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

1.1. Product identifier
Product form: Substance
Physical state: Liquid
Substance name: TETRAETHYLLEAD
Product code: PBL6459.5
Formula: C8H20Pb
Synonyms: TETRAETHYL; TETRAETHYLPOMBANE
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)
Flam. Liq. 4 H227
Acute Tox. 2 (Oral) H300
Acute Tox. 4 (Dermal) H312
STOT SE 3 H335
Aquatic Acute 1 H400
Full text of H-phrases: see section 16

2.2. Label elements
GHS-US labeling
Pictograms (GHS-US):

- GHS06
- GHS07
- GHS09

Signal word (GHS-US): Danger
Hazard statements (GHS-US):
- H227 - Combustible liquid
- H300 - Fatal if swallowed
- H312 - Harmful in contact with skin
- H335 - May cause respiratory irritation
- H400 - Very toxic to aquatic life

Precautionary statements (GHS-US):
- P280 - Wear protective gloves/protective clothing/eye protection/face protection
- P210 - Keep away from heat, open flames, sparks. - No smoking
- P261 - Avoid breathing vapors
- 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
- P273 - Avoid release to the environment
- P330 - Rinse mouth
- P301+P310 - If swallowed: Immediately call a doctor
- P302+P352 - If on skin: Wash with plenty of water
- P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
- P312 - Call a doctor if you feel unwell
- P362+P364 - Take off contaminated clothing and wash it before reuse
- P370+P378 - In case of fire: Use water spray, foam, carbon dioxide, dry chemical to extinguish
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

<table>
<thead>
<tr>
<th>Substance type</th>
<th>Mono-constituent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>TETRAETHYLLEAD</td>
</tr>
<tr>
<td>CAS No</td>
<td>78-00-2</td>
</tr>
<tr>
<td>EC no</td>
<td>201-075-4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification (GHS-US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetraethyllead</td>
<td>(CAS no) 78-00-2</td>
<td>95 - 100</td>
<td>Flam. Liq. 4, H227, Acute Tox. 2 (Oral), H300, Acute Tox. 3 (Dermal), H311, STOT SE 3, H335, Aquatic Acute 1, H400</td>
</tr>
</tbody>
</table>

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.

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 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 respiratory irritation. Volatile compounds of lead should be treated with extreme caution.

Symptoms/injuries after skin contact: May cause skin irritation.

Symptoms/injuries after eye contact: May cause eye irritation.

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

Chronic symptoms: Exposure: Affects the central nervous system most strongly, with relatively little impact on hematopoietic organs. Immediate symptoms include dizziness, headaches, insomnia, loss of appetite. Progressive symptoms include mental euphoria, hallucinations, paranoia and death.

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

Physician note: Diagnostic mobilization of lead with calcium EDTA may be useful in questionable cases.

SECTION 5: Firefighting measures

5.1. Extinguishing media

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.

Reactivity: IMPORTANT: AT ELEVATED TEMPERATURE IN LIQUID PHASE LEAD ALKYLS HAVE BEEN REPORTED TO EXPLODE. AN EXPLOSIVE CONDITION IS OFTEN PRECEDED BY THE LEAD ALKYL RAPIDLY TURNING BLACK. Stabilization has been reported by the addition of 0.5% stearic acid. Stearic acid is thought to getter lead metal which is catalytic for decomposition of lead alkyls.

5.3. Advice for firefighters
Firefighting instructions: Use water spray to cool exposed surfaces. Exercise caution when fighting any chemical fire.
TETRAETHYLLEAD
Safety Data Sheet

Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. 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

Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment: Equip cleanup crew with proper protection.

6.2. Environmental precautions

Notify authorities if liquid enters sewers or 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 all eye and skin contact and do not breathe vapor and mist. Provide good ventilation in process area to prevent accumulation of vapors. 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.

Storage conditions: Keep container tightly closed.

Incompatible materials: Air.

