HUZHOU XINAOITE PHARMACEUTICAL & CHEMICAL CO., LTD.
MATERIAL SAFETY DATA SHEET
METHYL TIN MERCAPTIDE

Date of issue: 1.03.2012 Date printed: 2.03.2012

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

1.1 Name of the substance or preparation
Chemical name: Methyl Tin Mercaptide (tin content: 19%)

1.2 Use of the substance or preparation
   industrial
   Polymer additive

1.3 Company identification
Huzhou Xinaote Pharmaceutical & Chemical Co., Ltd.
Manufacturer/distributor: M
Linghu Industrial Area, Huzhou, Zhejiang, P.R.China.
Tel: +86 (572) 2123995 Fax: +86 (572) 2128608
Information about the Safety Data Sheet
   Tel: +86-(572)3755758
   Fax: +86-(572)3755766
   Email:xat@xatchem.com

1.4 Emergency telephone: +86 572 6988928

2. HAZARDS IDENTIFICATION

Main hazards and effects:
Harmful in contact with skin and if swallowed. May cause sensitization by skin contact.
Harmful: danger of serious damage to health by prolonged exposure if swallowed.
Harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.
May cause harm to the unborn child.

3. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No.</th>
<th>Ratio%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bis(2-ethylhexylthioglycolate)dimethyltin</td>
<td>57583–35–4</td>
<td>80</td>
</tr>
<tr>
<td>Tris(2-ethylhexylthioglycolate)methyltin</td>
<td>57583–34–3</td>
<td>20</td>
</tr>
</tbody>
</table>
4. FIRST AID MEASURES

4.1 Swallowing
Give medical activated charcoal 10 g in 100 ml water at 20 minute intervals (5 x). In case of spontaneous vomiting ensure that vomiting can drain freely to avoid risk of suffocation. Drink water in small sips. (Diluting effect) Do not induce vomiting. In case of unconsciousness or convulsion no oral administration, obtain medical attention immediately.

4.2 Inhalation
Remove to fresh air. In case of irritation of respiratory system or mucous membranes or if feeling unwell or after prolonged exposure get medical attention.

4.3 Notes to physician
Refer to our brochure "Organo-tin compounds - advice on toxicology and safe handling".

5. FIRE-FIGHTING MEASURES

5.1 Special fire fighting procedures
Do not release chemically contaminated water into drains, soil or surface water.

5.2 Special protective equipment for firefighters
Wear self-contained breathing apparatus.

5.3 Unusual fire and explosion hazards
In case of a fire aside from the major combustion products carbon dioxide and carbon monoxide other harmful gases and vapors may be formed.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions
Do not breath vapors/aerosols. Eliminate sources of ignition. Avoid contact with skin and eyes.

6.2 Environmental precautions
Prevent from entering sewer system, surface water or soil. Disposal: see section 13

6.3 Methods for cleaning up
Large quantities: Pick spilled product with liquid absorbing material and pump off. Small quantities: Soak up with liquid absorbing material (sand etc.) and dispose of as instructed.

7. HANDLING AND STORAGE HANDLING

7.1 Advice on safe handling
Avoid formation of vapors/aerosols. Keep away from sources of ignition - No smoking. Use only in well ventilated areas. On occurring of vapors/aerosols take technical measures for effective exhaust.

7.2 Other precautions
The material is combustible and can form ignitable, explosive air/vapor mixtures. Take precautionary measures against static discharges.

7.3 Storage requirements
Keep container tightly closed in a cool, well-ventilated place.

7.5 Further information on storage
Avoid contact with oxidizing agents or strong acids/bases.
8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Exposure limits are listed below, if they exist

<table>
<thead>
<tr>
<th>Components</th>
<th>Regulation</th>
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<th>Value</th>
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<tr>
<td>Bis(2-ethylhexylthioglycolate)dimethyltin</td>
<td>ACGIH</td>
<td>TWA</td>
<td>0.1 mg/m³</td>
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<td>ACGIH</td>
<td>STEL</td>
<td>0.2 mg/m³</td>
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<td></td>
<td>SKIN_DES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OSHA_TRANS</td>
<td>PEL</td>
<td></td>
<td>0.1 mg/m³</td>
</tr>
<tr>
<td>ZIA</td>
<td>TWA</td>
<td></td>
<td></td>
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<tr>
<td>ZIA</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>NIOSH/GUIDE</td>
<td>REL</td>
<td></td>
<td>0.1 mg/m³</td>
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8.2 Exposure controls

8.2.1 Engineering measures: Use local exhaust ventilation with a minimum capture velocity of 150 ft/min. (0.75m/sec.) at the point of dust or mist evolution.

