SECTION 1 IDENTIFICATION

Product Identifier

<table>
<thead>
<tr>
<th>Product name</th>
<th>10 63-4 Tungsten (10μg/mL in 0.1% NH₄OH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms</td>
<td>10μg/mL Tungsten in 0.1% NH₄OH</td>
</tr>
<tr>
<td>Proper shipping name</td>
<td>Ammonium hydrogen sulfate (contains water)</td>
</tr>
<tr>
<td>Other means of identification</td>
<td>10 63-4</td>
</tr>
</tbody>
</table>

Recommended use of the chemical and restrictions on use

Relevant identified uses

Use according to manufacturer's directions.

Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Registered company name: High-Purity Standards
Address: PO Box 41727 SC 29423 United States
Telephone: 843-767-7900
Fax: 843-767-7906
Website: highpuritystandards.com
Email: Not Available

Emergency phone number

Association / Organisation: INFOTRAC
Emergency telephone numbers: 1-800-535-5053
Other emergency telephone numbers: 1-352-323-3500

SECTION 2 HAZARD(S) IDENTIFICATION

Classification of the substance or mixture

Classification: Metal Corrosion Category 1, Skin Corrosion/Irritation Category 1A, Serious Eye Damage Category 1

Label elements

Hazard pictogram(s)

SIGNAL WORD: DANGER

Hazard statement(s)

H290: May be corrosive to metals.
H314: Causes severe skin burns and eye damage.

Hazard(s) not otherwise specified

Not Applicable

Precautionary statement(s) Prevention

Continued...
SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances
See section below for composition of Mixtures

Mixtures

<table>
<thead>
<tr>
<th>CAS No</th>
<th>% [weight]</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>11120-25-5</td>
<td>0.001 (as W)</td>
<td>ammonium tungstate</td>
</tr>
<tr>
<td>7732-18-5</td>
<td>balance</td>
<td>water</td>
</tr>
</tbody>
</table>

SECTION 4 FIRST-AID MEASURES

Description of first aid measures

Eye Contact
If this product comes in contact with the eyes:
- 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
If skin or hair contact occurs:
- 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
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. Perform CPR if necessary.
- Transport to hospital, or doctor, without delay.
- Inhalation of vapours or aerosols (mists, fumes) may cause lung oedema.
- Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs).
- As this reaction may be delayed up to 24 hours after exposure, affected individuals need complete rest (preferably in semi-recumbent posture) and must be kept under medical observation even if no symptoms are (yet) manifested.
- Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered.
- This must definitely be left to a doctor or person authorised by him/her.

Ingestion
For advice, contact a Poisons Information Centre or a doctor at once.
- Urgent hospital treatment is likely to be needed.
- 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.
- Transport to hospital or doctor without delay.

Most important symptoms and effects, both acute and delayed
See Section 11

Indication of any immediate medical attention and special treatment needed

for corrosives:

**BASIC TREATMENT**

- Establish a patent airway with suction where necessary.
- Watch for signs of respiratory insufficiency and assist ventilation as necessary.
- Administer oxygen by non-rebreather mask at 10 to 15 l/min.
- Monitor and treat, where necessary, for pulmonary oedema.
- Monitor and treat, where necessary, for shock.
- Anticipate seizures.
- Where eyes have been exposed, flush immediately with water and continue to irrigate with normal saline during transport to hospital.
- DO NOT use emetics. Where ingestion is suspected rinse mouth and give up to 200 ml water (5 ml/kg recommended) for dilution where patient is able to swallow, has a strong gag reflex and does not drool.

Continued...
Skin burns should be covered with dry, sterile bandages, following decontamination. DO NOT attempt neutralisation as exothermic reaction may occur.

ADVANCED TREATMENT

Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred. Monitor and treat, where necessary, for arrhythmias. Start an IV D5W TKO. If signs of hypovolaemia are present use lactated Ringers solution. Fluid overload might create complications. Drug therapy should be considered for pulmonary oedema. Hypotension with signs of hypovolaemia requires the cautious administration of fluids. Fluid overload might create complications. Treat seizures with diazepam. Proparacaine hydrochloride should be used to assist eye irrigation.