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>Tetrathyllead (78-00-2)</th>
<th>USA ACGIH</th>
<th>ACGIH TWA (mg/m³)</th>
<th>0.1 mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA NIOSH</td>
<td>NIOSH REL (TWA) (mg/m³)</td>
<td>0.075 mg/m³</td>
<td></td>
</tr>
<tr>
<td>USA OSHA</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
<td>0.075 mg/m³</td>
<td></td>
</tr>
<tr>
<td>USA IDLH</td>
<td>US IDLH (mg/m³)</td>
<td>40 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Appropriate engineering controls: Handle in an enclosing hood with exhaust 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 full-face supplied air 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.</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>323.44 g/mol</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless. Amber hazy.</td>
</tr>
<tr>
<td>Odor</td>
<td>No data available</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
</tbody>
</table>
TETRAETHYLLEAD
Safety Data Sheet

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refractive index</td>
<td>1.519</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>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>-136 °C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>84 - 85 °C @ 15 mm Hg</td>
</tr>
<tr>
<td>Flash point</td>
<td>73 °C</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Combustible liquid</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>6 mm Hg @ 25°C</td>
</tr>
<tr>
<td>Relative vapor density at 20 °C</td>
<td>8.6</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.653</td>
</tr>
<tr>
<td>Solubility</td>
<td>Insoluble in water.</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Log Kow</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>No data available</td>
</tr>
</tbody>
</table>

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
IMPORTANT: AT ELEVATED TEMPERATURE IN LIQUID PHASE LEAD ALKYLS HAVE BEEN REPORTED TO EXPLODE. AN EXPLOSIVE CONDITION IS OFTEN PRECEDED BY THE LEAD ALKYL RAPIDLY TURNING BLACK. Stabilization has been reported by the addition of 0.5% stearic acid. Stearic acid is thought to getter lead metal which is catalytic for decomposition of lead alkyls.

10.2. Chemical stability
Decomposes slowly above 85°C. May explode if heated above 110°C, particularly if confined. Decomposes on exposure to light.

10.3. Possibility of hazardous reactions
Material decomposes slowly in contact with air by reaction with oxygen.

10.4. Conditions to avoid
Light.

10.5. Incompatible materials
Air.

10.6. Hazardous decomposition products
Lead oxide fumes. Organic acid vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity: Oral: Fatal if swallowed. Dermal: Harmful in contact with skin.

Tetraethyllead (78-00-2)

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>12.3 mg/kg</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>990 mg/kg</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
<td>850 mg/m³ (Exposure time: 1 h)</td>
</tr>
<tr>
<td>ATE US (oral)</td>
<td>12,300 mg/kg body weight</td>
</tr>
<tr>
<td>ATE US (dermal)</td>
<td>990,000 mg/kg body weight</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Not classified
By analogy to tetraethyllead this compound is probably absorbed through the skin causing lead poisoning syndrome, which is associated with toxicity to the central nervous system.

Serious eye damage/irritation: Not classified
Respiratory or skin sensitization: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified
An experimental carcinogen.
**TETRAETHYLLEAD**

**Safety Data Sheet**

<table>
<thead>
<tr>
<th>Tetraethyllead (78-00-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IARC group</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
</tr>
<tr>
<td>Specific target organ toxicity (repeated exposure)</td>
</tr>
<tr>
<td>Aspiration hazard</td>
</tr>
<tr>
<td>Symptoms/injuries after inhalation</td>
</tr>
<tr>
<td>Symptoms/injuries after skin contact</td>
</tr>
<tr>
<td>Symptoms/injuries after eye contact</td>
</tr>
<tr>
<td>Symptoms/injuries after ingestion</td>
</tr>
<tr>
<td>Chronic symptoms</td>
</tr>
</tbody>
</table>

**SECTION 12: Ecological information**

12.1. **Toxicity**

**Tetraethyllead (78-00-2)**

| LC50 fish 1         | 84 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus) |
| EC50 Daphnia 1      | 0.085 mg/l (Exposure time: 48 h - Species: Artemia salina) |
| LC50 fish 2         | 19.3 mg/l (Exposure time: 96 h - Species: Pimephales promelas) |

12.2. **Persistence and degradability**

No additional information available

12.3. **Bioaccumulative potential**

**Tetraethyllead (78-00-2)**

| BCF fish 1         | 92 - 3189 |
| Log Pow           | 4.32 (at 20 °C) |

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 of as lead waste. Dispose in a safe manner in accordance with local/national regulations.