8.2.2 Protective measures: Wash thoroughly after handling. Shower or bathe at the end of working. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

8.3 Individual protection measures

8.3.1 Eyeface protection: Chemical resistant goggles must be worn. Eye protection worn must be compatible with respiratory protection system employed.

8.3.2 Skin protection & Hand protection: Chemical-resistant gloves should be worn whenever this material is handled. Glove permeation data does not exist for this material. The following glove(s) should be used for splash protection only: Neoprene gloves. Gloves should be removed and replaced immediately if there is any indication of degradation or chemical breakthrough. Rinse and remove gloves immediately after use. Wash hands with soap and water.
8.3.3 Other protection: Wear as appropriate: impervious clothing, Chemical resistant apron.

8.3.4 Respiratory protection: A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements or equivalent must be followed whenever workplace conditions warrant a respirator's use. None required if airborne concentrations are maintained below the exposure limit listed in Exposure Limit Information. Up to 10 times the exposure limit: Wear a properly fitted NIOSH approved (or equivalent) half-mask, air-purifying respirator. Up to 50 times the exposure limit: Wear a properly fitted NIOSH approved (or equivalent) full-face piece, air-purifying respirator, OR full-face piece, airline respirator in the pressure demand mode. Above 50 times the exposure limit or Unknown: Wear a properly fitted NIOSH approved (or equivalent) self-contained breathing apparatus in the pressure demand mode, OR full-face piece, airline respirator in the pressure demand mode with emergency escape provision. Air-purifying respirators should be equipped with NIOSH approved (or equivalent) organic vapor cartridges and N95 filters. If oil mist is present, use R95 or P95 filters.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Appearance
Physical state: Liquid
Color: Pale yellow
Odor: Slight alkanol

9.2 Other properties
Boiling point: > 250 °C at 1.013 hPa
Not distillable at normal conditions
Melting point: Not determined
Flash point: 115 °C
Method: Pensky-Martens closed cup ASTM D 93
Thermal decomposition: > 200 °C
Density: 1.16 g/cm³
Vapor pressure: < 1.0 hPa
Vapor density (air=1): Not determined
Evaporation rate (Butyl Acetate=1): < 1
Percent volatiles: Negligible
Solubility in water: Negligible

