1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifiers

Product name: Ytterbium(III) nitrate pentahydrate
Product Number: 209147
Brand: Aldrich
CAS-No.: 35725-34-9

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

Identified uses: Laboratory chemicals, Manufacture of substances
Uses advised against: No specific uses advised against.

1.3 Details of the supplier of the safety data sheet

A-07-11, Empire Office, Empire Subang
Jalan SS16/1, SS16
47500 SUBANG JAYA-SELANGOR DARUL EHSAN
MALAYSIA

Telephone: +60 (603) 563 53321
Fax: +60 (603) 563 54116

1.4 Emergency telephone number

Emergency Phone #: 

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]
- Oxidizing solids (Category 2)
- Skin irritation (Category 2)
- Eye irritation (Category 2)
- Specific target organ toxicity - single exposure (Category 3)

Classification according to EU Directives 67/548/EEC or 1999/45/EC
- Contact with combustible material may cause fire. Irritating to eyes, respiratory system and skin.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008 [CLP]

Signal word: Danger

Hazard statement(s)
- H272: May intensify fire; oxidiser.
- H315: Causes skin irritation.
- H319: Causes serious eye irritation.
- H335: May cause respiratory irritation.

Precautionary statement(s)
- P220: Keep/Store away from clothing/ combustible materials.
- P261: Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
- P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove
contact lenses, if present and easy to do. Continue rinsing.

Supplemental Hazard Statements


Hazard symbol(s)

R-phrase(s)
R 8 Contact with combustible material may cause fire.
R36/37/38 Irritating to eyes, respiratory system and skin.

S-phrase(s)
S17 Keep away from combustible material.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36 Wear suitable protective clothing.

2.3 Other hazards - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula: \( \text{N}_3\text{O}_9\text{Yb} \cdot 5\text{H}_2\text{O} \)

Molecular Weight: 449.13 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ytterbium nitrate pentahydrate</td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>35725-34-9</td>
</tr>
<tr>
<td>EC-No.</td>
<td>237-384-6</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

4.3 Indication of any immediate medical attention and special treatment needed
no data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
5.2 **Special hazards arising from the substance or mixture**
nitrogen oxides (NO\textsubscript{x}), ytterbium oxides

5.3 **Advice for firefighters**
Wear self contained breathing apparatus for fire fighting if necessary.

5.4 **Further information**
Use water spray to cool unopened containers.

6. **ACCIDENTAL RELEASE MEASURES**

6.1 **Personal precautions, protective equipment and emergency procedures**
Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

6.2 **Environmental precautions**
Do not let product enter drains.

6.3 **Methods and materials for containment and cleaning up**
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

6.4 **Reference to other sections**
For disposal see section 13.

7. **HANDLING AND STORAGE**

7.1 **Precautions for safe handling**
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Keep away from heat and sources of ignition. Normal measures for preventive fire protection.

7.2 **Conditions for safe storage, including any incompatibilities**
Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

7.3 **Specific end use(s)**
no data available

8. **EXPOSURE CONTROLS/PERSONAL PROTECTION**

8.1 **Control parameters**

8.2 **Exposure controls**

   **Appropriate engineering controls**
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

   **Personal protective equipment**

   **Eye/face protection**
Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

   **Skin protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

   **Body Protection**
impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

<table>
<thead>
<tr>
<th>9.</th>
<th>PHYSICAL AND CHEMICAL PROPERTIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1</td>
<td>Information on basic physical and chemical properties</td>
</tr>
<tr>
<td>a)</td>
<td>Appearance</td>
</tr>
<tr>
<td></td>
<td>Form: Crystals with lumps</td>
</tr>
<tr>
<td></td>
<td>Colour: colourless</td>
</tr>
<tr>
<td>b)</td>
<td>Odour</td>
</tr>
<tr>
<td></td>
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<tr>
<td>c)</td>
<td>Odour Threshold</td>
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<td>d)</td>
<td>pH</td>
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<td>e)</td>
<td>Melting point/freezing point</td>
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<td>f)</td>
<td>Initial boiling point and boiling range</td>
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<td>g)</td>
<td>Flash point</td>
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<td></td>
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<tr>
<td>h)</td>
<td>Evaporation rate</td>
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<tr>
<td></td>
<td>no data available</td>
</tr>
<tr>
<td>i)</td>
<td>Flammability (solid, gas)</td>
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<tr>
<td></td>
<td>no data available</td>
</tr>
<tr>
<td>j)</td>
<td>Upper/lower flammability or explosive limits</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td>k)</td>
<td>Vapour pressure</td>
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<tr>
<td>l)</td>
<td>Vapour density</td>
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<tr>
<td>m)</td>
<td>Relative density</td>
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<tr>
<td>n)</td>
<td>Water solubility</td>
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<tr>
<td>o)</td>
<td>Partition coefficient: n-octanol/water</td>
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<tr>
<td></td>
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<tr>
<td>p)</td>
<td>Auto-ignition temperature</td>
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<tr>
<td>q)</td>
<td>Decomposition temperature</td>
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<tr>
<td>r)</td>
<td>Viscosity</td>
</tr>
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<tr>
<td>s)</td>
<td>Explosive properties</td>
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<td>t)</td>
<td>Oxidizing properties</td>
</tr>
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<td></td>
<td>The substance or mixture is classified as oxidizing with the category 2.</td>
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9.2 Other safety information
no data available

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<thead>
<tr>
<th>10.</th>
<th>STABILITY AND REACTIVITY</th>
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<tbody>
<tr>
<td>10.1</td>
<td>Reactivity</td>
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<tr>
<td>10.2</td>
<td>Chemical stability</td>
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<tr>
<td>10.3</td>
<td>Possibility of hazardous reactions</td>
</tr>
<tr>
<td></td>
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</tbody>
</table>
10.4 Conditions to avoid
no data available

10.5 Incompatible materials
Organic materials

10.6 Hazardous decomposition products
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity
no data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
no data available

Aspiration hazard
no data available

Potential health effects

<table>
<thead>
<tr>
<th>Inhalation</th>
<th>May be harmful if inhaled. Causes respiratory tract irritation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingestion</td>
<td>May be harmful if swallowed.</td>
</tr>
<tr>
<td>Skin</td>
<td>May be harmful if absorbed through skin. Causes skin irritation.</td>
</tr>
<tr>
<td>Eyes</td>
<td>Causes serious eye irritation.</td>
</tr>
</tbody>
</table>

Signs and Symptoms of Exposure
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Additional Information
RTECS: Not available

12. ECOLOGICAL INFORMATION

12.1 Toxicity
no data available

12.2 Persistence and degradability
no data available

12.3 Bioaccumulative potential
no data available
12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment
no data available

12.6 Other adverse effects
no data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

14.1 UN number
ADR/RID: 1477  IMDG: 1477  IATA: 1477

14.2 UN proper shipping name
ADR/RID: NITRATES, INORGANIC, N.O.S.
IMDG: NITRATES, INORGANIC, N.O.S.
IATA: Nitrates, inorganic, n.o.s.

14.3 Transport hazard class(es)
ADR/RID: 5.1  IMDG: 5.1  IATA: 5.1

14.4 Packaging group
ADR/RID: II  IMDG: II  IATA: II

14.5 Environmental hazards
ADR/RID: no  IMDG Marine Pollutant: no  IATA: no

14.6 Special precautions for user
no data available

15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
no data available

15.2 Chemical Safety Assessment
no data available

16. OTHER INFORMATION

Further information
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