DECABORANE

DBR

CAUTIONARY RESPONSE INFORMATION

Common Synonyms	Solid	White	Sharp odor
	Floats on water.		

KEEP PEOPLE AWAY. AVOID CONTACT WITH SOLID AND DUST.
Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves).
Shut off ignition sources. Call fire department.
Stay upwind. Use water spray to ``knock down'' vapor.
Notify local health and pollution control agencies.
Protect water intakes.

Fire

FLAMMABLE.
POISONOUS GASES MAY BE PRODUCED IN FIRE.
Containers may explode in fire.
Wear goggles, self-contained breathing apparatus and rubber overclothing (including gloves).
Extinguish with water, dry chemicals, foam, or carbon dioxide.
Do not use vaporizing liquids on fire.
Cool exposed containers with water.

Exposure

CALL FOR MEDICAL AID.
DUST
POISONOUS IF INHALED OR IF SKIN IS EXPOSED.
Move victim to fresh air.
If in eyes, hold eyelids open and flush with plenty of water.
If breathing is difficult, give oxygen.

SOLID
POISONOUS IF SWALLOWED OR IF SKIN IS EXPOSED.
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

Effect of low concentrations on aquatic life is unknown.
Fouling to shoreline.
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
Contain
Collection Systems: Skim
Do not burn

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: Not listed.
2.2 Formula: $B_{10}H_{14}$
2.3 IMO/UN Designation: 4.1/1868
2.4 DOT ID No.: 1868
2.5 CAS Registry No.: 17702-41-9
2.6 NAERG Guide No.: 134
2.7 Standard Industrial Trade Classification: 52495

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Self-contained breathing apparatus or positive-pressure hose mask; rubber boots or overshoes; clothing made of material resistant to decaborane; rubber gloves; chemical-type goggles or face shield.

3.2 Symptoms Following Exposure: (The onset of symptoms is frequently delayed until one or two days after exposure.) Inhalation or ingestion causes headache, nausea, light-headedness, drowsiness, nervousness, lack of coordination, and tremor; muscle spasms and generalized convulsions may occur. Dust irritates eyes and skin and may give same systemic symptoms as for inhalation if left on skin.

3.3 Treatment of Exposure: Get medical attention after all exposures to this compound. Symptoms may be delayed for 48 hours. INHALATION: move patient to fresh air; keep him warm and quiet. EYES: flush with water for at least 15 min. SKIN: immediately wash with soap and plenty of water. INGESTION: if victim is conscious, give a tablespoonful of salt in a glass of warm water and repeat until vomit fluid is clear. Note to physician: Treat symptomatically; administration of methocarbamol or other muscle relaxant may be helpful immediately following exposure and in the absence of symptoms.

3.4 TLV-TWA: 0.05 ppm
3.5 TLV-STEL: 0.15 ppm
3.6 TLV-Ceiling: Not listed.
3.7 Toxicity by Ingestion: Grade 4; oral LD_{50} = 40 mg/kg (mouse)
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: Currently not available
3.10 Vapor (Gas) Irritant Characteristics: Not pertinent
3.11 Liquid or Solid Characteristics: Currently not available
3.12 Odor Threshold: 0.05 ppm
3.13 IDLH Value: 15 mg/m^3
3.14 OSHA PEL-TWA: 0.05 ppm
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: (Flammable solid) 176°F C.C.
4.2 Flammable Limits in Air: Not pertinent
4.3 Fire Extinguishing Agents: Water, foam, dry chemical, and carbon dioxide.
4.4 Fire Extinguishing Agents Not to Be Used: Halogenated extinguishing agents.
4.5 Special Hazards of Combustion Products: May give toxic fumes of unburned material.
4.6 Behavior in Fire: May explode when hot. Burns with a green-colored flame.
4.7 Auto Ignition Temperature: 300°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: 52.4 (calc.)
4.12 Flame Temperature: Currently not available
4.13 Combustion Molar Ratio (Reactant to Product): 12.0 (calc.)
4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed

5. CHEMICAL REACTIVITY

5.1 Reactivity with Water: Reacts slowly to form flammable hydrogen gas, which can accumulate in closed area.
5.2 Reactivity with Common Materials: Corrosive to natural rubber, some synthetic rubbers, some greases, and some lubricants.
5.3 Stability During Transport: Stable
5.4 Neutralizing Agents for Acids and Caustics: Flush with 3% aqueous ammonia solution, then with water. Methyl alcohol may also be used.
5.5 Polymerization: Not pertinent
5.6 Inhibitor of Polymerization: Not pertinent

6. WATER POLLUTION

6.1 Aquatic Toxicity: Currently not available
6.2 Waterfowl Toxicity: Currently not available
6.3 Biological Oxygen Demand (BOD): Currently not available
6.4 Food Chain Concentration Potential: None
6.5 GESAMP Hazard Profile:
Bioaccumulation: 0
Damage to living resources: -
Human Oral hazard: 3
Human Contact hazard: II
Reduction of amenities: XX

7. SHIPPING INFORMATION

7.1 Grades of Purity: Technical: 95+% High purity: 99+%
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: Flammable solid
8.2 49 CFR Class: 4.1
8.3 49 CFR Package Group: II
8.4 Marine Pollutant: No
8.5 NFPA Hazard Classification:

Category	Classification
Health Hazard (Blue).....	4
Flammability (Red).....	2
Instability (Yellow).....	1

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: Solid
9.2 Molecular Weight: 122.3
9.3 Boiling Point at 1 atm: 415°F = 213°C = 486°K
9.4 Freezing Point: 210°F = 99°C = 372°K
9.5 Critical Temperature: Not pertinent
9.6 Critical Pressure: Not pertinent
9.7 Specific Gravity: 0.94 at 25°C (solid)
9.8 Liquid Surface Tension: Not pertinent
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: Not pertinent
9.13 Heat of Combustion: –28,699 Btu/lb = –15,944 cal/g = –667.10 X 10^5 J/kg
9.14 Heat of Decomposition: –279 Btu/lb = –155 cal/g = –6.49 X 10^5 J/kg
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

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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
	NOT PERTINENT		NOT PERTINENT		NOT PERTINENT		NOT PERTINENT

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
	INSOLUBLE	40	0.000	60	0.00001		NOT PERTINENT
		50	0.000	70	0.00002		
		60	0.000	80	0.00003		
		70	0.001	90	0.00004		
		80	0.001	100	0.00007		
		90	0.002	110	0.00011		
		100	0.003	120	0.00018		
		110	0.006	130	0.00028		
		120	0.009	140	0.00043		
		130	0.015	150	0.00066		
		140	0.023	160	0.00098		
		150	0.035	170	0.00145		
		160	0.053	180	0.00211		
		170	0.080	190	0.00303		
		180	0.118	200	0.00432		
		190	0.173	210	0.00607		
		200	0.250				
		210	0.357				