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

Product Identifier

Material Name: Zinc Sulfate & DL-Methionine Liquid

Trade Name: Not established
Chemical Family: Mixture

Relevant Identified Uses of the Substance or Mixture and Uses Advised Against
Intended Use: Veterinary product
Restrictions on Use: Not for human use

Details of the Supplier of the Safety Data Sheet

Zoetis Inc.
100 Campus Drive, P.O. Box 651
Florham Park, New Jersey 07932 (USA)
Rocky Mountain Poison and Drug Center Phone: 1-866-531-8896
Product Support/Technical Services Phone: 1-800-366-5288

Zoetis Belgium S.A.
Mercuriusstraat 20
1930 Zaventem
Belgium

Emergency telephone number: CHEMTREC (24 hours): 1-800-424-9300
Contact E-Mail: VMIPRecords@zoetis.com

Emergency telephone number: International CHEMTREC (24 hours): +1-703-527-3887

2. HAZARDS IDENTIFICATION

Appearance: Light yellow liquid

Classification of the Substance or Mixture

GHS - Classification
- Acute Oral Toxicity: Category 4
- Skin Corrosion/Irritation: Category 1
- Serious Eye Damage/Eye Irritation: Category 1
- Specific target organ systemic toxicity (single exposure): Category 3
- Acute aquatic toxicity: Category 2
- Chronic aquatic toxicity: Category 2

EU Classification:
- EU Indication of danger: C - Corrosive
  Xn - Harmful
  N - Dangerous for the environment

EU Symbol: C , Xn , N
EU Risk Phrases:
- R34 - Causes burns.
- R37 - Irritating to respiratory system.
- R20 - Harmful by inhalation.
- R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Label Elements
2. HAZARDS IDENTIFICATION

Signal Word: Danger

Hazard Statements:
- H314 - Causes severe skin burns and eye damage
- H335 - May cause respiratory irritation
- H302 - Harmful if swallowed
- H411 - Toxic to aquatic life with long lasting effects

Precautionary Statements:
- P280 - Wear protective gloves/protective clothing/eye protection/face protection
- P271 - Use only outdoors or in a well-ventilated area
- P260 - Do not breathe dust/fume/gas/mist/vapors/spray
- P264 - Wash hands thoroughly after handling
- P270 - Do not eat, drink or smoke when using this product
- P273 - Avoid release to the environment
- P301+ P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
- P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing.
  Rinse skin with water/shower
- P363 - Wash contaminated clothing before reuse
- P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
- P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- P310 - Immediately call a POISON CENTRE or doctor/physician
- P391 - Collect spillage
- P304 - P361 - IF IN HAILED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
- P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- P310 - Immediately call a POISON CENTRE or doctor/physician
- P391 - Collect spillage
- P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
- P405 - Store locked up
- P501 - Dispose of contents/container in accordance with all local and national regulations

Other Hazards
Short Term: Causes burns to skin and eyes. Vapors or mists can irritate or burn the respiratory tract.

Australian Hazard Classification (NOHSC):

Note:
This document has been prepared in accordance with standards for workplace safety, which requires the inclusion of all known hazards of the product or its ingredients regardless of the potential risk. The precautionary statements and warning included may not apply in all cases. Your needs may vary depending upon the potential for exposure in your workplace.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous Ingredient</th>
<th>CAS Number</th>
<th>EU EINECS/ELINCS List</th>
<th>EU Classification</th>
<th>GHS Classification</th>
<th>%</th>
</tr>
</thead>
</table>

ALPHARMA - ZINC SULFATE & DL-METHIONINE LIQUID
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient(s)</th>
<th>CAS Number</th>
<th>R phrases</th>
<th>PECs</th>
<th>GHS Abbreviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc sulfate monohydrate</td>
<td>7446-19-7</td>
<td>Xn; R22 Xi; R41 N; R50-53</td>
<td>10-20</td>
<td>Acute Tox. 4 (H302) Aquatic Chronic 1 (H410) Aquatic Acute 1 (H400) Eye Dam. 1 (H318)</td>
</tr>
<tr>
<td>HYDROCHLORIC ACID</td>
<td>7647-01-0</td>
<td>T; R23 C; R35</td>
<td>1-5</td>
<td>Skin Corr.1B (H314) STOT SE 3 (H335)</td>
</tr>
</tbody>
</table>

Additional Information: Ingredient(s) indicated as hazardous have been assessed under standards for workplace safety. In accordance with 29 CFR 1910.1200, the exact percentage composition of this mixture has been withheld as a trade secret.

