Lead sulfide (PbS) (cas 1314-87-0) MSDS

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE
1.1 Product identifiers
   Product name : Lead(II) Sulfide
   Product Number : 372595
   Brand : Anonymous
   Index-No. : 082-001-00-6
   CAS-No. : 1314-87-0

1.2 Relevant identified uses of the substance or mixture and uses advised against
   Identified uses : Laboratory chemicals, Manufacture of substances

2. HAZARDS IDENTIFICATION
2.1 Classification of the substance or mixture
   Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]
   Reproductive toxicity (Category 1A)
   Acute toxicity, Inhalation (Category 4)
   Acute toxicity, Oral (Category 4)
   Specific target organ toxicity - repeated exposure (Category 2)
   Acute aquatic toxicity (Category 1)
   Chronic aquatic toxicity (Category 1)

   Classification according to EU Directives 67/548/EEC or 1999/45/EC
   May cause harm to the unborn child. Possible risk of impaired fertility. Harmful by inhalation and if swallowed. Danger of cumulative effects. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

2.2 Label elements
   Labelling according Regulation (EC) No 1272/2008 [CLP]
   Pictogram
   Signal word : Danger
   Hazard statement(s)
   H302 : Harmful if swallowed.
   H332 : Harmful if inhaled.
   H360Df : May damage the unborn child. Suspected of damaging fertility.
   H373 : May cause damage to organs through prolonged or repeated exposure.
   H410 : Very toxic to aquatic life with long lasting effects.
   Precautionary statement(s)
   P201 : Obtain special instructions before use.
   P273 : Avoid release to the environment.
   P308 + P313 : If exposed or concerned: Get medical advice/ attention.
   P501 : Dispose of contents/ container to an approved waste disposal plant.
   Supplemental Hazard Statements
   Restricted to professional users.

   Hazard symbol(s)

   R-phrase(s)
   R61 : May cause harm to the unborn child.
   R20/22 : Also harmful by inhalation and if swallowed.
   R33 : Danger of cumulative effects.
   R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
   R62 : Possible risk of impaired fertility.

   S-phrase(s)
   S53 : Avoid exposure - obtain special instructions before use.
   S45 : In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
2.3 Other hazards - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lead sulphide</strong></td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>1314-87-0</td>
</tr>
<tr>
<td>EC-No.</td>
<td>215-246-6</td>
</tr>
<tr>
<td>Index-No.</td>
<td>082-001-00-6</td>
</tr>
</tbody>
</table>

Formula: PbS  
Molecular Weight: 239.27 g/mol

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
Flush eyes with water as a precaution.

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

Lead salts have been reported to cross the placenta and to induce embryo- and feto- mortality. They also have teratogenic effect in some animal species. No teratogenic effects have been reported with exposure to organometallic lead compounds. Adverse effects of lead on human reproduction, embryonic and fetal development, and postnatal (e.g., mental) development have been reported. Excessive exposure can affect blood, nervous, and digestive systems. The synthesis of hemoglobin is inhibited and results in anemia. If left untreated, neuromuscular dysfunction, possible paralysis, and encephalopathy can result. Additional symptoms of overexposure include joint and muscle pain, weakness of the extensor muscles (frequently the hand and wrist), headache, dizziness, abdominal pain, diarrhea, constipation, nausea, vomiting, blue line on the gums, insomnia, and metallic taste. High body levels produce increased cerebrospinal pressure, brain damage, and stupor leading to coma and often death.

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

Sulphur oxides, Lead oxides

5.3 Advice for firefighters

Wear self-contained breathing apparatus for fire fighting if necessary.

5.4 Further information

No data available

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

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed
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. Avoid exposure - obtain special instructions before use.
Provide appropriate exhaust ventilation at places where dust is formed.

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 uses
no data available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters
Components with workplace 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
Complete suit protecting against chemicals. 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).

