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

## 1.1. Product identifier
- **Product form**: Mixture
- **Physical state**: Liquid
- **Product name**: ZIRCONIUM 2-ETHYLHEXANOATE, 90%
- **Product code**: CXZR043
- **Formula**: C8H16O2Zr
- **Synonyms**: 2-ETHYLHEXANOIC ACID, ZIRCONIUM SALT
- **Chemical family**: METAL CARBOXYLATE

## 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)**:
  - Flam. Liq. 4: H227
  - Skin Irrit. 2: H315
  - Eye Irrit. 2A: H319

## 2.2. Label elements
- **GHS-US labeling**:
  - **Hazard pictograms (GHS-US)**: ![](image)
  - **Signal word (GHS-US)**: Warning
  - **Hazard statements (GHS-US)**:
    - H227 - Combustible liquid
    - H315 - Causes skin irritation
    - H319 - Causes serious eye irritation
  - **Precautionary statements (GHS-US)**:
    - P280 - Wear protective gloves/protective clothing/eye protection/face protection
    - P210 - Keep away from heat, open flames, sparks. - No smoking
    - P264 - Wash hands thoroughly after handling
    - P302+P352 - If on skin: Wash with plenty of water
    - P332+P313 - If skin irritation occurs: Get medical advice/attention
    - P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
    - P337+P313 - If eye irritation persists: Get medical advice/attention
    - P362 - Take off contaminated clothing and wash before reuse
    - P370+P378 - In case of fire: Use water spray, foam, carbon dioxide, dry chemical to extinguish
    - P403+P235 - Keep in a cool place
    - P501 - Dispose of contents/container to licensed waste disposal facility.

## 2.3. Other hazards
- **Other hazards not contributing to the classification**:
  - Material may form zirconium oxides or zirconate polymers on the skin, eyes or in the lungs. Prolonged exposure to zirconium compounds can induce formation of granulomatous lesions in the lungs or on the skin.
SECTION 3: Composition/information on ingredients

3.1. Substance
   Not applicable

3.2. Mixture

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification (GHS-US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zirconium ethyl hexoate</td>
<td>(CAS No) 22464-99-9</td>
<td>&gt; 85</td>
<td>Not classified</td>
</tr>
<tr>
<td>Stoddard solvent</td>
<td>(CAS No) 8052-41-3</td>
<td>&lt; 15</td>
<td>Flam. Liq. 3, H226</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin Irrit. 2, H315</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Irrit. 2A, H319</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STOT SE 3, H335</td>
</tr>
</tbody>
</table>

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 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.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation: May cause irritation to the respiratory tract.

Symptoms/injuries after skin contact: Causes skin irritation.

Symptoms/injuries after eye contact: Causes serious eye irritation.

Symptoms/injuries after ingestion: May be harmful if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media


Unsuitable extinguishing media: None known.

5.2. Special hazards arising from the substance or mixture

Fire hazard: Combustible liquid. 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. Wear pressure demand self-contained breathing apparatus with full facepiece and full protective clothing. Avoid all eye and skin contact and do not breathe vapor and mist.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Remove ignition sources. Use special care to avoid static electric charges.

6.1.1. For non-emergency personnel

Protective equipment: Wear protective equipment as described in Section 8.

Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment: Equip cleanup crew with proper protection. Do not attempt to take action without suitable protective equipment. For further information refer to section 8: “Exposure controls/personal protection”.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.
6.3. Methods and material for containment and cleaning up

Methods for cleaning up: Clean up any spills as soon as possible, using an absorbent material to collect it. Sweep or shovel spills into appropriate container for disposal. Use only non-sparking tools.

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 all eye and skin contact and do not breathe vapor and mist. Containers must be properly grounded before beginning transfer. Use only non-sparking tools.

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

Technical measures: Ground/bond container and receiving equipment. Proper grounding procedures to avoid static electricity should be followed.

Storage conditions: Keep container tightly closed.

Incompatible materials: Water.

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

<table>
<thead>
<tr>
<th>Zirconium ethyl hexoate (22464-99-9)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>USA ACGIH</td>
<td>ACGIH TWA (mg/m³)</td>
</tr>
<tr>
<td>USA OSHA</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stoddard solvent (8052-41-3)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>USA ACGIH</td>
<td>ACGIH TWA (ppm)</td>
</tr>
<tr>
<td>USA NIOSH</td>
<td>NIOSH REL (TWA) (mg/m³)</td>
</tr>
<tr>
<td>USA NIOSH</td>
<td>NIOSH REL (ceiling) (mg/m³)</td>
</tr>
<tr>
<td>USA OSHA</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
</tr>
<tr>
<td>USA OSHA</td>
<td>OSHA PEL (TWA) (ppm)</td>
</tr>
<tr>
<td>USA IDLH</td>
<td>US IDLH (mg/m³)</td>
</tr>
</tbody>
</table>

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. Contact lenses should not be worn.

Skin and body protection: Wear suitable protective clothing.