EMERGENCY DEPARTMENT

Laboratory analysis of complete blood count, serum electrolytes, BUN, creatinine, glucose, urinalysis, baseline for serum aminotransferases (ALT and AST), calcium, phosphorus and magnesium, may assist in establishing a treatment regime. Positive end-expiratory pressure (PEEP)-assisted ventilation may be required for acute parenchymal injury or adult respiratory distress syndrome. Consider endoscopy to evaluate oral injury. Consult a toxicologist as necessary.

SECTION 5 FIRE-FIGHTING MEASURES

Extinguishing media

There is no restriction on the type of extinguisher which may be used. Use extinguishing media suitable for surrounding area.

Special hazards arising from the substrate or mixture

Fire Incompatibility None known

Special protective equipment and precautions for fire-fighters

Fire Fighting

Fire/Explosion Hazard

Non combustible. Not considered a significant fire risk, however containers may burn. May emit corrosive fumes.

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

Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material. Check regularly for spills and leaks. Clean up all spills immediately. Avoid breathing vapours and contact with skin and eyes. Control personal contact with the substance, by using protective equipment. Contain and absorb spill with sand, earth, inert material or vermiculite. Wipe up. Place in a suitable, labelled container for waste disposal.

Major Spills

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

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling

Avoid all personal contact, including inhalation. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. WARNING: To avoid violent reaction, ALWAYS add material to water and NEVER water to material. Avoid smoking, naked lights or ignition sources. Avoid contact with incompatible materials. When handling, DO NOT eat, drink or smoke. Keep containers securely sealed when not in use. Avoid physical damage to containers. Always wash hands with soap and water after handling. Work clothes should be laundered separately. Launder contaminated clothing before re-use. Use good occupational work practice. Observe manufacturer's storage and handling recommendations contained within this SDS. Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained. DO NOT allow clothing wet with material to stay in contact with skin.
### Conditions for safe storage, including any incompatibilities

#### Suitable container
- Lined metal can, lined metal pail/ can.
- Plastic pail.
- Polyliner drum.
- Check all containers are clearly labelled and free from leaks.
- Drums and jerricans must be of the non-removable head type.
- Where a can is to be used as an inner package, the can must have a screwed enclosure.
- For low viscosity materials, where contamination of the of the non-removable head type.
- Where a can is to be used as an inner package, the can must have a screwed enclosure.
- For materials with a viscosity of at least 2680 cSt. (23 deg. C) and solids (between 15 C deg. and 40 deg C.;)
- Removable head packaging;
- Cans with friction closures and
- low pressure tubes and cartridges may be used.

Where combination packages are used, and the inner packages are of glass, porcelain or stoneware, there must be sufficient inert cushioning material in contact with inner and outer packages unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.

#### Storage incompatibility
- Dangerous goods of other classes.

### SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

#### Control parameters

- OCCUPATIONAL EXPOSURE LIMITS (OEL)
- INGREDIENT DATA
  - Not Available
  - Original IDLH
  - Revised IDLH

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Material name</th>
<th>TEEL-1</th>
<th>TEEL-2</th>
<th>TEEL-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ammonium tungstate</td>
<td>Ammonium tungstate(VI)</td>
<td>4.1 mg/m³</td>
<td>45 mg/m³</td>
<td>270 mg/m³</td>
</tr>
</tbody>
</table>

### Exposure 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. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.
- Employers may need to use multiple types of controls to prevent employee overexposure.

Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection.

An approved self contained breathing apparatus (SCBA) may be required in some situations.

