DIMETHYLZINC

DMZ

CAUTIONARY RESPONSE INFORMATION

Common Synonyms
Methylzinc
Zinc dimethyl
Zinc methyl

Liquid Colorless

IGNITES WHEN EXPOSED TO AIR. Reacts violently with water and produces flammable vapor.

Evacuate.
KEEP PEOPLE AWAY.
AVOID CONTACT WITH LIQUID AND VAPOR.
Avoid inhalation.
Wear rubber overclothing (including gloves).
Shut off ignition sources and call fire department.
Notify local health and pollution control agencies.

Fire

IGNITES WHEN EXPOSED TO AIR.
Irritating gases are produced when heated.
Extinguish with dry graphite, soda ash, or other inert powder.
DO NOT USE WATER, FOAM, CARBON DIOXIDE, DRY CHEMICALS OR VAPORIZING LIQUIDS ON FIRE.
DO NOT USE WATER ON ADJACENT FIRES.

Exposure

Call for medical aid.

VAPOR OR MIST
Irritating to eyes, nose and throat.
If inhaled will cause headache, nausea, vomiting or difficult breathing.
Move victim to fresh air.
If in eyes, hold eyelids open and flush with plenty of water.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.

LIQUID
Will burn skin and eyes.
If swallowed will cause nausea, or vomiting.
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.
DO NOT INDUCE VOMITING.

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

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: Not listed.
2.2 Formula: $(CH_3)_2Zn$
2.3 IMO/UN Designation: 4.2/1370
2.4 DOT ID No.: 1370
2.5 CAS Registry No.: Currently not available
2.6 NAERG Guide No.: 135
2.7 Standard Industrial Trade Classification: 51550

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Cartridge-type or fresh air mask for fumes or smoke; PVC fire-retardant or asbestos gloves; full face shield, safety glasses, or goggles; fire-retardant coveralls as standard wear; for special cases, use asbestos coat or rain suit.

3.2 Symptoms Following Exposure: Inhalation of mist or vapor causes immediate irritation of upper respiratory tract. Excessive or prolonged inhalation of fumes from ignition or decomposition may cause ``metal fume fever'' (sore throat, headache, fever, chills, nausea, vomiting, muscular aches, perspiration, constricting sensation in lungs, weakness, sometimes prostration). Symptoms usually last 12-24 hrs. Eyes are immediately and severely irritated by liquid, vapor, or dilute solutions. If not removed by thorough flushing with water, chemical may permanently damage cornea. Skin will undergo thermal and acid burns when chemical reacts with moisture in skin. Unless washed quickly, skin may be scarred. Treat dilute solutions with same precautions as concentrated liquid. Ingestion, while unlikely, would cause immediate burns at site of contact. Nausea, vomiting, cramps, and diarrhea may follow. Tissues may ulcerate if not treated.

3.3 Treatment of Exposure: INHALATION: highly unlikely, as liquid or vapor either ignites spontaneously or reacts with moisture to form methane and zinc oxide. Move victim to clean air and administer mouth-to-mouth resuscitation if breathing has ceased; give oxygen only when authorized by physician; keep victim warm and comfortable; call physician immediately. EYES: immediately flush with large amounts of water for at least 15 min., holding eyelids apart to insure thorough irrigation; use oils or ointments only when directed by physician, and do not attempt to neutralize with chemicals; get medical attention as soon as possible. SKIN: immediately flush affected area with large volumes of water; do not attempt to neutralize with chemicals; get medical attention if irritation persists. INGESTION: highly unlikely, as liquid or vapor either ignites spontaneously or reacts with moisture to form methane and zinc oxide. Do NOT induce vomiting; immediately dilute material by giving large amounts of water or milk; if vomiting occurs, give more fluids; when vomiting ceases, milk or olive oil may be given for their soothing effect; get medical attention.