10. STABILITY AND REACTIVITY

10.1 Hazardous reactions: None known. Stable

10.2 Materials to avoid: Avoid contact with the following: Acids

10.3 Polymerization: Product will not undergo polymerization.

11. TOXICOLOGICAL INFORMATION
11.1 Acute Oral Toxicity

Component: **Bis(2-ethylhexylthioglycolate)dimethyltin**

*Acute oral toxicity:* LD50 rat 1,150 mg/kg OECD Test Guideline 401

Component: **Tris(2-ethylhexylthioglycolate)methyltin**

*Acute oral toxicity:* LD50 rat 880 mg/kg OECD Test Guideline 401

Component: **Ethylhexyl thioglycolate**

*Acute oral toxicity:* LD50 rat male 303 mg/kg

Component: **Ethylhexyl thioglycolate**

*Acute oral toxicity:* LD50 rat female 334 mg/kg

11.2 Acute inhalation toxicity

Component: **Tris(2-ethylhexylthioglycolate)methyltin**

*Acute inhalation toxicity:* LC50 rat 1 h 240 mg/l aerosol

Component: **Ethylhexyl thioglycolate**

*Acute inhalation toxicity:* LC50 rat 6 h 0.51 mg/l

11.3 Acute dermal toxicity

Component: **Bis(2-ethylhexylthioglycolate)dimethyltin**

*Acute dermal toxicity:* LD50 rabbit > 1,050 mg/kg OECD Test Guideline 402

Component: **Tris(2-ethylhexylthioglycolate)methyltin**

*Acute dermal toxicity:* LD50 rabbit 1,000 - 2,150 mg/kg

Component: **Ethylhexyl thioglycolate**

*Acute dermal toxicity:* LD50 rat > 2,000 mg/kg OECD Test Guideline 402

11.4 Skin irritation

Component: **Bis(2-ethylhexylthioglycolate)dimethyltin**

*Skin irritation:* rabbit OECD Test Guideline 404 4 h slight irritation
Component: \textit{Tris(2-ethylhexythioglycolate)methyltin}

\textbf{Skin irritation}: abbot OECD Test Guideline 404 4 h slight irritation

Component: \textit{Ethylhexyl thioglycolate}

\textbf{Skin irritation}: rabbit OECD Test Guideline 404 slight irritation

\textbf{11.5 Eye irritation:}

Component: \textit{Bis(2-ethylhexylthioglycolate)dimethyltin}

\textbf{Eye irritation}: rabbit OECD Test Guideline 405 non-irritating

Component: \textit{Ethylhexyl thioglycolate}

\textbf{Eye irritation}: rabbit OECD Test Guideline 405 non-irritating

\textbf{11.6 Sensitisation:}

Component: \textit{Bis(2-ethylhexylthioglycolate)dimethyltin}

\textbf{Sensitisation}: guineapig MaurerOptimization Causes sensitization.

Component: \textit{Tris(2-ethylhexylthioglycolatelmethyltin}

\textbf{Sensitisation}: Skin sensitiser

Toxicity data for a compositionally similar material.

Component: \textit{Ethylhexyl thioglycolate}

\textbf{Sensitisation}: guineapig OECDTest Guideline 406 Causes sensitization.

Component: \textit{Bis(2-ethylhexylthioglycolate)dimethyltin}

\textbf{11.7 Teratogenicity}

Developmental effects were seen in laboratory animals only at dose levels that were maternally toxic. Data is based on substance from simulated gastric hydrolysis of component(s) of this product

Component: \textit{Tris(2-ethylhexythioglycolate)methyltin}

\textbf{Sub chronic toxicity} \hspace{1cm} Oral rat

\textbf{NOEL}: 150 mg/kg
Brain-thymus effects

Data is based on substance from simulated gastric hydrolysis of component(s) of this product.

Component: **Tris(2-ethylhexylthioglycolate)methyltin**

**Sub chronic toxicity** Kidney effects

Data is based on substance from simulated gastric hydrolysis of component(s) of this product.

Component: **Tris(2-ethylhexylthioglycolate)methyltin**

Developmental effects were seen in laboratory animals only at dose levels that were maternally toxic. Data is based on substance from simulated gastric hydrolysis of component(s) of this product.

Component: **Tris(2-ethylhexylthioglycolate)methyltin**

**Mutagenicity**

In vivo micronucleus assay (mouse): Positive Data is based on substance from simulated gastric hydrolysis of component(s) of this product.

In vitro tests did not show mutagenic effects

Component: **Ethylhexyl thioglycolate**

**Reproductive toxicity**

Adverse effects on the female reproductive system have been reported in laboratory animals following repeated exposure.

Component: **Ethylhexyl thioglycolate**

**Teratogenicity**

Developmental effects were seen in laboratory animals only at dose levels that were maternally toxic.