Respiratory protection: Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified dust and mist (orange cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquid. Viscous.</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>659.99 g/mol</td>
</tr>
<tr>
<td>Color</td>
<td>Amber.</td>
</tr>
<tr>
<td>Odor</td>
<td>No data available</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Refractive index</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butyl acetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>225 - 235 °C decomposes</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
</tbody>
</table>
**ZIRCONIUM 2-ETHYLHEXANOATE, 90%**

**Safety Data Sheet**

### Boiling point
No data available

### Flash point
65 °C

### Auto-ignition temperature
No data available

### Decomposition temperature
No data available

### Flammability (solid, gas)
Combustible liquid

### Vapor pressure
2.6 mm Hg @ 20°C (mineral spirits)

### Relative vapor density at 20 °C
No data available

### Relative density
1.27

### VOC content
< 5 %

### Solubility
Insoluble 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
Material decomposes slowly in contact with water.

### 10.4. Conditions to avoid
Heat. Open flame. Sparks.

### 10.5. Incompatible materials
Water.

### 10.6. Hazardous decomposition products

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

<table>
<thead>
<tr>
<th>Effect</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Causes skin irritation</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>Respiratory or skin sensitization</td>
<td>Not classified</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
<td>Not classified</td>
</tr>
<tr>
<td>Specific target organ toxicity (repeated exposure)</td>
<td>Not classified</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>Not classified</td>
</tr>
<tr>
<td>Symptoms/injuries after inhalation</td>
<td>May cause irritation to the respiratory tract.</td>
</tr>
<tr>
<td>Symptoms/injuries after skin contact</td>
<td>Causes skin irritation.</td>
</tr>
<tr>
<td>Symptoms/injuries after eye contact</td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>Symptoms/injuries after ingestion</td>
<td>May be harmful if swallowed.</td>
</tr>
<tr>
<td>Reason for classification</td>
<td>Expert judgment</td>
</tr>
</tbody>
</table>

## SECTION 12: Ecological information

### 12.1. Toxicity
No additional information available
12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential
No additional information available

12.4. Mobility in soil
No additional information available

12.5. Other adverse effects

Other adverse effects : This substance may be hazardous to the environment.
Effect on ozone layer : No additional information available
Effect on the global warming : No known ecological damage caused by this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : 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
DOT NA no. NA1993

14.2. UN proper shipping name

Proper Shipping Name (DOT) : Combustible liquid, n.o.s. (ZIRCONIUM 2-ETHYLHEXANOATE, 90%)
Department of Transportation (DOT) Hazard Classes : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
DOT Symbols : D - Proper shipping name for domestic use only, or to and from Canada,G - Identifies PSN requiring a technical name
Packing group (DOT) : III - Minor Danger
DOT Packaging Exceptions (49 CFR 173.xxx) : 150
DOT Packaging Non Bulk (49 CFR 173.xxx) : 203
DOT Packaging Bulk (49 CFR 173.xxx) : 241

14.3. Additional information

Other information : No supplementary information available.

Transport by sea
DOT Vessel Stowage Location : A - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel.

Air transport
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 60 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 220 L

SECTION 15: Regulatory information

15.1. US Federal regulations

Zirconium ethyl hexoate (22464-99-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Stoddard solvent (8052-41-3)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations
ZIRCONIUM 2-ETHYLHEXANOATE, 90%  
Safety Data Sheet

Zirconium ethyl hexoate (22464-99-9)
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 inventory EINECS (European Inventory of Existing Commercial Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
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 Turkish inventory of chemical

Stoddard solvent (8052-41-3)
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)  
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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 Turkish inventory of chemical

15.3. US State regulations

ZIRCONIUM 2-ETHYLHEXANOATE, 90% (22464-99-9)

<table>
<thead>
<tr>
<th>State</th>
<th>Carcinogens List</th>
<th>Developmental Toxicity</th>
<th>Reproductive Toxicity - Female</th>
<th>Reproductive Toxicity - Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. - California</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Zirconium ethyl hexoate (22464-99-9)

<table>
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<tr>
<th>State</th>
<th>Carcinogens List</th>
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<th>Reproductive Toxicity - Female</th>
<th>Reproductive Toxicity - Male</th>
</tr>
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<tbody>
<tr>
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<td>No</td>
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<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Stoddard solvent (8052-41-3)

<table>
<thead>
<tr>
<th>State</th>
<th>Carcinogens List</th>
<th>Developmental Toxicity</th>
<th>Reproductive Toxicity - Female</th>
<th>Reproductive Toxicity - Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. - California</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Stoddard solvent (8052-41-3)

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:

- Eye Irrit. 2A: Serious eye damage/eye irritation Category 2A
- Flam. Liq. 3: Flammable liquids Category 3
- Flam. Liq. 4: Flammable liquids Category 4
- Skin Irrit. 2: Skin corrosion/irritation Category 2
- STOT SE 3: Specific target organ toxicity (single exposure) Category 3
- H26: Flammable liquid and vapor
- H227: Combustible liquid
- H315: Causes skin irritation
- H319: Causes serious eye irritation
ZIRCONIUM 2-ETHYLHEXANOATE, 90%
Safety Data Sheet

H335 May cause respiratory irritation

HMIS III Rating
Health : 1 Slight Hazard - Irritation or minor reversible injury possible
Flammability : 2 Moderate Hazard
Physical : 0 Minimal Hazard

Prepared by safety and environmental affairs.

Date of issue: 07/13/2015 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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