TETRAETHYL LEAD

TEL

CAUTIONARY RESPONSE INFORMATION

Common Synonyms	Oily liquid	Colorless, but generally dyed red	Fruity odor
Lead tetraethyl TEL	Sinks in water. Poisonous, flammable vapor is produced.		

Evacuate.
Keep people away. AVOID CONTACT WITH LIQUID AND VAPOR.
Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves).
Call fire department.
Stay upwind and use water spray to ``knock down'' vapor.
Notify local health and pollution control agencies.
Protect water intakes.

Fire

Combustible.
POISONOUS GASES ARE PRODUCED IN FIRE.
Containers may explode in fire.
Vapor may explode if ignited in an enclosed area.
Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves).
Combat fires from behind barrier or protected location.
Flood discharge area with water.
Extinguish with water, dry chemical, foam, or carbon dioxide.
Cool exposed containers with water.

Exposure

CALL FOR MEDICAL AID.

VAPOR
POISONOUS IF INHALED OR IF SKIN IS EXPOSED.
Irritating to eyes.
Move to fresh air.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.

LIQUID
POISONOUS IF SWALLOWED OR IF SKIN IS EXPOSED.
Will burn eyes.
Remove contaminated clothing and shoes.
Flush affected areas with plenty of water.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk and have victim induce vomiting.
IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.

Water Pollution

HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS.
May be dangerous if it enters water intakes.
Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
Collection Systems: Pump
Do not burn

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: Not listed.
2.2 Formula: $Pb(C_2H_5)_4$
2.3 IMO/UN Designation: 6.1/1649
2.4 DOT ID No.: 1649
2.5 CAS Registry No.: 78-00-2
2.6 NAERG Guide No.: 131
2.7 Standard Industrial Trade Classification: 51550

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Organic vapor type canister face mask for short periods; air line type for longer periods; neoprene-coated, liquid-proof gloves; protective goggles or face shield; white or light-colored clothing; rubber shoes or boots.
3.2 Symptoms Following Exposure: Increased urinary output of lead. If a large degree of absorption from inhalation or skin contact, may cause insomnia, excitability, delirium, coma and death. Do not confuse with inorganic lead.
3.3 Treatment of Exposure: Remove victim from contaminated area and consult physician immediately. INGESTION: induce vomiting. SKIN: wash immediately with kerosene or similar petroleum distillate followed by soap and water.
3.4 TLV-TWA: 0.1 mg/m^3
3.5 TLV-STEL: Not listed.
3.6 TLV-Ceiling: Not listed.
3.7 Toxicity by Ingestion: Oral rat LD_{Lo} = 17 mg/kg
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: Lead poisoning
3.10 Vapor (Gas) Irritant Characteristics: Vapors cause a slight smarting of the eyes or respiratory system if present in high concentrations. The effect is temporary.
3.11 Liquid or Solid Characteristics: Causes smarting of the skin and first-degree burns on short exposure; may cause secondary burns on long exposure.
3.12 Odor Threshold: Currently not available
3.13 IDLH Value: 40 mg Pb/m^3
3.14 OSHA PEL-TWA: 0.075 mg/m^3
3.15 OSHA PEL-STEL: Not listed.
3.16 OSHA PEL-Ceiling: Not listed.
3.17 EPA AEGL: Not listed

4. FIRE HAZARDS

4.1 Flash Point: 185°F O.C. 200°F C.C.
4.2 Flammable Limits in Air: Currently not available
4.3 Fire Extinguishing Agents: Water, foam, dry chemical, or carbon dioxide
4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent
4.5 Special Hazards of Combustion Products: Toxic gases are generated in fires.
4.6 Behavior in Fire: May explode in fires.
4.7 Auto Ignition Temperature: Decomposes above 230°F
4.8 Electrical Hazards: Not pertinent
4.9 Burning Rate: Currently not available
4.10 Adiabatic Flame Temperature: Currently not available
4.11 Stoichometric Air to Fuel Ratio: 66.6 (calc.)
4.12 Flame Temperature: Currently not available
4.13 Combustion Molar Ratio (Reactant to Product): 19.0 (calc.)
4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed

5. CHEMICAL REACTIVITY

5.1 Reactivity with Water: No reaction
5.2 Reactivity with Common Materials: Rust and some metals cause decomposition.
5.3 Stability During Transport: Stable below 230°F. At higher temperatures, may detonate or explode when confined.
5.4 Neutralizing Agents for Acids and Caustics: Not pertinent
5.5 Polymerization: Not pertinent
5.6 Inhibitor of Polymerization: Not pertinent

6. WATER POLLUTION

6.1 Aquatic Toxicity: 0.20 mg/l/96 hr/bluegill/TL_m/fresh water
6.2 Waterfowl Toxicity: Currently not available
6.3 Biological Oxygen Demand (BOD): Currently not available
6.4 Food Chain Concentration Potential: Currently not available
6.5 GESAMP Hazard Profile:
Bioaccumulation: +
Damage to living resources: 4
Human Oral hazard: 3
Human Contact hazard: II
Reduction of amenities: XXX