Provide adequate ventilation in warehouse or closed storage area. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

<table>
<thead>
<tr>
<th>Type of Contaminant</th>
<th>Air Speed:</th>
</tr>
</thead>
<tbody>
<tr>
<td>solvent, vapours, degreasing etc...</td>
<td>0.25-0.5 m/s (50-100 f/min.)</td>
</tr>
<tr>
<td>aerosols, fumes from pouring operations, intermittent container filling, low speed conveyor transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)</td>
<td>0.5-1 m/s (100-200 f/min.)</td>
</tr>
<tr>
<td>direct spray, spray painting in shallow booths, drum filling, conveyor loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)</td>
<td>1-2.5 m/s (200-500 f/min.)</td>
</tr>
<tr>
<td>grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion)</td>
<td>2.5-10 m/s (500-2000 f/min.)</td>
</tr>
</tbody>
</table>

Within each range the appropriate value depends on:

<table>
<thead>
<tr>
<th>Lower end of the range</th>
<th>Upper end of the range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Room air currents minimal or favourable to capture</td>
<td>1: Disturbing room air currents</td>
</tr>
<tr>
<td>2: Contaminants of low toxicity or of nuisance value only</td>
<td>2: Contaminants of High toxicity</td>
</tr>
<tr>
<td>3: Intermittent, low production.</td>
<td>3: High production, heavy use</td>
</tr>
<tr>
<td>4: Large hood or large air mass in motion</td>
<td>4: Small hood-local control only</td>
</tr>
</tbody>
</table>
Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 ft/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

---

## Personal protection

- Safety glasses with unperforated side shields may be used where continuous eye protection is desirable, as in laboratories; spectacles are not sufficient where complete eye protection is needed such as when handling bulk quantities, where there is a danger of splashing, or if the material may be under pressure.
- Chemical goggles, wherever there is a danger of the material coming in contact with the eyes; goggles must be properly fitted.
- Full face shield (20 cm, 8 in minimum) may be required for supplementary but never for primary protection of eyes; these afford face protection.
- Alternatively, a gas mask may replace splash goggles and face shields.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses 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. Lenses 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]

## Eye and face protection

- Elbow length PVC gloves
- When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots.

The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application. The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.

Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

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

- 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 2161.1 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 2161.1 or national equivalent) is recommended.
- Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use. Contaminated gloves should be replaced.

For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended. It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.

Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task.

Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:

- Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.
- Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential.

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.

## Skin protection

See Hand protection below

## Hands/feet protection

- Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.
- Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use. Contaminated gloves should be replaced.

For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended. It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.

Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task.

Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:

- Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.
- Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential.

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.

## Body protection

See Other protection below

## Other protection

- Overalls.
- PVC Apron.
- PVC protective suit may be required if exposure severe.
- Eyewash unit.
- Ensure there is ready access to a safety shower.

## Thermal hazards

Not Available

---

### SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>colorless</td>
<td></td>
</tr>
<tr>
<td>Physical state</td>
<td>Liquid</td>
<td></td>
</tr>
<tr>
<td>Odour</td>
<td>Not Available</td>
<td></td>
</tr>
<tr>
<td>Odour threshold</td>
<td>Not Available</td>
<td></td>
</tr>
<tr>
<td>pH (as supplied)</td>
<td>Not Available</td>
<td></td>
</tr>
<tr>
<td>Melting point / freezing point (°C)</td>
<td>Not Available</td>
<td></td>
</tr>
<tr>
<td>Relative density (Water = 1)</td>
<td>Not Available</td>
<td></td>
</tr>
<tr>
<td>Partition coefficient n-octanol / water</td>
<td>Not Available</td>
<td></td>
</tr>
<tr>
<td>Auto-ignition temperature (°C)</td>
<td>Not Available</td>
<td></td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not Available</td>
<td></td>
</tr>
<tr>
<td>Viscosity (cSt)</td>
<td>Not Available</td>
<td></td>
</tr>
</tbody>
</table>
SECTION 10 STABILITY AND REACTIVITY

Reactivity
See section 7

Chemical stability
¬ Unstable in the presence of incompatible materials.
¬ Product is considered stable.
¬ Hazardous polymerisation will not occur.

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 can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.
The material has NOT been classified by EC Directives or other classification systems as "harmful by inhalation". This is because of the lack of corroborating animal or human evidence.

Ingestion
The material can produce severe chemical burns within the oral cavity and gastrointestinal tract following ingestion.
The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.

Skin Contact
The material can produce severe chemical burns following direct contact with the skin.
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.
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.