For the full text of the R phrases and CLP/GHS abbreviations mentioned in this Section, see Section 16

4. FIRST AID MEASURES

Description of First Aid Measures

**Eye Contact:**
Flush with water while holding eyelids open for at least 15 minutes. Seek medical attention immediately.

**Skin Contact:**
Remove contaminated clothing. Flush area with large amounts of water. Use soap. Seek medical attention.

**Ingestion:**
In the event of swallowing this material, seek immediate medical attention. DO NOT INDUCE VOMITING.

**Inhalation:**
Remove to fresh air and keep patient at rest. Seek medical attention immediately.

**Most Important Symptoms and Effects, Both Acute and Delayed**

**Symptoms and Effects of Exposure:**
For information on potential signs and symptoms of exposure, See Section 2 - Hazards Identification and/or Section 11 - Toxicological Information.

**Medical Conditions Aggravated by Exposure:**
None known

Indication of the Immediate Medical Attention and Special Treatment Needed

**Notes to Physician:**
None

5. FIRE-FIGHTING MEASURES

**Extinguishing Media:**
Extinguish fires with CO2, extinguishing powder, foam, or water.

**Special Hazards Arising from the Substance or Mixture**

**Hazardous Combustion Products:**
Formation of toxic gases is possible during heating or fire.

**Fire / Explosion Hazards:**
Fine particles (such as dust and mists) may fuel fires/explosions.

**Advice for Fire-Fighters**
During all fire fighting activities, wear appropriate protective equipment, including self-contained breathing apparatus.
6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures
Ensure adequate ventilation. Personnel involved in clean-up should wear appropriate personal protective equipment (see Section 8). Minimize exposure.

Environmental Precautions
Place waste in an appropriately labeled, sealed container for disposal. Care should be taken to avoid environmental release.

Methods and Material for Containment and Cleaning Up

| Measures for Cleaning / Collecting: | Contain the source of the spill if it is safe to do so. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. Clean contaminated surface thoroughly. |

| Additional Consideration for Large Spills: | Non-essential personnel should be evacuated from affected area. Report emergency situations immediately. Clean up operations should only be undertaken by trained personnel. |

7. HANDLING AND STORAGE

Precautions for Safe Handling
When handling, use appropriate personal protective equipment (see Section 8). Use with adequate ventilation. Avoid breathing vapor or mist. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Releases to the environment should be avoided. Review and implement appropriate technical and procedural waste water and waste disposal measures to prevent occupational exposure or environmental releases. Potential points of process emissions of this material to the atmosphere should be controlled with dust collectors, HEPA filtration systems or other equivalent controls.

Conditions for Safe Storage, Including any Incompatibilities

| Storage Conditions: | Store at room temperature in properly labeled containers. Keep away from heat, sparks and flames. |

| Incompatible Materials: | Strong oxidizing agents, acids, strong bases |

| Specific end use(s): | No data available |

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters
Refer to available public information for specific member state Occupational Exposure Limits.

HYDROCHLORIC ACID

| ACGIH Ceiling Threshold Limit: | 2 ppm |
| Australia PEAK | 5 ppm |
| | 7.5 mg/m³ |

| Austria OEL - MAKs | 5 ppm |
| | 8 mg/m³ |

| Belgium OEL - TWA | 5 ppm |
| | 8 mg/m³ |

| Bulgaria OEL - TWA | 5 ppm |
| | 8.0 mg/m³ |

| Cyprus OEL - TWA | 5 ppm |
| | 8 mg/m³ |

| Czech Republic OEL - TWA | 8 mg/m³ |
| Estonia OEL - TWA | 5 ppm |
| | 8 mg/m³ |

| Germany - TRGS 900 - TWAs | 2 ppm |
| | 3 mg/m³ |

| Germany (DFG) - MAK | 2 ppm |
| | 3.0 mg/m³ |
### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Country</th>
<th>Exposure Limit</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greece OEL - TWA</td>
<td>5 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Hungary OEL - TWA</td>
<td>8 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Ireland OEL - TWAs</td>
<td>5 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Italy OEL - TWA</td>
<td>5 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Japan - OELs - Ceilings</td>
<td>5 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7.5 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Latvia OEL - TWA</td>
<td>5 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Lithuania OEL - TWA</td>
<td>5 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Luxembourg OEL - TWA</td>
<td>5 ppm</td>
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</tr>
<tr>
<td></td>
<td>8 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Malta OEL - TWA</td>
<td>5 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Netherlands OEL - TWA</td>
<td>8 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Vietnam OEL - TWAs</td>
<td>5 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Poland OEL - TWA</td>
<td>5 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Portugal OEL - TWA</td>
<td>5 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Romania OEL - TWA</td>
<td>5 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Slovakia OEL - TWA</td>
<td>5 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8.0 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Slovenia OEL - TWA</td>
<td>5 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Spain OEL - TWA</td>
<td>5 ppm</td>
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<tr>
<td></td>
<td>7.6 mg/m³</td>
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<tr>
<td>Switzerland OEL -TWAs</td>
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</tr>
<tr>
<td></td>
<td>3.0 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

**Exposure Controls**

**Engineering Controls:** Engineering controls should be used as the primary means to control exposures. General room ventilation is adequate unless the process generates dust, mist or fumes. Keep airborne contamination levels below the exposure limits listed above in this section.

