SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Substance
Physical state : Solid
Substance name : ZINC DIMETHYL DITHIOCARBAMATE
Product code : AKZ933.5
Formula : C₆H₁₂N₂S₄Zn
Synonyms : ZINC ME₂DTC; ZINC BIS (DIMETHYL DITHIOCARBAMATE); ZIRAM
Chemical family : METAL COMPOUND

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Chemical intermediate
For research and industrial use only

1.3. Details of the supplier of the safety data sheet

GELEST, INC.
11 East Steel Road
Morrisville, PA 19067
USA
T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST
info@gelest.com - www.gelest.com

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)
Acute Tox. 3 (Oral) H301
Acute Tox. 2 (Inhalation: dust, mist) H330
Eye Dam. 1 H318
Skin Sens. 1 H317
STOT SE 3 H335
STOT RE 2 H373
Aquatic Acute 2 H401

Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :

Signal word (GHS-US) : Danger
Hazard statements (GHS-US) :
- H301 - Toxic if swallowed
- H317 - May cause an allergic skin reaction
- H318 - Causes serious eye damage
- H330 - Fatal if inhaled
- H335 - May cause respiratory irritation
- H373 - May cause damage to organs through prolonged or repeated exposure
- H401 - Toxic to aquatic life

Precautionary statements (GHS-US) :
- P280 - Wear protective gloves/protective clothing/eye protection/face protection
- P284 - In case of inadequate ventilation wear respiratory protection
- P260 - Do not breathe dust
- P264 - Wash hands thoroughly after handling
- P270 - Do not eat, drink or smoke when using this product
- P271 - Use only outdoors or in a well-ventilated area
- P272 - Contaminated work clothing must not be allowed out of the workplace
- P273 - Avoid release to the environment
- P330 - Rinse mouth
- P301+P310 - If swallowed: Immediately call a doctor
ZINC DIMETHYLDITHIOCARBAMATE
Safety Data Sheet

P302+P352 - If on skin: Wash with plenty of water
P304+P340 - If inhaled: Remove person to fresh air and keep 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
P314 - Get medical advice/attention if you feel unwell
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention
P362+P364 - Take off contaminated clothing and wash it before reuse
P403+P364 - Store in a well-ventilated place. Keep container tightly closed
P501 - Dispose of contents/container to licensed waste disposal facility.

2.3. Other hazards
No additional information available

2.4. Unknown acute toxicity (GHS US)
No data available

SECTION 3: Composition/information on ingredients

3.1. Substance
Substance type : Mono-constituent
Name : ZINC DIMETHYLDITHIOCARBAMATE
CAS No : 137-30-4
EC no : 205-288-3
EC index no : 006-012-00-2

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification (GHS-US)</th>
</tr>
</thead>
</table>
| Ziram | (CAS No) 137-30-4 | > 95 | Acute Tox. 3 (Oral), H301
Acute Tox. 2 (Inhalation:dust,mist), H330
Eye Dam. 1, H318
Skin Sens. 1, H317
STOT SE 3, H335
STOT RE 2, H373
Aquatic Acute 1, H400 |

3.2. Mixture
Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures
First-aid measures general : Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.
First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.
First-aid measures after skin contact : Wash with plenty of soap and water. Get immediate medical advice/attention.
First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.
First-aid measures after ingestion : Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed
Symptoms/injuries : May cause damage to organs.
Symptoms/injuries after inhalation : May cause respiratory irritation. Fatal if inhaled. May cause somnolence, excitement, ataxia, convulsions, loss.
Symptoms/injuries after skin contact : May cause skin irritation. May cause an allergic skin reaction.
Symptoms/injuries after eye contact : Causes serious eye damage.
Symptoms/injuries after ingestion : Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

4.3. Indication of any immediate medical attention and special treatment needed
No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

5.2. Special hazards arising from the substance or mixture
Fire hazard : Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.
5.3. Advice for firefighters

Firefighting instructions: Use water spray to cool exposed surfaces. Exercise caution when fighting any chemical fire.
Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. Avoid contact with skin and eyes. Do not breathe dust.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment: Equip cleanup crew with proper protection.

6.2. Environmental precautions

Prevent entry to sewers and public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up: Sweep or shovel spills into appropriate container for disposal.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: Avoid contact with skin and eyes. Do not breathe dust. Provide local exhaust or general room ventilation to minimize exposure to dust. Avoid dust formation.