7. SHIPPING INFORMATION

7.1 Grades of Purity: Technical
7.2 Storage Temperature: Ambient
7.3 Inert Atmosphere: No requirement
7.4 Venting: Pressure-vacuum
7.5 IMO Pollution Category: Currently not available
7.6 Ship Type: Currently not available
7.7 Barge Hull Type: Currently not available

8. HAZARD CLASSIFICATIONS

8.1 49 CFR Category: Poison
8.2 49 CFR Class: 6.1
8.3 49 CFR Package Group: I
8.4 Marine Pollutant: Yes
8.5 NFPA Hazard Classification:

Category	Classification
Health Hazard (Blue).....	3
Flammability (Red).....	2
Instability (Yellow).....	3

8.6 EPA Reportable Quantity: 10 pounds
8.7 EPA Pollution Category: A
8.8 RCRA Waste Number: P110
8.9 EPA FWPCA List: Yes

9. PHYSICAL & CHEMICAL PROPERTIES

9.1 Physical State at 15° C and 1 atm: Liquid
9.2 Molecular Weight: 323.44
9.3 Boiling Point at 1 atm: Decomposes
9.4 Freezing Point: –215°F = –137°C = 136°K
9.5 Critical Temperature: Not pertinent
9.6 Critical Pressure: Not pertinent
9.7 Specific Gravity: 1.633 at 20°C (liquid)
9.8 Liquid Surface Tension: 28.5 dynes/cm = 0.0285 N/m at (est.) 25°C
9.9 Liquid Water Interfacial Tension: (est.) 40 dynes/cm = 0.04 N/m at 20°C
9.10 Vapor (Gas) Specific Gravity: Not pertinent
9.11 Ratio of Specific Heats of Vapor (Gas): Not pertinent
9.12 Latent Heat of Vaporization: Not pertinent
9.13 Heat of Combustion: (est.) –7,870 Btu/lb = –4,380 cal/g = –183 X 10^5 J/kg
9.14 Heat of Decomposition: Not pertinent
9.15 Heat of Solution: Not pertinent
9.16 Heat of Polymerization: Not pertinent
9.17 Heat of Fusion: Currently not available
9.18 Limiting Value: Currently not available
9.19 Reid Vapor Pressure: Currently not available

NOTES

TETRAETHYL LEAD

TEL

9.20 SATURATED LIQUID DENSITY	
Temperature (degrees F)	Pounds per cubic foot
46	103.400
48	103.200
50	103.099
52	102.900
54	102.799
56	102.599
58	102.500
60	102.299
62	102.200
64	102.000
66	101.900
68	101.700
70	101.599
72	101.400
74	101.299
76	101.099
78	101.000
80	100.799
82	100.700
84	100.500
86	100.400
88	100.200
90	100.099
92	99.929
94	99.780
96	99.629

9.21 LIQUID HEAT CAPACITY	
Temperature (degrees F)	British thermal unit per pound-F
50	0.597
52	0.597
54	0.597
56	0.597
58	0.597
60	0.597
62	0.597
64	0.597
66	0.597
68	0.597
70	0.597
72	0.597
74	0.597
76	0.597
78	0.597
80	0.597
82	0.597
84	0.597
86	0.597
88	0.597
90	0.597
92	0.597
94	0.597
96	0.597
98	0.597
100	0.597

9.22 LIQUID THERMAL CONDUCTIVITY	
Temperature (degrees F)	British thermal unit inch per hour-square foot-F
	N
	O
	T
	P
	E
	R
	T
	I
	N
	E
	N
	T

9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Centipoise
28	1.247
30	1.222
32	1.199
34	1.175
36	1.153
38	1.131
40	1.109
42	1.088
44	1.068
46	1.048
48	1.029
50	1.010
52	0.992
54	0.974
56	0.957
58	0.940
60	0.924
62	0.908
64	0.892
66	0.877
68	0.862
70	0.847
72	0.833
74	0.819
76	0.806
78	0.793

9.24 SOLUBILITY IN WATER	
Temperature (degrees F)	Pounds per 100 pounds of water
	I
	N
	S
	O
	L
	U
	B
	L
	E

9.25 SATURATED VAPOR PRESSURE	
Temperature (degrees F)	Pounds per square inch
35	0.001
40	0.001
45	0.002
50	0.002
55	0.003
60	0.003
65	0.004
70	0.005
75	0.007
80	0.008
85	0.010
90	0.012
95	0.015
100	0.018
105	0.022
110	0.027
115	0.032
120	0.039
125	0.047
130	0.056
135	0.066
140	0.079
145	0.093
150	0.110
155	0.129

9.26 SATURATED VAPOR DENSITY	
Temperature (degrees F)	Pounds per cubic foot
35	0.00000
40	0.00001
45	0.00001
50	0.00001
55	0.00001
60	0.00001
65	0.00002
70	0.00002
75	0.00003
80	0.00003
85	0.00004
90	0.00005
95	0.00006
100	0.00007
105	0.00009
110	0.00010
115	0.00012
120	0.00015
125	0.00017
130	0.00021
135	0.00024
140	0.00029
145	0.00034
150	0.00039
155	0.00046

9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	British thermal unit per pound-F
	N
	O
	T
	P
	E
	R
	T
	I
	N
	E
	N
	T