

MATERIAL SAFETY DATA SHEET

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Section 1 - Product and Company Information

Product Name DECABORANE(14), WHITE
Product Number 227609
Brand ALDRICH

Company Sigma-Aldrich
Address 3050 Spruce Street
 SAINT LOUIS MO 63103 US
Technical Phone: 800-325-5832
Fax: 800-325-5052
Emergency Phone: 314-776-6555

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
DECABORANE	17702-41-9	Yes
Formula	B10H14	
Synonyms	Boron hydride (B10H14) * Decaborane * Decaborane (ACGIH:OSHA) * nido-Decaborane(14) * Tetradecahydrodecaborane	
RTECS Number:	HD1400000	

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Flammable (USA) Highly Flammable (EU). Highly Toxic (USA) Very Toxic (EU).

Heating may cause an explosion. Toxic in contact with skin and if swallowed. Very toxic by inhalation. Irritating to eyes, respiratory system and skin.

Readily absorbed through skin. Target organ(s): Liver. Central nervous system.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

EYE EXPOSURE

Assure adequate flushing of the eyes by separating the eyelids with fingers.

Section 5 - Fire Fighting Measures

EXPLOSION HAZARDS

May explode when heated.

CONDITIONS OF FLAMMABILITY

Reacts with water to liberate flammable and/or explosive gas.

FLASH POINT

N/A

AUTOIGNITION TEMP

N/A

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Flammable solid.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area. Shut off all sources of ignition.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING

User Exposure: Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Suitable: Keep tightly closed. Keep away from heat, sparks, and open flame. Store in a cool dry place.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

Use only in a chemical fume hood. Safety shower and eye bath.

PERSONAL PROTECTIVE EQUIPMENT

Other: Wear appropriate government approved respirator, chemical-resistant gloves, safety goggles, other protective clothing.

GENERAL HYGIENE MEASURES

Remove and wash contaminated clothing promptly. Wash thoroughly

after handling.

EXPOSURE LIMITS, RTECS

Country	Source	Type	Value
USA	ACGIH	STEL	0.15 PPM
Remarks: Skin			
USA	ACGIH	TWA	0.05 PPM
Remarks: Skin			
USA	MSHA Standard-air	TWA	0.05 PPM (0.3 MG/M3) (SKIN)
USA	OSHA.	PEL	8H TWA 0.05 PPM (0.3 MG/M3) (S
New Zealand OEL			
Remarks: check ACGIH TLV			
USA	NIOSH	TWA	0.05 PPM (SK)
		STEL	0.15 PPM (SK)

EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	0.3 mg/m3
Poland		NDSch	0.9 mg/m3
Poland		NDSP	

Section 9 - Physical/Chemical Properties

Molecular Weight	122.22 AMU	
pH	N/A	
BP/BP Range	213 °C	760 mmHg
MP/MP Range	98.0 - 100.0 °C	
Freezing Point	N/A	
Vapor Pressure	0.15 mmHg	20 °C
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
SG/Density	0.94 g/cm3	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	N/A	
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Refractive Index	N/A	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.

Conditions of Instability: Caution: decomposes and develops pressure above 170°C. Forms shock-sensitive mixtures with halogenated compounds. Hydrolyzed by hot water with release of hydrogen, a flammable gas. May decompose on exposure to moist air

or water.

Conditions to Avoid: Heat.

Materials to Avoid: Carbon disulfide, Oxygen, Oxidizing agents, Forms dangerously shock sensitive mixtures with carbon tetrachloride, Halogenated solvents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Liberates flammable/explosive hydrogen gas, Boron oxides.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Absorption: Readily absorbed through skin. Harmful if absorbed through skin.

Inhalation: May be fatal if inhaled. Material is irritating to mucous membranes and upper respiratory tract.

Ingestion: Harmful if swallowed.

Multiple Routes: Causes eye and skin irritation.

TARGET ORGAN(S) OR SYSTEM(S)

Kidneys. Liver. Central nervous system.