**12. ECOLOGICAL INFORMATION**

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**12.1 Bis(2-ethylhexylthioglycolate) dimethyltin**

**Elimination information (persistence and degradability)**

**Biodegradability** Not readily biodegraded.
Ecotoxicity effects

<table>
<thead>
<tr>
<th>Toxicity to fish</th>
<th>static test LC50 Fathead minnow (Pimephales promelas) 96 h</th>
<th>1,000 mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to algae</td>
<td>EC50 Algae (Selenastrum capricornutum) 72 h</td>
<td>270 mg/l</td>
</tr>
<tr>
<td>Toxicity to aquatic invertebrates</td>
<td>static test EC50 Daphnia magna (Water flea) 48 h</td>
<td>17 mg/l</td>
</tr>
</tbody>
</table>

12.2 Tris(2-ethylhexylthioglycolate)methyl tin

Elimination information (persistence and degradability)

Biodegradability | Readily biodegradable

Ecotoxicity effects

<table>
<thead>
<tr>
<th>Toxicity to fish</th>
<th>semi-static test LC50 Zebra fish (Danio/Brachydanio rerio) 96 h</th>
<th>&gt;6 mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to algae</td>
<td>EC50 Algae (Scenedesmus subspicatus) 72 h</td>
<td>&gt;1.84 mg/l</td>
</tr>
</tbody>
</table>

12.3 Ethylhexyl thioglycolate

Elimination information (persistence and degradability)

Biodegradability | Not readily biodegraded.

Ecotoxicity effects

<table>
<thead>
<tr>
<th>Toxicity to fish</th>
<th>LC50 Leuciscus idus (Golden orfe) 48 h</th>
<th>9 mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to algae</td>
<td>Growth rate EC50 Pseudokirchneriella subcapita 72 h</td>
<td>0.91 mg/l</td>
</tr>
<tr>
<td>Toxicity to aquatic invertebrates</td>
<td>EC50 Daphnia magna 48 h</td>
<td>0.38 mg/l</td>
</tr>
</tbody>
</table>

13. DISPOSAL CONSIDERATIONS

Environmental precautions: CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

Disposal

Waste Classification: When a decision is made to discard this material as supplied, it does not meet RCRA’s characteristic definition of ignitability, corrosivity, or reactivity, and is not listed in 40 CFR 261.33. The toxicity characteristic (TC), however, has not been evaluated by the Toxicity Characteristic Leaching Procedure (TCLP).
Refer to all federal, state and local regulations prior to disposition of container and unused contents by reuse, recycle, or disposal. For disposal, incinerate this material at a facility that complies with local, state, and federal regulations.

**Contaminated packaging:** Improper disposal or reuse of this container may be dangerous and illegal. Can be landfilled or incinerated, when in compliance with local regulations. Refer to applicable federal, state, and local regulations.

**14. TRANSPORT INFORMATION**

**ADR/RID**

Not classified as a dangerous good.

**IMDG**

This product is not regulated by IMDG.

**ICAO**

This product is not regulated by ICAO.

**15. REGULATORY INFORMATION**

**EC classification**

Labelling according to EC-Directive 88/379/EEC, and amendments and adaptations:

- Danger symbol(s): Xn
- Risk phrases : R22 Harmful if swallowed.
- R43 May cause sensitization by skin contact.
- R48/22 Harmful: danger of serious damage to health by prolonged exposure if swallowed.
- R52 Harmful to aquatic organisms.
- R53 May cause long-term adverse effects in the aquatic Environment.
- Safety phrases : S24 Avoid contact with skin.
- S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
- S61 Avoid release to the environment. Refer to special instructions/Safety data Sheets. Contains :
  - Methyltin tris(2-ethylhexyl mercaptoacetate):
  - Dimethyltin bis(2-ethylhexyl mercaptoacetate)

**Chemical Inventory**

Australia : The ingredients of this product are on the AICS inventory.
Canada : The ingredients of this product are on the DSL.
Europe : The ingredients of this product are on the EINECS inventory.
Japan : The ingredients of this product are on the ENCS inventory.
United States : The ingredients of this product are on the TSCA inventory.

**16. OTHER INFORMATION**

**Further information**

The opinions expressed herein are those of qualified experts within Huzhou Xinaote Pharmaceutical & Chemical Co., Ltd. We believe that the information contained herein is current as of the date of this Material Safety Data
Sheet. Since the use of this information and of these opinions and the conditions of use of this product are not within the control of Huzhou Xinaote Pharmaceutical & Chemical Co., Ltd., it is the user's obligation to determine the conditions of safe use of the products.