# TETRAETHYLLEAD

## Safety Data Sheet

**Product name**: TETRAETHYLLEAD

**Product code**: PBL6459.5

**Product form**: Substance

**Physical state**: Liquid

**Formula**: C8H20Pb

**Synonyms**: TETRAETHYL; TETRAETHYLPLUMBANE

**Chemical family**: METAL COMPOUND

## 1. Identification

### 1.1. Identification

- **Product name**: TETRAETHYLLEAD
- **Product code**: PBL6459.5
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- **Physical state**: Liquid
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- **Chemical family**: METAL COMPOUND

## 2. Hazard(s) Identification

### 2.1. Classification of the substance or mixture

- **GHS-US classification**
  - Flammable liquids Category 4: H227 - Combustible liquid
  - Acute toxicity (oral) Category 2: H300 - Fatal if swallowed
  - Acute toxicity (dermal) Category 3: H312 - Harmful in contact with skin
  - Specific target organ toxicity (single exposure) Category 3: H335 - May cause respiratory irritation
  - Hazardous to the aquatic environment - Acute Hazard Category 1: H400 - Very toxic to aquatic life

### 2.2. GHS Label elements, including precautionary statements

- **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.
  - P201 - 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.
  - P391 - Collect spillage.
  - P403+P233 - Store in a cool place.
  - P403+P235 - Keep in a cool place.
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P405 - Store locked up.
P501 - Dispose of contents/container to licensed waste disposal facility.

2.3. Hazards not otherwise classified (HNOC)
No additional information available

2.4. Unknown acute toxicity (GHS US)
Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances
Substance type : Mono-constituent
Name : TETRAETHYLLEAD
CAS-No. : 78-00-2

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

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures
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 (acute and delayed)
Symptoms/effects after inhalation : May cause respiratory irritation. Volatile compounds of lead should be treated with extreme caution.

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

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

Symptoms/effects after ingestion : Fatal if swallowed. Swallowing a small quantity of this material will result in serious health hazard. Progressive symptoms include dizziness, headaches, insomnia, loss of appetite. Progressive symptoms include mental euphoria, hallucinations, paranoia and death.

4.3. Immediate medical attention and special treatment, if necessary
Physician note: Diagnostic mobilization of lead with calcium EDTA may be useful in questionable cases.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

5.2. Specific hazards arising from the chemical
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. Special protective equipment and precautions for fire-fighters
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 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. Store < 5°C.

Incompatible materials: Air.

Storage area: Store in a well-ventilated place. Store away from heat.

**SECTION 8: Exposure controls/personal protection**

8.1. **Control parameters**

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

8.2. **Appropriate engineering controls**

Appropriate engineering controls: Handle in an enclosing hood with exhaust ventilation.

8.3. **Individual protection measures/Personal protective equipment**

**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>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<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>
<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: Not classified

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetraethyllead (78-00-2)</td>
<td></td>
</tr>
<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>12.3 mg/kg body weight</td>
</tr>
</tbody>
</table>
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**Tetraethyllead (78-00-2)**

<table>
<thead>
<tr>
<th>ATE US (dermal)</th>
<th>990 mg/kg body weight</th>
</tr>
</thead>
</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 (78-00-2)**

<table>
<thead>
<tr>
<th>IARC group</th>
<th>3 - Not classifiable</th>
</tr>
</thead>
</table>

**Reproductive toxicity**: Not classified
An experimental teratogen.

**Specific target organ toxicity – single exposure**: May cause respiratory irritation.

**Specific target organ toxicity – repeated exposure**: Not classified

**Aspiration hazard**: Not classified

**Symptoms/effects after inhalation**: May cause respiratory irritation. Volatile compounds of lead should be treated with extreme caution.

**Symptoms/effects after skin contact**: May cause skin irritation.

**Symptoms/effects after eye contact**: May cause eye irritation.

**Symptoms/effects 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.

### 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 the ozone layer: No additional information available

### SECTION 13: Disposal considerations

**13.1. Disposal methods**

Product/Packaging 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

<table>
<thead>
<tr>
<th>Description</th>
<th>Code/Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport document description</td>
<td>UN1649 Motor fuel anti-knock mixtures (TETRAETHYLLEAD), 6.1, I</td>
</tr>
<tr>
<td>Proper Shipping Name (DOT)</td>
<td>Motor fuel anti-knock mixtures</td>
</tr>
<tr>
<td>Class (DOT)</td>
<td>6.1 - Class 6.1 - Poisonous materials 49 CFR 173.132</td>
</tr>
<tr>
<td>Packing group (DOT)</td>
<td>I - Great Danger</td>
</tr>
<tr>
<td>Hazard labels (DOT)</td>
<td>6.1 - Poison</td>
</tr>
</tbody>
</table>

- Dangerous for the environment: Yes
- Marine pollutant: Yes

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

14.3. Additional information

- Emergency Response Guide (ERG) Number: 131
- 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 - Protected from sources of 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

CANADA

- Tetraethyllead (78-00-2)
  - Listed on the Canadian DSL (Domestic Substances List)
  - WHMIS Classification: Class D Division 1 Subdivision A - Very toxic material causing immediate and serious toxic effects

EU-Regulations

- Tetraethyllead (78-00-2)
  - Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations
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Tetraethyllead (78-00-2)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on ECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
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 INSC (Mexican National Inventory of Chemical Substances)

15.3. US State regulations
California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

Tetraethyllead (78-00-2)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information
Full text of H-phrases:

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

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; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor.

Hazard Rating
Health : 4 Severe Hazard - Life-threatening, major or permanent damage may result from single or repeated overexposures
Flammability : 3 Serious Hazard - Materials capable of ignition under almost all normal temperature conditions. Includes flammable liquids with flash points below 73 F and boiling points above 100 F. as well as liquids with flash points between 73 F and 100 F. (Classes IB & IC)
Physical : 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Prepared by safety and environmental affairs.
Date of issue: 04/02/2015 Revision date: 03/05/2019 Version: 2.1

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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