: none"> ▶ Clear area of personnel and move upwind. ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear full body protective clothing with breathing apparatus. ▶ Prevent, by any means available, spillage from entering drains or water courses. ▶ No smoking, naked lights or ignition sources. ▶ Increase ventilation. ▶ Stop leak if safe to do so. ▶ Water spray or fog may be used to disperse vapour.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 Handling and storage

Precautions for safe handling

Safe handling	Use good occupational work practice. <ul style="list-style-type: none"> ▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained. Avoid all personal contact Wear protective clothing when risk of exposure occurs. <ul style="list-style-type: none"> ▶ Avoid smoking, naked lights or ignition sources. Avoid sources of heat. Keep containers securely sealed when not in use Use in a well-ventilated area Local exhaust ventilation may be required for safe working, i.e. to keep exposures below required standards, otherwise PPE is required. When handling, DO NOT eat, drink or smoke. Always wash hands with soap and water after handling. Work clothes should be laundered separately. Launder contaminated clothing before re-use.
Other information	<ul style="list-style-type: none"> ▶ Store below 38 deg. C. ▶ Store in original containers. ▶ Keep containers securely sealed. ▶ No smoking, naked lights or ignition sources. ▶ Store in a cool, dry, well-ventilated area. ▶ Store away from incompatible materials and foodstuff containers. ▶ Protect containers against physical damage and check regularly for leaks. ▶ Observe manufacturer's storage and handling recommendations contained within this SDS. ▶ DO NOT use aluminium, galvanised or tin-plated containers ▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained. Check regularly for gas leaks.

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▶ Glass container is suitable for laboratory quantities ▶ Lined metal can, lined metal pail/ can. ▶ Plastic pail. ▶ Polyliner drum. ▶ Packing as recommended by manufacturer. ▶ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	<ul style="list-style-type: none"> ▶ Contact with acids produces toxic fumes Segregate from strong acids and strong alkalis <ul style="list-style-type: none"> ▶ Store below 38 deg. C.

SECTION 8 Exposure controls / personal protection

Ammonium Sulfide 10% Solution

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA


Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	hydrogen sulfide	Hydrogen sulphide	10 ppm / 14 mg/m3	21 mg/m3 / 15 ppm	Not Available	Not Available

Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
ammonium sulfide	1 ppm	54 ppm	100 ppm
hydrogen sulfide	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
ammonium sulfide	Not Available	Not Available
Distilled Water	Not Available	Not Available
hydrogen sulfide	100 ppm	Not Available

Exposure controls

Appropriate engineering controls	<p>Local exhaust ventilation may be required for safe working, i.e. to keep exposures below required standards, otherwise PPE is required.</p> <p>If risk of overexposure exists, wear SAA approved respirator.</p> <p>In confined spaces, the following protective equipment should be worn: Full-face air supplied breathing apparatus.</p> <p>Provide adequate ventilation in warehouse or closed storage areas.</p>
Personal protection	
Eye and face protection	<ul style="list-style-type: none"> ▶ Chemical goggles ▶ Full face shield <p>DO NOT wear contact lenses.</p> <ul style="list-style-type: none"> ▶ 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]
Skin protection	See Hand protection below
Hands/feet protection	<ul style="list-style-type: none"> ▶ DO NOT handle directly. Wear gloves and use scoop / tongs / tools ▶ Elbow length PVC gloves <p>and</p> <ul style="list-style-type: none"> ▶ Barrier cream ▶ Safety footwear
Body protection	See Other protection below
Other protection	<p>Overalls</p> <ul style="list-style-type: none"> ▶ Eyewash unit. <p>Ensure there is ready access to a safety shower</p> <p>Ensure that there is ready access to breathing apparatus</p>

Recommended material(s)

GLOVE SELECTION INDEX

Respiratory protection

Full face respirator with supplied air.

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection:

Ammonium Sulfide 10% Solution

Material	CPI
BUTYL	A
NEOPRENE	A
VITON	A
NATURAL RUBBER	C
PVA	C

* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Yellow liquid with a characteristic unpleasant odour. Evolves toxic and flammable H ₂ S gas when heated. hot water. Forms crystals below -18 deg. C. At high temperatures decomposes to ammonium bisulfide (NH ₄ HS), ammonia and polysulfides. Reacts with acids evolving hydrogen sulfide gas (H ₂ S)		
Physical state	Liquid	Relative density (Water = 1)	1.0 @ 20C
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Available	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	40	Molecular weight (g/mol)	68.15
Flash point (°C)	15	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	HIGHLY FLAMMABLE.	Oxidising properties	Not Available
Upper Explosive Limit (%)	46	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	4	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water	Miscible	pH as a solution (%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	<ul style="list-style-type: none"> ▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable. ▶ Hazardous polymerisation will not occur. Storage in unsealed containers
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 Toxicological information