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance Colour: grey
b) Odour no data available
c) Odour Threshold no data available
d) pH no data available
e) Melting point/freezing point no data available
f) Initial boiling point and boiling range no data available
g) Flash point not applicable
h) Evaporation rate no data available
i) Flammability (solid, gas) no data available
j) Upper/lower flammability or explosive limits no data available
k) Vapour pressure  no data available
l) Vapour density  no data available
m) Relative density  7.5 g/mL at 25 °C
n) Water solubility  no data available
o) Partition coefficient: n-octanol/water  no data available
p) Autoignition temperature  no data available
q) Decomposition temperature  no data available
r) Viscosity  no data available
s) Explosive properties  no data available
t) Oxidizing properties  no data available

9.2  Other safety information  
no data available

10.  STABILITY AND REACTIVITY

10.1 Reactivity  
no data available

10.2 Chemical stability  
no data available

10.3 Possibility of hazardous reactions  
no data available

10.4 Conditions to avoid  
no data available

10.5 Incompatible materials  
Strong oxidizing agents, iodine monochloride, Hydrogen peroxide

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  
This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

IARC:  
2A - Group 2A: Probably carcinogenic to humans (Lead sulphide)
2A - Group 2A: Probably carcinogenic to humans (Lead sulphide)

Reproductive toxicity  
Possible risk of congenital malformation in the fetus.

Known human reproductive toxicant

Specific target organ toxicity - single exposure  
no data available

Specific target organ toxicity - repeated exposure  
May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard  
no data available

Potential health effects
Inhalation  Harmful if inhaled. May cause respiratory tract irritation.
Ingestion  Harmful if swallowed.
Skin  Harmful if absorbed through skin. May cause skin irritation.
Eyes  May cause eye irritation.

**Signs and Symptoms of Exposure**
Lead salts have been reported to cross the placenta and to induce embryo- and feto- mortality. They also have teratogenic effect in some animal species. No teratogenic effects have been reported with exposure to organometallic lead compounds. Adverse effects of lead on human reproduction, embryonic and fetal development, and postnatal (e.g., mental) development have been reported. Excessive exposure can affect blood, nervous, and digestive systems. The synthesis of hemoglobin is inhibited and results in anemia. If left untreated, neuromuscular dysfunction, possible paralysis, and encephalopathy can result. Additional symptoms of overexposure include: joint and muscle pain, weakness of the extensor muscles (frequently the hand and wrist), headache, dizziness, abdominal pain, diarrhea, constipation, nausea, vomiting, blue line on the gums, insomnia, and metallic taste. High body levels produce increased cerebrospinal pressure, brain damage, and stupor leading to coma and often death.

**Additional Information**
RTECS: OG4550000

12. **ECOLOGICAL INFORMATION**

12.1 **Toxicity**
Toxicity to fish  LC50 - Pimephales promelas (fathead minnow) - 0.915 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates  EC50 - Daphnia magna (Water flea) - 0.138 mg/l - 48 h

12.2 **Persistence and degradability**
Biodegradability  Result: - Not readily biodegradable.

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**
Very toxic to aquatic life with long lasting effects.

13. **DISPOSAL CONSIDERATIONS**

13.1 **Waste treatment methods**
**Product**
Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**
Dispose of as unused product.

14. **TRANSPORT INFORMATION**

14.1 **UN number**
ADR/RID: 3077  IMDG: 3077  IATA: 3077

14.2 **UN proper shipping name**
ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Lead sulphide)
IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Lead sulphide)
IATA: Environmentally hazardous substance, solid, n.o.s. (Lead sulphide)

14.3 **Transport hazard class(es)**
ADR/RID: 9  IMDG: 9  IATA: 9

14.4 **Packaging group**
ADR/RID: III  IMDG: III  IATA: III

14.5 **Environmental hazards**
ADR/RID: yes  IMDG Marine pollutant: yes  IATA: yes

14.6 **Special precautions for user**

**Further information**
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

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
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information this document is based on the resent state of our knowledge and is applicable to the product with regard to appropriate safety precautions.

It does not represent any guarantee of the properties of the product. MTI Corporation shall not be held liable for any damage resulting from handling or from contact with the above product.