LEAD ALKYLS

MFA

CAUTIONARY RESPONSE INFORMATION

Common Synonyms	Oily liquid	Dyed red, orange or blue	Sweet fruity odor
	Sinks in water.		

Evacuate.
Restrict human use; farm use; industrial use.
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.

Fire

Combustible.
POISONOUS GASES ARE PRODUCED IN FIRE.
Container may explode when heated.
Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves).
Combat fires form 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.

LIQUID
POISONOUS IF SWALLOWED OR IF SKIN IS EXPOSED.
Will burn eyes.
Remove contaminated clothes 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.
IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.

Water Pollution

Effect of low concentrations on aquatic life is unknown.
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

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: 0; Unassigned cargoes
2.2 Formula: Not listed
2.3 IMO/UN Designation: 6.1/1649
2.4 DOT ID No.: 1649
2.5 CAS Registry No.: Currently not available
2.6 NAERG Guide No.: 131
2.7 Standard Industrial Trade Classification: 59721

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Organic vapor cartridge-type face mask for emergency or short duration; fresh air mask for longer duration; impervious protective gloves; goggles as required; boots and light-colored clothing.
3.2 Symptoms Following Exposure: Increased urinary output of lead. Large degree of absorption from inhalation or skin contact may cause insomnia, excitability, delirium, coma and death.
3.3 Treatment of Exposure: Call a physician for any exposure. INHALATION: remove from exposure. INGESTION: no specific antidote. EYES: flush with plenty of water for about 15 min. SKIN: flush with kerosine, wash with soap and water.
3.4 TLV-TWA: 0.15 mg/m^3 (as lead, based on tetraethyl and tetramethyl lead).
3.5 TLV-STEL: Not listed.
3.6 TLV-Ceiling: Not listed.
3.7 Toxicity by Ingestion: Currently not available
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: Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin. Toxic absorption through skin may occur.
3.12 Odor Threshold: Currently not available
3.13 IDLH Value: 40 mg/m^3 (as lead, based on tetraethyl and tetramethyl lead).
3.14 OSHA PEL-TWA: 0.075 mg/m^3 (as lead, based on tetraethyl and tetramethyl lead).
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: 89°F–265°F O.C.
4.2 Flammable Limits in Air: None established
4.3 Fire Extinguishing Agents: Water, foam, dry chemical, carbon dioxide
4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent
4.5 Special Hazards of Combustion Products: Toxic lead-containing gases are generated in fires.
4.6 Behavior in Fire: Containers may explode
4.7 Auto Ignition Temperature: Begins to decompose above 212°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: Not pertinent.
4.12 Flame Temperature: Currently not available
4.13 Combustion Molar Ratio (Reactant to Product): Not pertinent.
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: Reacts with oxidizing materials, active metals and rust, but not considered hazardous.
5.3 Stability During Transport: A self-sustaining decomposition occurs if the temperature of the bulk liquid is above 212°F and a flame or hot metal surface serves to ignite the mass. The presence of ethylene dibromide makes the compound stable at 300°F for 15 hrs.
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: See Tetraethyl Lead
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: Not listed

7. SHIPPING INFORMATION

7.1 Grades of Purity: 50-60% mixed lead alkyls 18-36% ethylene dibromide 0-19% ethylene dichloride 2-12% toluene, other solvents, dyes.
7.2 Storage Temperature: Ambient
7.3 Inert Atmosphere: No requirement
7.4 Venting: Pressure-vacuum
7.5 IMO Pollution Category: A
7.6 Ship Type: 1
7.7 Barge Hull Type: 1

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: Not listed
8.6 EPA Reportable Quantity: Not listed.
8.7 EPA Pollution Category: Not listed.
8.8 RCRA Waste Number: Not listed
8.9 EPA FWPCA List: Not listed

