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

1.1 Product identifier
- Trade name: Ammonium tetrathiotungstate(VI), 99% (99.9+%-W)
- Item number: 74-1000
- CAS Number: 13862-78-7

1.2 Relevant identified uses of the substance or mixture and uses advised against
No further relevant information available.

1.3 Details of the supplier of the safety data sheet
- Manufacturer/Supplier: Strem Chemicals, Inc.
  7 Mulliken Way
  NEWBURPORT, MA 01950
  USA
  info@strem.com
- Further information obtainable from: Technical Department

1.4 Emergency telephone number:
- EMERGENCY: CHEMTREC: +1 (800) 424-9300
- During normal opening times: +1 (978) 499-1600

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
- Classification according to Regulation (EC) No 1272/2008

GHS07

Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2 H319 Causes serious eye irritation.
STOT SE 3 H335 May cause respiratory irritation.

2.2 Label elements
- Labelling according to Regulation (EC) No 1272/2008
  The substance is classified and labelled according to the CLP regulation.
- Hazard pictograms

GHS07

- Signal word Warning

Hazard-determining components of labelling:
Ammonium tetrathiotungstate(VI), 99% (99.9+%-W)

- Hazard statements
  H315 Causes skin irritation.
  H319 Causes serious eye irritation.
  H335 May cause respiratory irritation.

- Precautionary statements
  P101 If medical advice is needed, have product container or label at hand.
  P102 Keep out of reach of children.
  P103 Read label before use.
Trade name: Ammonium tetrathiotungstate(VI), 99% (99.9+%-%-W)

P262  Do not get in eyes, on skin, or on clothing.
P280  Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338  IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304+P340  IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P403+P233  Store in a well-ventilated place. Keep container tightly closed.
P501  Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards
Results of PBT and vPvB assessment
· PBT: Not applicable.
· vPvB: Not applicable.

SECTION 3: Composition/information on ingredients
· 3.1 Chemical characterisation: Substances
· CAS No. Description
  13862-78-7 Ammonium tetrathiotungstate(VI), 99% (99.9+%-%-W)

SECTION 4: First aid measures
· 4.1 Description of first aid measures
  · After inhalation: In case of unconsciousness place patient stably in side position for transportation.
  · After skin contact: Immediately wash with water and soap and rinse thoroughly.
  · After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
  · After swallowing: If symptoms persist consult doctor.
· 4.2 Most important symptoms and effects, both acute and delayed
  No further relevant information available.
· 4.3 Indication of any immediate medical attention and special treatment needed
  No further relevant information available.

SECTION 5: Firefighting measures
· 5.1 Extinguishing media
  · Suitable extinguishing agents:
    CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· 5.2 Special hazards arising from the substance or mixture
  No further relevant information available.
· 5.3 Advice for firefighters
  · Protective equipment: No special measures required.

SECTION 6: Accidental release measures
· 6.1 Personal precautions, protective equipment and emergency procedures
  Not required.
· 6.2 Environmental precautions: No special measures required.
· 6.3 Methods and material for containment and cleaning up:
  Dispose contaminated material as waste according to item 13.
  Ensure adequate ventilation.
· 6.4 Reference to other sections
  See Section 7 for information on safe handling.
SECTION 7: Handling and storage

· 7.1 Precautions for safe handling: No special precautions are necessary if used correctly.
· Information about fire - and explosion protection: No special measures required.
· 7.2 Conditions for safe storage, including any incompatibilities:
  · Storage:
    · Requirements to be met by storerooms and receptacles: No special requirements.
    · Information about storage in one common storage facility: Not required.
    · Further information about storage conditions: Keep container tightly sealed.
· 7.3 Specific end use(s): No further relevant information available.

SECTION 8: Exposure controls/personal protection

· Additional information about design of technical facilities: No further data; see item 7.
· 8.1 Control parameters:
  · Ingredients with limit values that require monitoring at the workplace: Not required.
  · Additional information: The lists valid during the making were used as basis.
· 8.2 Exposure controls:
  · Personal protective equipment:
    · General protective and hygienic measures:
      Keep away from foodstuffs, beverages and feed.
      Immediately remove all soiled and contaminated clothing.
      Wash hands before breaks and at the end of work.
      Avoid contact with the eyes and skin.
    · Respiratory protection:
      In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
    · Protection of hands:

   Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· Material of gloves:
  The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
· Penetration time of glove material:
  The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· Eye protection:

Tightly sealed goggles
### 9.1 Information on basic physical and chemical properties

#### General Information

- **Appearance:** Crystalline
- **Colour:** Light orange colour
- **Odour:** Rotten
- **Odour threshold:** Not determined.