**Personal Protective Equipment:** Refer to applicable national standards and regulations in the selection and use of personal protective equipment (PPE).

**Hands:** Impervious gloves are recommended if skin contact with drug product is possible and for bulk processing operations.

**Eyes:** Wear safety goggles as minimum protection (face shield recommended if splashing is possible).

**Skin:** Impervious protective clothing is recommended if skin contact with drug product is possible and for bulk processing operations.

**Respiratory protection:** If the applicable Occupational Exposure Limit (OEL) is exceeded, wear an appropriate respirator with a protection factor sufficient to control exposures to below the OEL. Whenever air contamination (mist or aerosol) is generated, respiratory protection is recommended as a precaution to minimize exposure.
9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Odor: Characteristic
Molecular Formula: Mixture

Solvent Solubility: No data available
Water Solubility: No data available
pH: No data available.
Melting/Freezing Point (°C): No data available
Boiling Point (°C): No data available.
Partition Coefficient: (Method, pH, Endpoint, Value) No data available
Decomposition Temperature (°C): No data available.
Evaporation Rate (Gram/s): <1
Vapor Pressure (kPa): No data available
Vapor Density (g/ml): >1
Relative Density: No data available
Viscosity: No data available

Flammability:
  Autoignition Temperature (Solid) (°C): No data available
  Flammability (Solids): No data available
  Flash Point (Liquid) (°C): No data available
  Upper Explosive Limits (Liquid) (% by Vol.): No data available
  Lower Explosive Limits (Liquid) (% by Vol.): No data available

10. STABILITY AND REACTIVITY

Reactivity: No data available
Chemical Stability: Stable under normal conditions of use.
Possibility of Hazardous Reactions
  Oxidizing Properties: No data available
  Conditions to Avoid: Heating can release hazardous gases. To avoid thermal decomposition, do not overheat.
  Incompatible Materials: Strong oxidizing agents, acids, strong bases
  Hazardous Decomposition Products: Thermal decomposition can lead to release of irritating gases and vapours. Hydrogen chloride gas, oxides of sulfur.

11. TOXICOLOGICAL INFORMATION

Information on Toxicological Effects
General Information: Toxicological properties of the formulation have not been investigated. The information in this section describes the potential hazards of the individual ingredients and the formulation.
  Routes of exposure: eye contact, skin contact

Acute Toxicity: (Species, Route, End Point, Dose)

HYDROCHLORIC ACID
  Rat Oral LD 50 238-277 mg/kg
  Inhalation Acute Toxicity: May cause respiratory tract and mucous membrane irritation
  Ingestion Acute Toxicity: Harmful if swallowed.
  Irritation / Sensitization Comments: Contact with hydrochloric acid may cause severe irritation, conjunctivitis, corneal necrosis, and burns with possible impairment or permanent loss of vision.
11. TOXICOLOGICAL INFORMATION

Skin Irritation / Sensitization: Contact with hydrochloric acid may cause severe irritation, inflammation, ulceration, necrosis, and chemical burns.

Carcinogen Status: None of the other components of this mixture are listed as a carcinogen by IARC, NTP or OSHA.

HYDROCHLORIC ACID
IARC: Group 3 (Not Classifiable)

Product Level Toxicity Data
Acute Toxicity Estimate (ATE), Oral: ca. 1666 mg/kg

12. ECOLOGICAL INFORMATION

Environmental Overview: Toxic to aquatic life with long lasting effects. Releases to the environment should be avoided.

Toxicity: No data available

Persistence and Degradability: No data available

Bio-accumulative Potential: No data available

Mobility in Soil: No data available

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods: This product may qualify as a RCRA Hazardous Waste. Status should be confirmed by testing for RCRA hazardous characteristics (i.e. corrosivity, toxicity, reactivity, or ignitability). Dispose of waste in accordance with all applicable laws and regulations. Member State specific and Community specific provisions must be considered. Considering the relevant known environmental and human health hazards of the material, review and implement appropriate technical and procedural waste water and waste disposal measures to prevent occupational exposure and environmental release. It is recommended that waste minimization be practiced. The best available technology should be utilized to prevent environmental releases. This may include destructive techniques for waste and wastewater.