9. PHYSICAL & CHEMICAL PROPERTIES

9.1 Physical State at 15° C and 1 atm: Liquid
9.2 Molecular Weight: Not pertinent
9.3 Boiling Point at 1 atm: >200°F = >93°C = >367°K
9.4 Freezing Point: Not pertinent
9.5 Critical Temperature: Not pertinent
9.6 Critical Pressure: Not pertinent
9.7 Specific Gravity: 1.5-1.7 at 15°C (liquid)
9.8 Liquid Surface Tension: (est.) 20 dynes/cm = 0.020 N/m at 20°C
9.9 Liquid Water Interfacial Tension: (est.) 45 dynes/cm = 0.045 N/m at 20°C
9.10 Vapor (Gas) Specific Gravity: Not pertinent
9.11 Ratio of Specific Heats of Vapor (Gas): (est.) 1.030
9.12 Latent Heat of Vaporization: (est.) 101 Btu/lb = 56.2 cal/g = 2.35 X 10^5 J/kg
9.13 Heat of Combustion: (est.) –18,200 Btu/lb = –10,100 cal/g = –424 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: 0.2 to 1.7 psia

NOTES

LEAD ALKYLS

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9.20 SATURATED LIQUID DENSITY	
Temperature (degrees F)	Pounds per cubic foot
50	93.629
52	93.629
54	93.629
56	93.629
58	93.629
60	93.629
62	93.629
64	93.629
66	93.629
68	93.629
70	93.629
72	93.629
74	93.629
76	93.629
78	93.629
80	93.629
82	93.629
84	93.629
86	93.629
88	93.629
90	93.629
92	93.629
94	93.629
96	93.629
98	93.629
100	93.629

9.21 LIQUID HEAT CAPACITY	
Temperature (degrees F)	British thermal unit per pound-F
50	0.478
52	0.478
54	0.478
56	0.478
58	0.478
60	0.478
62	0.478
64	0.478
66	0.478
68	0.478
70	0.478
72	0.478
74	0.478
76	0.478
78	0.478
80	0.478
82	0.478
84	0.478
86	0.478
88	0.478
90	0.478
92	0.478
94	0.478
96	0.478
98	0.478
100	0.478

9.22 LIQUID THERMAL CONDUCTIVITY	
Temperature (degrees F)	British thermal unit inch per hour-square foot-F
50	1.040
52	1.040
54	1.040
56	1.040
58	1.040
60	1.040
62	1.040
64	1.040
66	1.040
68	1.040
70	1.040
72	1.040
74	1.040
76	1.040
78	1.040
80	1.040
82	1.040
84	1.040
86	1.040
88	1.040
90	1.040
92	1.040
94	1.040
96	1.040
98	1.040
100	1.040

9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Centipoise
50	9.343
52	8.841
54	8.370
56	7.927
58	7.511
60	7.119
62	6.751
64	6.404
66	6.078
68	5.770
70	5.481
72	5.207
74	4.950
76	4.707
78	4.477
80	4.260
82	4.056
84	3.862
86	3.679
88	3.506
90	3.342
92	3.187
94	3.040
96	2.901
98	2.770
100	2.645

9.24 SOLUBILITY IN WATER	
Temperature (degrees F)	Pounds per 100 pounds of water
	CURRENTLY NOT AVAILABLE

9.25 SATURATED VAPOR PRESSURE	
Temperature (degrees F)	Pounds per square inch
90	0.094
100	0.124
110	0.163
120	0.211
130	0.272
140	0.347
150	0.440
160	0.553
170	0.691
180	0.856
190	1.054
200	1.290
210	1.569
220	1.897
230	2.281
240	2.728
250	3.247
260	3.846
270	4.535
280	5.323
290	6.221
300	7.241
310	8.394
320	9.695
330	11.160
340	12.790

9.26 SATURATED VAPOR DENSITY	
Temperature (degrees F)	Pounds per cubic foot
	NOT PERTINENT

9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	British thermal unit per pound-F
	NOT PERTINENT