Hygiene measures: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Keep container tightly closed.
Incompatible materials: oxidizing agent.
Storage area: Store in a well-ventilated place. Store away from heat.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Ziram (137-30-4)

| USA ACGIH | ACGIH TWA (mg/m³) | 1 mg/m³ as Zn |

8.2. Exposure controls

Appropriate engineering controls: Provide local exhaust or general room ventilation.
Personal protective equipment: Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection: Neoprene or nitrile rubber gloves.
Eye protection: Chemical goggles or face shield. Contact lenses should not be worn.
Skin and body protection: Wear suitable protective clothing.
Respiratory protection: NIOSH-certified dust and mist (orange cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Solid
Appearance: Powder.
Molecular mass: 305.8 g/mol
Color: No data available
Odor: No data available
Odor threshold: No data available
Refractive index: No data available
pH: No data available
Relative evaporation rate (butyl acetate=1): No data available
Melting point: 250 - 252 °C
**Freezing point**: No data available

**Boiling point**: No data available

**Flash point**: No data available

**Auto-ignition temperature**: No data available

**Decomposition temperature**: No data available

**Flammability (solid, gas)**: No data available

**Vapor pressure**: < 0.1 mm Hg 25°C

**Relative vapor density at 20 °C**: No data available

**Relative density**: 1.71

**VOC content**: < 1 %

**Solubility**: Slightly. Soluble in water.

**Log Pow**: No data available

**Log Kow**: No data available

**Viscosity, kinematic**: No data available

**Viscosity, dynamic**: No data available

**Explosive properties**: No data available

**Oxidizing properties**: No data available

**Explosion limits**: No data available

**9.2. Other information**

No additional information available

**SECTION 10: Stability and reactivity**

**10.1. Reactivity**

No additional information available

**10.2. Chemical stability**

Stable.

**10.3. Possibility of hazardous reactions**

No additional information available

**10.4. Conditions to avoid**

Heat. Open flame. Sparks.

**10.5. Incompatible materials**

Oxidizing agent.

**10.6. Hazardous decomposition products**

Organic acid vapors. Zinc oxide fumes.

**SECTION 11: Toxicological information**

**11.1. Information on toxicological effects**

**Acute toxicity**: Oral: Toxic if swallowed. Inhalation:dust,mist: Fatal if inhaled.

**Ziram (137-30-4)**

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>267 mg/kg</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>&gt; 2 g/kg</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
<td>0.07 mg/l/4h</td>
</tr>
<tr>
<td>ATE US (oral) body weight 267.000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>ATE US (vapors)</td>
<td>0.070 mg/l/4h</td>
</tr>
<tr>
<td>ATE US (dust, mist)</td>
<td>0.070 mg/l/4h</td>
</tr>
</tbody>
</table>

**Skin corrosion/irritation**: Not classified

**Serious eye damage/irritation**: Causes serious eye damage.

**Respiratory or skin sensitization**: May cause an allergic skin reaction.

**Germ cell mutagenicity**: Not classified

**Carcinogenicity**: Not classified

**Ziram (137-30-4)**

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>IARC group</td>
<td>3 - Not classifiable</td>
</tr>
<tr>
<td>National Toxicology Program (NTP) Status</td>
<td>1 - Evidence of Carcinogenicity</td>
</tr>
</tbody>
</table>

**Reproductive toxicity**: Not classified

**Specific target organ toxicity (single exposure)**: May cause respiratory irritation.
Specific target organ toxicity (repeated exposure) : May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard : Not classified

Symptoms/Injuries after inhalation : May cause respiratory irritation. Fatal if inhaled. May cause somnolence, excitement, ataxia, convulsions, weight loss.

Symptoms/Injuries after skin contact : May cause skin irritation. May cause an allergic skin reaction.

Symptoms/Injuries after eye contact : Causes serious eye damage.

