Lanthanum(III) chloride bis(lithium chloride) complex solution: sc-300902

MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION
Product Name: Lanthanum(III) chloride bis(lithium chloride) complex solution
Product Number: sc-300902
Supplier: Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, CA 95060
800.457.3801 or 831.457.3800
Emergency: ChemWatch
Within the US & Canada: 877–715–9305
Outside the US & Canada: +800 2436 2255 (1–800-CHEMCALL) or call +613 9573 3112

2. COMPOSITION/INFORMATION ON INGREDIENTS
Synonyms: Lanthanum trichloride bis(lithium chloride) complex
Formula: LaCl₃ · 2LiCl

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lanthanum(III) chloride</td>
<td>10099–58–8</td>
<td>233–237–5</td>
<td>10 – 20 %</td>
</tr>
<tr>
<td>Tetrahydrofuran</td>
<td>109–99–9</td>
<td>203–726–8</td>
<td>72 – 87.5 %</td>
</tr>
<tr>
<td>Lithium chloride</td>
<td>7447–41–8</td>
<td>231–212–3</td>
<td>2.5 – 8 %</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION
Emergency Overview
OSHA Hazards
Flammable liquid, Target Organ Effect, Harmful by ingestion., Irritant, Carcinogen
Target Organs
Central nervous system, Liver, Kidney, Cardiovascular system., Thyroid.
HMIS Classification
Health hazard: 2
Chronic Health Hazard: *
Flammability: 3
Physical hazards: 3
NFPA Rating
Health hazard: 2
Fire: 3
Reactivity Hazard: 0
Potential Health Effects
Inhalation May be harmful if inhaled. Causes respiratory tract irritation.
Skin May be harmful if absorbed through skin. Causes skin irritation.
Eyes Causes eye irritation.
Ingestion Harmful if swallowed.

4. FIRST AID MEASURES
General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
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
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES
Flammable properties
Flash point 17 °C (63 °F)
Ignition temperature no data available

Suitable extinguishing media
For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Special protective equipment for fire-fighters
Wear self contained breathing apparatus for fire fighting if necessary.

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES
Personal precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods for cleaning up
Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

7. HANDLING AND STORAGE
Handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition – No smoking. Take measures to prevent the build up of electrostatic charge.

Storage
Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Air and moisture sensitive. Handle and store under inert gas.

8. EXPOSURE CONTROLS/PARTIAL PROTECTION
Personal protective equipment
Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) 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).

Hand protection
Handle with gloves.

Eye protection
Face shield and safety glasses

Skin and body protection
Choose body protection according to the amount and concentration of the dangerous substance at the workplace.
Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrahydrofuran</td>
<td>109-99-9</td>
<td>TWA</td>
<td>50 ppm</td>
<td>2007-01-01</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
</tbody>
</table>

Remarks
Central Nervous System impairment Upper Respiratory Tract irritation Kidney damage
Confirmed animal carcinogen with unknown relevance to humans: The agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) that may not be relevant to worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence does not suggest that the agent is likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure. Danger of cutaneous absorption

<table>
<thead>
<tr>
<th>STEL</th>
<th>100 ppm</th>
<th>2007-01-01</th>
<th>USA. ACGIH Threshold Limit Values (TLV)</th>
</tr>
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</table>

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<table>
<thead>
<tr>
<th>TWA</th>
<th>200 ppm</th>
<th>1989-01-19</th>
<th>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>590 mg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEL</td>
<td>250 ppm</td>
<td>1989-01-19</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
</tr>
<tr>
<td></td>
<td>735 mg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TWA</td>
<td>200 ppm</td>
<td>1997-08-04</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td></td>
<td>590 mg/m³</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The value in mg/m³ is approximate.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Form: liquid

Safety data
pH: no data available
Melting point: no data available
Boiling point: no data available
Flash point: 17 °C (63 °F)
Ignition temperature: no data available
Lower explosion limit: no data available
Upper explosion limit: no data available
Density: 1.05 g/mL at 25 °C (77 °F)
Water solubility: no data available
10. STABILITY AND REACTIVITY

Storage stability
Stable under recommended storage conditions.

Conditions to avoid
Heat, flames and sparks.

Materials to avoid
Oxidizing agents, Strong oxidizing agents, Strong acids, Oxygen, Bromine trifluoride

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. – Carbon oxides, Hydrogen chloride gas, Lithium oxides, Lanthanum oxides

Hazardous reactions
Vapours may form explosive mixture with air.

11. TOXICOLOGICAL INFORMATION

Acute toxicity
no data available

Irritation and corrosion
no data available

Sensitisation
no data available

Chronic exposure
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.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

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

Potential Health Effects
Inhalation May be harmful if inhaled. Causes respiratory tract irritation.
Skin May be harmful if absorbed through skin. Causes skin irritation.
Eyes Causes eye irritation.
Ingestion Harmful if swallowed.
Target Organs Central nervous system, Liver, Kidney, Cardiovascular system, Thyroid.

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)
no data available

Ecotoxicity effects
no data available

Further information on ecology
no data available

13. DISPOSAL CONSIDERATIONS

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.
14. TRANSPORT INFORMATION
DOT (US)
UN-Number: 2056 Class: 3 Packing group: II
Proper shipping name: Tetrahydrofuran, solution
Reportable Quantity (RQ): 1143 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN-Number: 2056 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: TETRAHYDROFURAN, SOLUTION
Marine pollutant: No

IATA
UN-Number: 2056 Class: 3 Packing group: II
Proper shipping name: Tetrahydrofuran, solution

15. REGULATORY INFORMATION
OSHA Hazards
Flammable liquid, Target Organ Effect, Harmful by ingestion., Irritant, Carcinogen

DSL Status
All components of this product are on the Canadian DSL list.

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components
Tetrahydrofuran CAS-No.: 109–99–9

Pennsylvania Right To Know Components
Tetrahydrofuran CAS-No.: 109–99–9
Lithium chloride CAS-No.: 7447–41–8
Lanthanum(III) chloride CAS-No.: 10099–58–8

New Jersey Right To Know Components
Tetrahydrofuran CAS-No.: 109–99–9
Lithium chloride CAS-No.: 7447–41–8
Lanthanum(III) chloride CAS-No.: 10099–58–8

California Prop. 65 Components
This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

16. OTHER INFORMATION
The above information is believed to be correct but does not purport to be complete and should be used only as a guide. The burden of safe use of this material rests entirely with the user.

10/20/2010