3.4 TLV-TWA: Not listed.
3.5 TLV-STEL: Not listed.
3.6 TLV-Ceiling: Not listed.
3.7 Toxicity by Ingestion: Not pertinent
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: Not pertinent
3.10 Vapor (Gas) Irritant Characteristics: Currently not available
3.11 Liquid or Solid Characteristics: Currently not available
3.12 Odor Threshold: Currently not available
3.13 IDLH Value: Not listed.
3.14 OSHA PEL-TWA: Not listed.
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: Not pertinent (ignites spontaneously)
4.2 Flammable Limits in Air: Not pertinent
4.3 Fire Extinguishing Agents: Dry chemical, sand, powdered limestone
4.4 Fire Extinguishing Agents Not to Be Used: Water, foam, halogenated agents, or carbon dioxide
4.5 Special Hazards of Combustion Products: Smoke contains zinc oxide, which can irritate lungs and cause metal fume fever.
4.6 Behavior in Fire: Reacts spontaneously with air or oxygen and violently with water, evolving methane. Contact with water applied to adjacent fires will intensify fire.
4.7 Auto Ignition Temperature: Below 0°F
4.8 Electrical Hazards: Not pertinent
4.9 Burning Rate: Not pertinent
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: Reacts vigorously, generating flammable methane gas.
5.2 Reactivity with Common Materials: Will react with surface moisture to generate flammable methane.
5.3 Stability During Transport: Stable
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: Not pertinent
6.2 Waterfowl Toxicity: Not pertinent
6.3 Biological Oxygen Demand (BOD): None
6.4 Food Chain Concentration Potential: None
6.5 GESAMP Hazard Profile: Not listed

7. SHIPPING INFORMATION

7.1 Grades of Purity: Technical; Electronic
7.2 Storage Temperature: Ambient
7.3 Inert Atmosphere: Dry nitrogen gas
7.4 Venting: Safety relief
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: Spontaneously Combustible
8.2 49 CFR Class: 4.2
8.3 49 CFR Package Group: I
8.4 Marine Pollutant: No
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: 95.4
9.3 Boiling Point at 1 atm: 113°F = 45°C = 318°K
9.4 Freezing Point: –44°F = –42°C = 231°K
9.5 Critical Temperature: Not pertinent
9.6 Critical Pressure: Not pertinent
9.7 Specific Gravity: 1.39 at 10.5°C (liquid)
9.8 Liquid Surface Tension: (est.) 18 dynes/cm = 0.018 N/m at 20°C
9.9 Liquid Water Interfacial Tension: Not pertinent
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: 134.9 Btu/lb = 74.95 cal/g = 3.138 X 10^5 J/kg
9.13 Heat of Combustion: Currently not available
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

DIMETHYLZINC

DMZ

9.20 SATURATED LIQUID DENSITY		9.21 LIQUID HEAT CAPACITY		9.22 LIQUID THERMAL CONDUCTIVITY		9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit inch per hour-square foot-F	Temperature (degrees F)	Centipoise
34	87.950	52	0.460	52	1.129	52	0.945
36	87.879	54	0.460	54	1.129	54	0.928
38	87.809	56	0.460	56	1.129	56	0.912
40	87.740	58	0.460	58	1.129	58	0.896
42	87.669	60	0.460	60	1.129	60	0.880
44	87.599	62	0.460	62	1.129	62	0.865
46	87.530	64	0.460	64	1.129	64	0.850
48	87.459	66	0.460	66	1.129	66	0.835
50	87.389	68	0.460	68	1.129	68	0.821
52	87.320	70	0.460	70	1.129	70	0.807
54	87.250	72	0.460	72	1.129	72	0.794
56	87.179	74	0.460	74	1.129	74	0.780
58	87.110	76	0.460	76	1.129	76	0.768
60	87.040	78	0.460	78	1.129	78	0.755
62	86.969	80	0.460	80	1.129	80	0.743
64	86.910	82	0.460	82	1.129	82	0.731
66	86.839	84	0.460	84	1.129	84	0.719
68	86.770	86	0.460	86	1.129	86	0.708
70	86.700						
72	86.629						
74	86.559						
76	86.490						
78	86.419						
80	86.349						
82	86.280						
84	86.209						

9.24 SOLUBILITY IN WATER		9.25 SATURATED VAPOR PRESSURE		9.26 SATURATED VAPOR DENSITY		9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
	R	35	2.590	35	0.04653		N
	E	40	2.942	40	0.05233		O
	A	45	3.334	45	0.05871		T
	C	50	3.769	50	0.06572		
	T	55	4.251	55	0.07340		P
	S	60	4.782	60	0.08179		E
		65	5.369	65	0.09094		R
		70	6.014	70	0.10090		T
		75	6.722	75	0.11170		I
		80	7.498	80	0.12350		N
		85	8.347	85	0.13620		E
		90	9.274	90	0.15000		N
		95	10.280	95	0.16480		T
		100	11.380	100	0.18080		
		105	12.580	105	0.19800		
		110	13.870	110	0.21640		
		115	15.280	115	0.23630		
		120	16.790	120	0.25750		