Eye
The material can produce severe chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating.
If applied to the eyes, this material causes severe eye damage.

Chronic
Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue.
Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems.
Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

<table>
<thead>
<tr>
<th>Compound</th>
<th>TOXICITY</th>
<th>IRRITATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 63-4 Tungsten (10μg/mL in 0.1% NH4OH)</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>ammonium tungstate</td>
<td>TOXICITY</td>
<td>IRRITATION</td>
</tr>
<tr>
<td></td>
<td>dermal (rat) LD50: &gt;2000 mg/kg[1]</td>
<td>Not Available</td>
</tr>
<tr>
<td></td>
<td>Oral (rat) LD50: &gt;2000 mg/kg[1]</td>
<td></td>
</tr>
<tr>
<td>water</td>
<td>TOXICITY</td>
<td>IRRITATION</td>
</tr>
<tr>
<td></td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

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 TUNGSTATE
Asthma-like symptoms may continue for months or even years after exposure to the material ends.
Tungsten can cause a reduction in body temperature, and enlargement of the adrenal glands and kidneys if injected.

AMMONIUM TUNGSTATE & WATER
No significant acute toxicological data identified in literature search.

Acute Toxicity ¬ Carcinogenicity ¬
## SECTION 12 ECOLOGICAL INFORMATION

### Toxicity

<table>
<thead>
<tr>
<th>10 63-4 Tungsten (10μg/mL in 0.1% NH4OH)</th>
<th>ENDPOINT</th>
<th>TEST DURATION (HR)</th>
<th>SPECIES</th>
<th>VALUE</th>
<th>SOURCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Applicable</td>
<td></td>
<td>Not Applicable</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

### ammonium tungstate

<table>
<thead>
<tr>
<th>ENDPOINT</th>
<th>TEST DURATION (HR)</th>
<th>SPECIES</th>
<th>VALUE</th>
<th>SOURCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50</td>
<td>96</td>
<td>Fish</td>
<td>&gt;181mg/L</td>
<td>2</td>
</tr>
<tr>
<td>EC50</td>
<td>48</td>
<td>Crustacea</td>
<td>&gt;163mg/L</td>
<td>2</td>
</tr>
<tr>
<td>EC50</td>
<td>72</td>
<td>Algae or other aquatic plants</td>
<td>7.35mg/L</td>
<td>2</td>
</tr>
<tr>
<td>EC50</td>
<td>72</td>
<td>Algae or other aquatic plants</td>
<td>&gt;17.7mg/L</td>
<td>2</td>
</tr>
<tr>
<td>NOEC</td>
<td>72</td>
<td>Algae or other aquatic plants</td>
<td>0.812mg/L</td>
<td>2</td>
</tr>
</tbody>
</table>

### water

<table>
<thead>
<tr>
<th>ENDPOINT</th>
<th>TEST DURATION (HR)</th>
<th>SPECIES</th>
<th>VALUE</th>
<th>SOURCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Applicable</td>
<td></td>
<td>Not Applicable</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

**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

Prevent, by any means available, spillage from entering drains or water courses.

**DO NOT** discharge into sewers or waterways.

### Persistence and degradability

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Persistence: Water/Soil</th>
<th>Persistence: Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>water</td>
<td>LOW</td>
<td>LOW</td>
</tr>
</tbody>
</table>

### Bioaccumulative potential

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Bioaccumulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>water</td>
<td>LOW (LogKow = -1.38)</td>
</tr>
</tbody>
</table>

### Mobility in soil

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Mobility</th>
</tr>
</thead>
<tbody>
<tr>
<td>water</td>
<td>LOW (KOC = 14.3)</td>
</tr>
</tbody>
</table>

### SECTION 13 DISPOSAL CONSIDERATIONS

**Waste treatment methods**

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. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. 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 or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Treat and neutralise at an approved treatment plant. Treatment should involve: Neutralisation followed by: burial in a land-fill specifically licensed to accept...
SECTION 14 TRANSPORT INFORMATION