#### pH-value:

Not applicable.

#### Change in condition

- **Melting point/Melting range:** no data °C
- **Boiling point/Boiling range:** no data °C

#### Flammability (solid, gaseous):

- **Flash point:** Not applicable.
- **Flammability:** Not determined.

#### Ignition temperature:

- **Decomposition temperature:** Not determined.
- **Self-igniting:** Not determined.
- **Danger of explosion:** Product does not present an explosion hazard.

#### Explosion limits:

- **Lower:** Not determined.
- **Upper:** Not determined.

#### Vapour pressure:

Not applicable.

#### Density:

- **Relative density:** Not determined.
- **Vapour density:** Not applicable.
- **Evaporation rate:** Not applicable.

#### Solubility in / Miscibility with water:

Insoluble.

#### Partition coefficient (n-octanol/water):

Not determined.

#### Viscosity:

- **Dynamic:** Not applicable.
- **Kinematic:** Not applicable.

#### Solvent content:

- **Organic solvents:** 0.0 %
- **VOC (EC):** 0.00 %

#### Solids content:

100.0 %

### 9.2 Other information

No further relevant information available.

### SECTION 10: Stability and reactivity

#### 10.1 Reactivity

No further relevant information available.

#### 10.2 Chemical stability

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions:** No dangerous reactions known.
- **Conditions to avoid:** No further relevant information available.
SECTION 11: Toxicological information

11.1 Information on toxicological effects
- Acute toxicity: Based on available data, the classification criteria are not met.
- Primary irritant effect:
  - Skin corrosion/irritation
    Causes skin irritation.
  - Serious eye damage/irritation
    Causes serious eye irritation.
- Respiratory or skin sensitisation
  Based on available data, the classification criteria are not met.
- CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)
  - Germ cell mutagenicity
    Based on available data, the classification criteria are not met.
  - Carcinogenicity
    Based on available data, the classification criteria are not met.
  - Reproductive toxicity
    Based on available data, the classification criteria are not met.
- STOT-single exposure
  May cause respiratory irritation.
- STOT-repeated exposure
  Based on available data, the classification criteria are not met.
- Aspiration hazard
  Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1 Toxicity
- Aquatic toxicity: No further relevant information available.
- Persistence and degradability: No further relevant information available.
- Bioaccumulative potential: No further relevant information available.
- Mobility in soil: No further relevant information available.
- Additional ecological information:
  - General notes: Not known to be hazardous to water.
  - Results of PBT and vPvB assessment
    - PBT: Not applicable.
    - vPvB: Not applicable.
- Other adverse effects: No further relevant information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
- Recommendation
  Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- Uncleaned packaging:
  - Recommendation: Disposal must be made according to official regulations.

SECTION 14: Transport information

14.1 UN-Number
- ADR, ADN, IMDG, IATA: not regulated

(Contd. on page 6)
Safety data sheet
according to 1907/2006/EC, Article 31


Trade name: Ammonium tetrathiotungstate(VI), 99% (99.9+-%W)

· 14.2 UN proper shipping name
  · ADR, ADN, IMDG, IATA not regulated

· 14.3 Transport hazard class(es)
  · ADR, ADN, IMDG, IATA not regulated

· 14.4 Packing group
  · ADR, IMDG, IATA not regulated

· 14.5 Environmental hazards:
  · Marine pollutant: No

· 14.6 Special precautions for user
  · Not applicable.

· 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code
  · Not applicable.

· UN "Model Regulation": not regulated

SECTION 15: Regulatory information

· 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
  · Directive 2012/18/EU
  · Named dangerous substances - ANNEX I Substance is not listed.

· 15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing MSDS: Technical Department.
· Contact: Technical Director

· Abbreviations and acronyms:
  ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  IMDG: International Maritime Code for Dangerous Goods
  IATA: International Air Transport Association
  GHS: Globally Harmonised System of Classification and Labelling of Chemicals
  CAS: Chemical Abstracts Service (division of the American Chemical Society)
  VOC: Volatile Organic Compounds (USA, EU)
  PBT: Persistent, Bioaccumulative and Toxic
  vPvB: very Persistent and very Bioaccumulative
  Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
  Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2
  STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3