Information on toxicological effects

Inhaled	The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function. Hydrogen sulfide poisoning can cause increased secretion of saliva, nausea, vomiting, diarrhoea, giddiness, headache, vertigo, memory loss, palpitations, heartbeat irregularities, weakness, muscle cramps, confusion, sudden collapse, unconsciousness and death due to paralysis of breathing (at levels above 300 parts per million). The "rotten egg" odour is not a good indicator of exposure since odour fatigue occurs and odour is lost at over 200 ppm.
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	<p>The material is highly discomforting and corrosive to the upper respiratory tract. The vapour is highly discomforting and toxic if exposure is prolonged and inhalation may cause loss of consciousness. Inhalation of vapour may aggravate a pre-existing respiratory condition. Inhaling corrosive bases may irritate the respiratory tract. Symptoms include cough, choking, pain and damage to the mucous membrane. The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function.</p>
Ingestion	<p>Considered an unlikely route of entry in commercial/industrial environments. The material is corrosive and may be fatal if swallowed. Ingestion may result in nausea, abdominal irritation, pain and vomiting. Ingestion of alkaline corrosives may produce burns around the mouth, ulcerations and swellings of the mucous membranes, profuse saliva production, with an inability to speak or swallow. Both the oesophagus and stomach may experience burning pain; vomiting and diarrhoea may follow. If ingested, sulfide salts can form hydrogen sulfide, causing headache, cyanosis, low blood pressure, loss of consciousness, tremors and convulsions. 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.</p>
Skin Contact	<p>Bare unprotected skin should not be exposed to this material. The material may accentuate any pre-existing skin condition. Skin contact with alkaline corrosives may produce severe pain and burns; brownish stains may develop. The corroded area may be soft, gelatinous and necrotic; tissue destruction may be deep. The material is highly discomforting and corrosive to the skin and is capable of causing chemical burns and allergic skin reactions and may cause in some cases, sensitisation. The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.</p>
Eye	<p>H₂S exposure may cause eye pain, transient blurred vision. The material is highly corrosive to the eyes and is capable of causing severe damage with loss of sight. The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p>
Chronic	<p>Principal routes of exposure are usually by skin contact, eye contact, inhalation of vapour/spray mist and inhalation of vapour. Considered toxic by all exposure routes. Long term low level exposure to hydrogen sulfide may produce headache, fatigue, dizziness, irritability and loss of sexual desire. These symptoms may also result when exposed to hydrogen sulfide at high concentration for a short period of time.</p>

Ammonium Sulfide 10% Solution	TOXICITY	IRRITATION
	Not Available	Not Available
ammonium sulfide	TOXICITY	IRRITATION
	Not Available	Not Available
Distilled Water	TOXICITY	IRRITATION
	Oral(Rat) LD50; >90000 mg/kg ^[2]	Not Available
hydrogen sulfide	TOXICITY	IRRITATION
	Inhalation(Mouse) LC50; 316.028 ppm4h ^[2]	Not Available
Legend:	1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. * Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances	

AMMONIUM SULFIDE	<p>Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. On the other hand, industrial bronchitis is a disorder that occurs as a result of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production. The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce</p>
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Ammonium Sulfide 10% Solution

	conjunctivitis. The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function. The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.
AMMONIUM SULFIDE & DISTILLED WATER	No significant acute toxicological data identified in literature search.

Acute Toxicity	✗	Carcinogenicity	✗
Skin Irritation/Corrosion	✓	Reproductivity	✗
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	✗
Respiratory or Skin sensitisation	✗	STOT - Repeated Exposure	✗
Mutagenicity	✗	Aspiration Hazard	✗

Legend: ✗ – Data either not available or does not fill the criteria for classification
✓ – Data available to make classification

SECTION 12 Ecological information

Toxicity

Ammonium Sulfide 10% Solution	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
ammonium sulfide	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96h	Fish	248mg/L	4
Distilled Water	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
hydrogen sulfide	Endpoint	Test Duration (hr)	Species	Value	Source
	NOEC(ECx)	3960h	Fish	<0.001mg/L	5
	LC50	96h	Fish	<0.007mg/l	2
	EC50	48h	Crustacea	0.12mg/l	2
Legend:	Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data				

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
Distilled Water	LOW	LOW
hydrogen sulfide	LOW	LOW

Bioaccumulative potential

Ingredient	Bioaccumulation
hydrogen sulfide	LOW (LogKOW = 0.229)

Mobility in soil

Ingredient	Mobility
hydrogen sulfide	LOW (KOC = 14.3)

