Material Safety Data Sheet
Zinc chloride 0.5M solution in THF MSDS

Section 1: Chemical Product and Company Identification

Product Name: Zinc chloride 0.5M solution in THF
Catalog Code: 11981
CAS#: Not available
RTECS: CAS# 109-99-9: LU5950000
       CAS# 7646-85-7: ZH1400000
TSCA: listed on the TSCA inventory
Synonym: None
Chemical Formula: ZnCl2

Contact Information:
Finar Limited
184-186/P, Chcharwadi Vasna,
Sarkhej-Bavla Highway,
Ta.: Sanand, Dist.: Ahmedabad,
Email: info@finarchemicals.com
Web: www.finarchemicals.com

Section 2: Composition and Information on Ingredients

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>Percent</th>
<th>EINECS/ELINCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>109-99-9</td>
<td>THF</td>
<td>93</td>
<td>203-726-8</td>
</tr>
<tr>
<td>7646-85-7</td>
<td>Zinc chloride</td>
<td>7</td>
<td>231-592-0</td>
</tr>
</tbody>
</table>

Section 3: Hazards Identification

EMERGENCY OVERVIEW
Appearance: colorless liquid. Flash Point: -19 deg C.
Hygroscopic (absorbs moisture from the air).
Target Organs: Kidneys, central nervous system, liver, respiratory system, eyes, skin.
Potential Health Effects
Eye:
Causes eye burns. Vapors may cause eye irritation. Contact may cause ulceration of the conjunctiva and cornea.
Skin:
Causes skin burns. Prolonged and/or repeated contact may cause defatting of the skin and dermatitis.
Ingestion:
Harmful if swallowed. May cause gastrointestinal irritation with nausea, vomiting and diarrhea. Causes gastrointestinal tract burns.
Inhalation:
Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. Causes chemical burns to the respiratory tract.
Chronic:
Prolonged or repeated eye contact may cause conjunctivitis. Prolonged or repeated skin contact may cause defatting and dermatitis. May cause liver and kidney damage.

Section 4: First Aid Measures

Eyes:
Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids.
Get medical aid immediately.

**Skin:**
Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Discard contaminated clothing in a manner which limits further exposure.

**Ingestion:**
Never give anything by mouth to an unconscious person. Get medical aid immediately. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.

**Inhalation:**
Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

**Notes to Physician:** Treat symptomatically and supportively.

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**Section 5: Fire and Explosion Data**

**General Information:**
As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products. Forms peroxides of unknown stability. Flammable liquid and vapor.

**Extinguishing Media:**
Use water spray to cool fire-exposed containers. Use foam, dry chemical, or carbon dioxide. Water may be ineffective.

**Flash Point:** -19 deg C ( -2.20 deg F)

**Autoignition Temperature:** Not available.

**Explosion Limits, Lower:** Not available.

**Upper:** Not available.

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**Section 6: Accidental Release Measures**

**General Information:**
Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:**
Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Use water spray to dilute spill to a non-flammable mixture. Remove all sources of ignition. Use a spark-proof tool.

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**Section 7: Handling and Storage**

**Handling:**
Do not breathe dust, mist, or vapor. Do not get in eyes, on skin, or on clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Use only in a chemical fume hood. Prevent build up of vapors to explosive concentration.

**Storage:**
Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a cool place in the original container and protect from sunlight. Store in a cool, dry place. Store in a tightly closed container. Keep from contact with oxidizing materials. Flammables-area. Regularly check inhibitor levels to maintain peroxide levels below 1%.

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**Section 8: Exposure Controls/Personal Protection**

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

**Exposure Limits**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>THF</td>
<td>50 ppm TWA; 100 ppm STEL; Skin - potential significant contribution to overall exposure by the cutaneous route</td>
<td>200 ppm TWA; 590 mg/m3 TWA 2000 ppm IDLH (10% LEL)</td>
<td>200 ppm TWA; 590 mg/m3 TWA</td>
</tr>
<tr>
<td>Zinc chloride</td>
<td>1 mg/m3 TWA (fume); 2 mg/m3 STEL (fume)</td>
<td>1 mg/m3 TWA (fume) 50 mg/m3 IDLH (fume)</td>
<td>1 mg/m3 TWA (fume)</td>
</tr>
</tbody>
</table>
OSHA Vacated PELs: THF: 200 ppm TWA; 590 mg/m3 TWA Zinc chloride: 1 mg/m3 TWA

Personal Protective Equipment

Eyes: Not available.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9: Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State:</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance:</td>
<td>colorless</td>
</tr>
<tr>
<td>Odor:</td>
<td>Not available.</td>
</tr>
<tr>
<td>pH:</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapor Pressure:</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapor Density:</td>
<td>Not available.</td>
</tr>
<tr>
<td>Evaporation Rate:</td>
<td>Not available.</td>
</tr>
<tr>
<td>Viscosity:</td>
<td>Not available.</td>
</tr>
<tr>
<td>Boiling Point:</td>
<td>Not available.</td>
</tr>
<tr>
<td>Freezing/Melting Point:</td>
<td>Not available.</td>
</tr>
<tr>
<td>Decomposition Temperature:</td>
<td>Not available.</td>
</tr>
<tr>
<td>Solubility:</td>
<td>Insoluble</td>
</tr>
<tr>
<td>Specific Gravity/Density:</td>
<td>0.950</td>
</tr>
<tr>
<td>Molecular Formula:</td>
<td>Cl2Zn</td>
</tr>
<tr>
<td>Molecular Weight:</td>
<td>136.29</td>
</tr>
</tbody>
</table>

Section 10: Stability and Reactivity Data

Chemical Stability:
Stable under normal temperatures and pressures. Prolonged exposure to air and sunlight may form unstable peroxides.