Ecology - waste materials: Avoid release to the environment.

**SECTION 14: Transport information**

14.1. **UN number**

| UN-No.(DOT)        | 1649 |
| DOT NA no.         | UN1649 |

14.2. **UN proper shipping name**

| Proper Shipping Name (DOT) | Motor fuel anti-knock mixtures |
| Department of Transportation (DOT) Hazard Classes | 6.1 - Class 6.1 - Poisonous materials 49 CFR 173.132 |
| Hazard labels (DOT)        | 6.1 - Poison |

DOT Symbols: + - Fixes (cannot be altered) proper shipping name, hazard class, and packing group
### Packing group (DOT)
- DOT Packaging Exceptions (49 CFR 173.xxx): None
- DOT Packaging Non Bulk (49 CFR 173.xxx): 201
- DOT Packaging Bulk (49 CFR 173.xxx): 244

### Additional information
Other information: No supplementary information available.

### Transport by sea
- DOT Vessel Stowage Location: D - The material must be stowed “on deck only” on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers or one passenger per each 3 m of overall vessel length, but the material is prohibited on passenger vessels in which the limiting number of passengers is exceeded.
- DOT Vessel Stowage Other: 25 - Shade from radiant heat, 40 - Stow “clear of living quarters”

### Air transport
- DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27): Forbidden
- DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75): 30 L

### SECTION 15: Regulatory information
#### 15.1. US Federal regulations
- **Tetraethyllead (78-00-2)**
  - Listed on the United States TSCA (Toxic Substances Control Act) inventory
  - Listed on the United States SARA Section 302
  - SARA Section 302 Threshold Planning Quantity (TPQ) 100

#### 15.2. International regulations
- **Tetraethyllead (78-00-2)**
  - Listed on the AICS (Australian Inventory of Chemical Substances)
  - Listed on the Canadian DSL (Domestic Substances List)
  - Listed on IECS (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 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)
  - Japanese Poisonous and Deleterious Substances Control Law
  - Japanese Pollutant Release and Transfer Register Law (PRTR Law)
  - Listed on the Canadian IDL (Ingredient Disclosure List)
  - Listed on INSQ (Mexican national Inventory of Chemical Substances)

#### 15.3. US State regulations
- **TETRAETHYLLEAD (78-00-2)**
  - U.S. - California - Proposition 65 - Carcinogens List: No
  - U.S. - California - Proposition 65 - Developmental Toxicity: No
  - U.S. - California - Proposition 65 - Reproductive Toxicity - Female: No
  - U.S. - California - Proposition 65 - Reproductive Toxicity - Male: No

<table>
<thead>
<tr>
<th>tetraethyllead (78-00-2)</th>
<th>U.S. - California - Proposition 65 - Carcinogens List</th>
<th>U.S. - California - Proposition 65 - Developmental Toxicity</th>
<th>U.S. - California - Proposition 65 - Reproductive Toxicity - Female</th>
<th>U.S. - California - Proposition 65 - Reproductive Toxicity - Male</th>
<th>No significance risk level (NSRL)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

08/28/2015 EN (English US) SDS ID: PBL6459.5 6/7
### Abbreviations and acronyms

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

### Full text of H-phrases:

- **Acute Tox. 2 (Oral)** Acute toxicity (oral) Category 2
- **Acute Tox. 3 (Dermal)** Acute toxicity (dermal) Category 3
- **Acute Tox. 4 (Dermal)** Acute toxicity (dermal) Category 4
- **Aquatic Acute 1** Hazardous to the aquatic environment - Acute Hazard Category 1
- **Flam. Liq. 4** Flammable liquids Category 4
- **STOT SE 3** Specific target organ toxicity (single exposure) Category 3
- **H227** Combustible liquid
- **H300** Fatal if swallowed
- **H311** Toxic in contact with skin
- **H312** Harmful in contact with skin
- **H335** May cause respiratory irritation
- **H400** Very toxic to aquatic life

### HMIS III Rating

- **Health**: 4 Severe Hazard - Life-threatening, major or permanent damage may result from single or repeated overexposures
- **Flammability**: 3 Serious Hazard
- **Physical**: 1 Slight Hazard

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