TETRAETHYLLEAD

Safety Data Sheet PBL6459.5

Date of issue: 04/02/2015 Revision date: 08/28/2015 Version: 2.0

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; TETRAETHYLPLUMBANE
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

Hazard 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

P391 - Collect spillage
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P403+P235 - Keep in a cool place
P405 - Store locked up
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 : TETRAETHYLLEAD
CAS No : 78-00-2
EC no : 201-075-4

Name	Product identifier	%	Classification (GHS-US)
Tetraethyllead	(CAS No) 78-00-2	95 - 100	Flam. Liq. 4, H227 Acute Tox. 2 (Oral), H300 Acute Tox. 3 (Dermal), H311 STOT SE 3, H335 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.

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

Suitable extinguishing media : Water spray. Foam. Carbon dioxide. Dry chemical.

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.

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

Tetraethyllead (78-00-2)		
USA ACGIH	ACGIH TWA (mg/m³)	0.1 mg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	0.075 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m³)	0.075 mg/m³
USA IDLH	US IDLH (mg/m³)	40 mg/m³

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

Physical state : Liquid

Appearance : Liquid.

Molecular mass : 323.44 g/mol

Color : Colorless. Amber hazy.

Odor : No data available

Odor threshold : No data available

Refractive index	:	1.519
pH	:	No data available
Relative evaporation rate (butyl acetate=1)	:	No data available
Melting point	:	No data available
Freezing point	:	-136 °C
Boiling point	:	84 - 85 °C @ 15 mm Hg
Flash point	:	73 °C
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	Combustible liquid
Vapor pressure	:	6 mm Hg @ 25°C
Relative vapor density at 20 °C	:	8.6
Relative density	:	1.653
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

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)	
LD50 oral rat	12.3 mg/kg
LD50 dermal rabbit	990 mg/kg
LC50 inhalation rat (mg/l)	850 mg/m³ (Exposure time: 1 h)
ATE US (oral)	12.300 mg/kg body weight
ATE US (dermal)	990.000 mg/kg body weight

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)	
IARC group	3 - Not classifiable

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/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.

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)	:	I - Great Danger
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

14.3. 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 Sustances 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 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

Tetraethyllead (78-00-2)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significance risk level (NSRL)
No	No	No	No	

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.: Chemcial 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 (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

Prepared by safety and environmental affairs.

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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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