14. TRANSPORT INFORMATION

The following refers to all modes of transportation unless specified below.

This material is regulated for transportation as a hazardous material/dangerous good.

UN number: UN1789
UN proper shipping name: Hydrochloric acid mixture
Transport hazard class(es): 8
Packing group: III
Environmental Hazard(s): Marine Pollutant (Zinc Sulfate Monohydrate)
Marine pollutant requirements apply only to quantities >5 liters for liquids / >5 kilograms for solids (per inner package) when shipped as per IMDG or ADR (effective year 2015 or greater) regulations.

U.S. DOT Reportable Quantity (RQ), 49 CFR 172.101 Appendix A:

**HYDROCHLORIC ACID**

| CERCLA/SARA Hazardous Substances | 5000 lb |
| and their Reportable Quantities:  | 2270 kg |

**15. REGULATORY INFORMATION**

Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

*Canada - WHMIS: Classifications*

**WHMIS hazard class:**

E    corrosive material

This product has been classified in accordance with the hazard criteria of the CPR and the SDS contains all of the information required by the CPR.

**Zinc sulfate monohydrate**

| CERCLA/SARA 313 Emission reporting | Not Listed |
| California Proposition 65 | Not Listed |
| Australia (AICS): | Present |
| EU EINECS/ELINCS List | Not Listed |

**HYDROCHLORIC ACID**

| CERCLA/SARA 313 Emission reporting | 1.0 % |
| CERCLA/SARA Hazardous Substances | 5000 lb |
| and their Reportable Quantities: | 2270 kg |
| CERCLA/SARA - Section 302 Extremely Hazardous TPOs | 500 lb |
| CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs | 5000 lb |
| California Proposition 65 | Not Listed |
| Inventory - United States TSCA - Sect. 8(b) | Present |
| Australia (AICS): | Present |
| Standard for the Uniform Scheduling for Drugs and Poisons: | Schedule 5 |
| EU EINECS/ELINCS List | 231-595-7 |
16. OTHER INFORMATION

Text of R phrases and GHS Classification abbreviations mentioned in Section 3

Acute toxicity, oral-Cat.4; H302 - Harmful if swallowed
Skin corrosion/irritation-Cat.1B; H314 - Causes severe skin burns and eye damage
Serious eye damage/eye irritation-Cat.1; H318 - Causes serious eye damage
Specific target organ toxicity, single exposure; Respiratory tract irritation-Cat.3; H335 - May cause respiratory irritation
Hazardous to the aquatic environment, acute toxicity-Cat.1; H400 - Very toxic to aquatic life
Hazardous to the aquatic environment, acute toxicity-Cat.2; H401 - Toxic to aquatic life
Hazardous to the aquatic environment, chronic toxicity-Cat.1; H410 - Very toxic to aquatic life with long lasting effects
Hazardous to the aquatic environment, chronic toxicity-Cat.2; H411 - Toxic to aquatic life with long lasting effects

C - Corrosive
T - Toxic
Xn - Harmful
Xi - Irritant
N - Dangerous for the environment

R20 - Harmful by inhalation.
R22 - Harmful if swallowed.
R23 - Toxic by inhalation.
R34 - Causes burns.
R35 - Causes severe burns.
R37 - Irritating to respiratory system.
R41 - Risk of serious damage to eyes.
R50/53 - Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Data Sources: The data contained in this SDS may have been gathered from confidential internal sources, raw material suppliers, or from the published literature.

Reasons for Revision: Updated Section 1 - Identification of the Substance/Preparation and the Company/Undertaking. Updated Section 2 - Hazard Identification. Updated Section 3 - Composition / Information on Ingredients. Updated Section 5 - Fire Fighting Measures. Updated Section 6 - Accidental Release Measures. Updated Section 7 - Handling and Storage. Updated Section 8 - Exposure Controls / Personal Protection. Updated Section 9 - Physical and Chemical Properties. Updated Section 10 - Stability and Reactivity. Updated Section 11 - Toxicology Information. Updated Section 12 - Ecological Information. Updated Section 14 - Transport Information. Updated Section 15 - Regulatory Information.

Prepared by: Toxicology and Hazard Communication
Zoetis Global Risk Management

Zoetis Inc. believes that the information contained in this Safety Data Sheet is accurate, and while it is provided in good faith, it is without warranty of any kind, expressed or implied. If data for a hazard are not included in this document there is no known information at this time.

End of Safety Data Sheet