Symptoms/Injuries after ingestion : Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

Reason for classification : Expert judgment

SECTION 12: Ecological information

12.1. Toxicity

Ziram (137-30-4)

<table>
<thead>
<tr>
<th>Substance</th>
<th>LC50 (mg/l)</th>
<th>Exposure time</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
<td>0.008 - 0.011</td>
<td>96 h</td>
<td>Lepomis macrochirus [flow-through]</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
<td>0.034 - 0.068</td>
<td>48 h</td>
<td>Daphnia magna</td>
</tr>
<tr>
<td>LC50 fish 2</td>
<td>1.2</td>
<td>96 h</td>
<td>Lepomis macrochirus [static]</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Ziram (137-30-4)

<table>
<thead>
<tr>
<th>Substance</th>
<th>BCF (fishing)</th>
<th>Log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCF fish 1</td>
<td>(no bioaccumulation expected)</td>
<td></td>
</tr>
</tbody>
</table>

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

<table>
<thead>
<tr>
<th>Effect</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other adverse effects</td>
<td>This substance may be hazardous to the environment.</td>
</tr>
<tr>
<td>Effect on ozone layer</td>
<td>No additional information available</td>
</tr>
<tr>
<td>Effect on the global warming</td>
<td>No known ecological damage caused by this product.</td>
</tr>
</tbody>
</table>

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose of solid materials or residues at a licensed site. Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number

Not regulated for transport.

14.2. UN proper shipping name

Not applicable

14.3. Additional information

Other information : No supplementary information available.

Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

Ziram (137-30-4)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations
ZINC DIMETHYLDITHIOCARBAMATE
Safety Data Sheet

Ziram (137-30-4)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on the Canadian DSL (Domestic Substances List)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the EEC EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Canadian IDL (Ingredient Disclosure List)
Listed on INSQ (Mexican national Inventory of Chemical Substances)
Listed on Turkish inventory of chemical

15.3. US State regulations

<table>
<thead>
<tr>
<th><strong>ZINC DIMETHYLDITHIOCARBAMATE (137-30-4)</strong></th>
<th><strong>U.S. - California - Proposition 65 - Carcinogens List</strong></th>
<th><strong>U.S. - California - Proposition 65 - Developmental Toxicity</strong></th>
<th><strong>U.S. - California - Proposition 65 - Reproductive Toxicity - Female</strong></th>
<th><strong>U.S. - California - Proposition 65 - Reproductive Toxicity - Male</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

Ziram (137-30-4)

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<tr>
<th><strong>U.S. - California - Proposition 65 - Carcinogens List</strong></th>
<th><strong>U.S. - California - Proposition 65 - Developmental Toxicity</strong></th>
<th><strong>U.S. - California - Proposition 65 - Reproductive Toxicity - Female</strong></th>
<th><strong>U.S. - California - Proposition 65 - Reproductive Toxicity - Male</strong></th>
<th><strong>No significance risk level (NSRL)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

SECTION 16: Other information

Abbreviations and acronyms:
Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development.

Full text of H-phrases:

- **Acute Tox. 2 (Inhalation:dust,mist)**: Acute toxicity (inhalation:dust,mist) Category 2
- **Acute Tox. 3 (Oral)**: Acute toxicity (oral) Category 3
- **Aquatic Acute 1**: Hazardous to the aquatic environment Category 1
- **Aquatic Acute 2**: Hazardous to the aquatic environment Category 2
- **Eye Dam. 1**: Serious eye damage/eye irritation Category 1
- **Skin Sens. 1**: Skin sensitization Category 1
- **STOT RE 2**: Specific target organ toxicity (repeated exposure) Category 2
- **STOT SE 3**: Specific target organ toxicity (single exposure) Category 3
- **H301**: Toxic if swallowed
- **H317**: May cause an allergic skin reaction
- **H318**: Causes serious eye damage
- **H330**: Fatal if inhaled
- **H335**: May cause respiratory irritation
- **H373**: May cause damage to organs through prolonged or repeated exposure
- **H400**: Very toxic to aquatic life
- **H401**: Toxic to aquatic life

HMIS III Rating

Health: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given
ZINC DIMETHYLDITHIOCARBAMATE
Safety Data Sheet

<table>
<thead>
<tr>
<th>Property</th>
<th>Hazard Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability</td>
<td>1 Slight Hazard</td>
</tr>
<tr>
<td>Physical</td>
<td>0 Minimal Hazard</td>
</tr>
</tbody>
</table>

Prepared by safety and environmental affairs.

Date of issue: 06/08/2015          Version: 1.0

SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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