SECTION 13 Disposal considerations


Waste treatment methods

Product / Packaging disposal	Recycle wherever possible. Consult manufacturer for recycling options. Consult State Land Waste Management Authority for disposal. Treat and neutralise at an effluent treatment plant. Decontaminate empty containers.
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SECTION 14 Transport information

Labels Required

Ammonium Sulfide 10% Solution

	
Marine Pollutant	NO
HAZCHEM	*2W

Land transport (ADG)

UN number	2683	
UN proper shipping name	AMMONIUM SULPHIDE SOLUTION	
Transport hazard class(es)	Class	8
	Subrisk	3, 6.1
Packing group	II	
Environmental hazard	Not Applicable	
Special precautions for user	Special provisions	Not Applicable
	Limited quantity	1 L

Air transport (ICAO-IATA / DGR)

UN number	2683	
UN proper shipping name	Ammonium sulphide solution	
Transport hazard class(es)	ICAO/IATA Class	8
	ICAO / IATA Subrisk	3, 6.1
	ERG Code	8FP
Packing group	II	
Environmental hazard	Not Applicable	
Special precautions for user	Special provisions	Not Applicable
	Cargo Only Packing Instructions	855
	Cargo Only Maximum Qty / Pack	30 L
	Passenger and Cargo Packing Instructions	851
	Passenger and Cargo Maximum Qty / Pack	1 L
	Passenger and Cargo Limited Quantity Packing Instructions	Y840
	Passenger and Cargo Limited Maximum Qty / Pack	0.5 L

Sea transport (IMDG-Code / GGVSee)

UN number	2683	
UN proper shipping name	AMMONIUM SULPHIDE SOLUTION	
Transport hazard class(es)	IMDG Class	8
	IMDG Subrisk	3, 6.1
Packing group	II	
Environmental hazard	Not Applicable	
Special precautions for user	EMS Number	F-E, S-C
	Special provisions	Not Applicable
	Limited Quantities	1 L

Transport in bulk according to Annex II of MARPOL and the IBC code

Product name	Pollution Category	Ship Type
Ammonium sulphide solution (45% or less) (*)	Y	2

Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
ammonium sulfide	Not Available
Distilled Water	Not Available
hydrogen sulfide	Not Available

Transport in bulk in accordance with the ICG Code

Product name	Ship Type

Ammonium Sulfide 10% Solution

Product name	Ship Type
ammonium sulfide	Not Available
Distilled Water	Not Available
hydrogen sulfide	Not Available

SECTION 15 Regulatory information

Safety, health and environmental regulations / legislation specific for the substance or mixture

ammonium sulfide is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australian Inventory of Industrial Chemicals (AIIC)

Distilled Water is found on the following regulatory lists

Australian Inventory of Industrial Chemicals (AIIC)

hydrogen sulfide is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australian Inventory of Industrial Chemicals (AIIC)

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 7

National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No (ammonium sulfide; Distilled Water; hydrogen sulfide)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	Yes
Vietnam - NCI	Yes
Russia - FBEPH	No (ammonium sulfide)
Legend:	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets)

SECTION 16 Other information

Revision Date	01/11/2019
Initial Date	01/11/2009

SDS Version Summary

Version	Date of Update	Sections Updated
3.1.1.1	27/06/2017	Classification
4.1.1.1	01/11/2019	One-off system update. NOTE: This may or may not change the GHS classification
4.1.2.1	26/04/2021	Regulation Change
4.1.3.1	03/05/2021	Regulation Change
4.1.4.1	06/05/2021	Regulation Change
4.1.5.1	10/05/2021	Regulation Change
4.1.5.2	30/05/2021	Template Change
4.1.5.3	04/06/2021	Template Change
4.1.5.4	05/06/2021	Template Change
4.1.6.4	07/06/2021	Regulation Change
4.1.6.5	09/06/2021	Template Change

Other information

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.

The 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.

Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
PC—STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit
IDLH: Immediately Dangerous to Life or Health Concentrations
ES: Exposure Standard
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index
AIIIC: Australian Inventory of Industrial Chemicals
DSL: Domestic Substances List
NDSL: Non-Domestic Substances List
IECSC: Inventory of Existing Chemical Substance in China
EINECS: European INventory of Existing Commercial chemical Substances
ELINCS: European List of Notified Chemical Substances
NLP: No-Longer Polymers
ENCS: Existing and New Chemical Substances Inventory
KECI: Korea Existing Chemicals Inventory
NZIoC: New Zealand Inventory of Chemicals
PICCS: Philippine Inventory of Chemicals and Chemical Substances
TSCA: Toxic Substances Control Act
TCSI: Taiwan Chemical Substance Inventory
INSQ: Inventario Nacional de Sustancias Químicas
NCI: National Chemical Inventory
FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

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