Labels Required

<table>
<thead>
<tr>
<th>Marine Pollutant</th>
<th>NO</th>
</tr>
</thead>
</table>

Land transport (DOT)

<table>
<thead>
<tr>
<th>UN number</th>
<th>2506</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN proper shipping name</td>
<td>Ammonium hydrogen sulfate (contains water)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transport hazard class(es)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
<td>8</td>
</tr>
<tr>
<td>Subrisk</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Packing group</th>
<th>II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental hazard</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Special precautions for user</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard Label</td>
<td>8</td>
</tr>
<tr>
<td>Special provisions</td>
<td>IB8, IP2, IP4, T3, TP33</td>
</tr>
</tbody>
</table>

Air transport (ICAO-IATA / DGR)

<table>
<thead>
<tr>
<th>UN number</th>
<th>2506</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN proper shipping name</td>
<td>AMMONIUM HYDROGEN SULPHATE (contains water)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transport hazard class(es)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ICAO/IATA Class</td>
<td>8</td>
</tr>
<tr>
<td>ICAO / IATA Subrisk</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>ERG Code</td>
<td>8L</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Packing group</th>
<th>II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental hazard</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Special precautions for user</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Special provisions</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Cargo Only Packing Instructions</td>
<td>863</td>
</tr>
<tr>
<td>Cargo Only Maximum Qty / Pack</td>
<td>50 kg</td>
</tr>
<tr>
<td>Passenger and Cargo Packing Instructions</td>
<td>859</td>
</tr>
<tr>
<td>Passenger and Cargo Maximum Qty / Pack</td>
<td>15 kg</td>
</tr>
<tr>
<td>Passenger and Cargo Limited Quantity Packing Instructions</td>
<td>Y844</td>
</tr>
<tr>
<td>Passenger and Cargo Limited Maximum Qty / Pack</td>
<td>5 kg</td>
</tr>
</tbody>
</table>

Sea transport (IMDG-Code / GGVSee)

<table>
<thead>
<tr>
<th>UN number</th>
<th>2506</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN proper shipping name</td>
<td>Ammonium hydrogen sulphate (contains water)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transport hazard class(es)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IMDG Class</td>
<td>8</td>
</tr>
<tr>
<td>IMDG Subrisk</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Packing group</th>
<th>II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental hazard</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Special precautions for user</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>EMS Number</td>
<td>F-A, S-B</td>
</tr>
<tr>
<td>Special provisions</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Limited Quantities</td>
<td>1 kg</td>
</tr>
</tbody>
</table>

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

Not Applicable
SECTION 15 REGULATORY INFORMATION

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

| AMMONIUM TUNGSTATE(11120-25-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS |
| US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory |

| WATER(7732-18-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS |
| US - Pennsylvania - Hazardous Substance List |
| US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory |

Federal Regulations

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SECTION 311/312 HAZARD CATEGORIES

| Immediate (acute) health hazard | Yes |
| Delayed (chronic) health hazard | No |
| Fire hazard | No |
| Pressure hazard | No |
| Reactivity hazard | No |

US. EPA CERCLA HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES (40 CFR 302.4)

None Reported

State Regulations

US. CALIFORNIA PROPOSITION 65

None Reported

National Inventory | Status
--- | ---
Australia - AICS | Y
Canada - DSL | N (ammonium tungstate)
Canada - NDSL | N (water)
China - IECSC | Y
Europe - EINEC / ELINCS / NLP | Y
Japan - ENCS | N (water; ammonium tungstate)
Korea - KECI | Y
New Zealand - NZIoC | N (ammonium tungstate)
Philippines - PICCS | N (ammonium tungstate)
USA - TSCA | Y

Legend: Y = All ingredients are on the inventory
N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets)

SECTION 16 OTHER INFORMATION

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
OSF: Odour Safety Factor
NOEL: 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

This document is copyright.
Apart from any fair dealing for the purposes of private study, research, review or criticism, as permitted under the Copyright Act, no part may be reproduced by any process without written permission from CHEMWATCH.
TEL (+61 3) 9572 4700.

end of SDS