Conditions to Avoid:
Prolonged exposure to air and sunlight may form unstable peroxides, light, ignition sources, exposure to moist air or water.

Incompatibilities with Other Materials:
Strong oxidizing agents, sodium hydroxide, potassium hydroxide, lithium tetrahydroaluminate, metal halides, bromine.

Hazardous Decomposition Products:
Hydrogen chloride, carbon monoxide, carbon dioxide, toxic fumes of zinc oxide, zinc, zinc oxides.

Hazardous Polymerization: Has not been reported.

Section 11: Toxicological Information

RTECS#:
CAS# 109-99-9: LU5950000
CAS# 7646-85-7: ZH1400000

LD50/LC50:
CAS# 109-99-9:
  Inhalation, rat: LC50 = 21000 ppm/3H;
  Oral, rat: LD50 = 1650 mg/kg;

CAS# 7646-85-7:
  Oral, mouse: LD50 = 329 mg/kg;
  Oral, rat: LD50 = 350 mg/kg;

Carcinogenicity:
CAS# 109-99-9:
  • ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
  • California: Not listed.
NTP: Not listed.
IARC: Not listed.

CAS# 7646-85-7: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No data available.
Teratogenicity: No data available.
Reproductive Effects: inh-rat TCL0: 5000 ppm/6H (6-19D preg) inh-mus TCL0: 1800 ppm/6H (6-17D preg)(see RTECS)
Mutagenicity: mmo-esc: 1 µmol/l (see RTECS)
Neurotoxicity: No data available.

Section 12: Ecological Information

Ecotoxicity:
No data available. Blue-green algae, growth inhibition microcystis=225 mg/L (PH=7); Protozoa, cell multiplication inhibition test=858 mg/L.(See also Dictionary of Substances and Their Effects 1992).

Environmental:
In air, THF photodegrades by reaction with hydroxyl radicals with an estimated half-life of hours to a few days. It is soluble and expected to wash out in rain. In water, its fate is uncertain. Based on very limited evidence, THF is expected to biodegrade and not absorb into sediment. Tests in distilled water showed THF to last as follows: 0.5 mg/L for 1 to 2 days, 5 mg/L for 6 to 8 days, and 10 mg/L for 10 days. (See also Dictionary of Substances and Their Effects 1992).

Physical: No information available.
Other: No information available.

Section 13: Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

Section 14: Transport Information

<table>
<thead>
<tr>
<th>US DOT</th>
<th>Canada TDG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipping Name: FLAMMABLE LIQUIDS, CORROSIVE, N.O.S.</td>
<td>No information available.</td>
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<tr>
<td>Hazard Class: 3</td>
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<tr>
<td>UN Number: UN2924</td>
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<tr>
<td>Packing Group: II</td>
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</tbody>
</table>

Section 15: Other Regulatory Information

US FEDERAL

TSCA
CAS# 109-99-9 is listed on the TSCA inventory.
CAS# 7646-85-7 is listed on the TSCA inventory.

Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

Section 12b
CAS# 109-99-9: Section 4, 1% de minimus concentration

TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs
CAS# 109-99-9: 1000 lb final RQ; 454 kg final RQ  CAS# 7646-85-7: 1000 lb final RQ; 454 kg final RQ
SARA Section 302 Extremely Hazardous Substances
   None of the chemicals in this product have a TPQ.

SARA Codes
   CAS # 109-99-9: immediate, fire, reactive.
   CAS # 7646-85-7: immediate.

Section 313
   This material contains Zinc chloride (listed as Zinc compounds), 7%, (CAS# 7646-85-7) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:
   This material does not contain any hazardous air pollutants.
   This material does not contain any Class 1 Ozone depletors.
   This material does not contain any Class 2 Ozone depletors.

Clean Water Act:
   CAS# 7646-85-7 is listed as a Hazardous Substance under the CWA.
   None of the chemicals in this product are listed as Priority Pollutants under the CWA. CAS# 7646-85-7 is listed as a Toxic Pollutant under the Clean Water Act.

OSHA:
   None of the chemicals in this product are considered highly hazardous by OSHA.

STATE
   CAS# 109-99-9 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.
   CAS# 7646-85-7 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65
   California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations
   European Labeling in Accordance with EC Directives
   Hazard Symbols:
      F C N
   Risk Phrases:
      R 11 Highly flammable.
      R 19 May form explosive peroxides.
      R 34 Causes burns.
      R 51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:
   S 16 Keep away from sources of ignition - No smoking.
   S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
   S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
   S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
   S 60 This material and its container must be disposed of as hazardous waste.

WGK (Water Danger/Protection)
   CAS# 109-99-9: 1
   CAS# 7646-85-7: 1

Canada - DSL/NDSL
   CAS# 109-99-9 is listed on Canada’s DSL List.
   CAS# 7646-85-7 is listed on Canada’s DSL List.

Canada - WHMIS
   WHMIS: Not available.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

**Canadian Ingredient Disclosure List**

CAS# 109-99-9 is listed on the Canadian Ingredient Disclosure List.

CAS# 7646-85-7 is listed on the Canadian Ingredient Disclosure List.

<table>
<thead>
<tr>
<th>Section 16: Other Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>References:</strong> Not available.</td>
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<tr>
<td><strong>Other Special Considerations:</strong> Not available.</td>
</tr>
<tr>
<td><strong>Created:</strong> 10/06/2010</td>
</tr>
<tr>
<td><strong>Last Updated:</strong> 24/11/2012</td>
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