SIGNS AND SYMPTOMS OF EXPOSURE

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Nausea, dizziness, and headache. Exposure can cause: May cause convulsions.

TOXICITY DATA

Oral

Rat

64 mg/kg

LD50

Inhalation

Rat

46 ppm

LC50

Remarks: Kidney, Ureter, Bladder:Other changes. Liver:Other changes. Behavioral:Convulsions or effect on seizure threshold.

Skin

Rat

740 mg/kg

LD50

Remarks: Peripheral Nerve and Sensation:Flaccid paralysis without anesthesia (usually neuromuscular blockage).

Behavioral:Convulsions or effect on seizure threshold. Lungs, Thorax, or Respiration:Dyspnea.

Intraperitoneal

Rat

23 MG/KG

LD50

Oral

Mouse

41 mg/kg

LD50

Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Corneal damage. Behavioral:Convulsions or effect on seizure threshold. Lungs, Thorax, or Respiration:Cyanosis.

Inhalation

Mouse

12 ppm

LC50

Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Other. Behavioral:Somnolence (general depressed activity). Behavioral:Ataxia.

Skin

Mouse

317 mg/kg

LD50

Remarks: Kidney, Ureter, Bladder:Changes in tubules (including acute renal failure, acute tubular necrosis). Liver:Fatty liver degeneration. Behavioral:Convulsions or effect on seizure threshold.

Intraperitoneal

Mouse

33 MG/KG

LD50

Remarks: Lungs, Thorax, or Respiration:Cyanosis. Behavioral:Ataxia. Behavioral:Convulsions or effect on seizure threshold.

Skin

Cat

126 mg/kg

LD50

Remarks: Kidney, Ureter, Bladder:Changes in tubules (including acute renal failure, acute tubular necrosis). Liver:Fatty liver degeneration. Behavioral:Convulsions or effect on seizure threshold.

Skin

Rabbit

71 mg/kg

LD50

Remarks: Behavioral:Ataxia. Behavioral:Altered sleep time (including change in righting reflex). Lungs, Thorax, or Respiration:Dyspnea.

Intraperitoneal

Rabbit

28 MG/KG

LD50

Skin

Guinea pig

158 mg/kg

LD50

Remarks: Behavioral:Convulsions or effect on seizure threshold. Liver:Fatty liver degeneration. Kidney, Ureter, Bladder:Changes in tubules (including acute renal failure, acute tubular necrosis).

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: Decaborane
UN#: 1868
Class: 4.1
Packing Group: Packing Group II
Hazard Label: Flammable solid
Hazard Label: Toxic substances.
PIH: Not PIH

IATA

Proper Shipping Name: Decaborane
IATA UN Number: 1868
Hazard Class: 4.1
Packing Group: II
Not Allowed - Aircraft: Cargo aircraft only. Not permitted on passenger aircraft.

Section 15 - Regulatory Information

EU ADDITIONAL CLASSIFICATION

Symbol of Danger: F-T+
Indication of Danger: Highly Flammable. Very toxic.
R: 5-11-24/25-26-36/37/38
Risk Statements: Heating may cause an explosion. Highly flammable. Toxic in contact with skin and if swallowed. Very toxic by inhalation. Irritating to eyes, respiratory system and skin.
S: 16-27-36/37/39-45
Safety Statements: Keep away from sources of ignition - no smoking. Take off immediately all contaminated clothing. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Flammable (USA) Highly Flammable (EU).
Highly Toxic (USA) Very Toxic (EU).
Risk Statements: Heating may cause an explosion. Toxic in contact with skin and if swallowed. Very toxic by inhalation. Irritating to eyes, respiratory system and skin.
Safety Statements: Keep away from sources of ignition - no smoking. Take off immediately all contaminated clothing. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
US Statements: Readily absorbed through skin. Target organ(s): Liver. Central nervous system.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: Yes

NOTES: This product is subject to SARA section 313 reporting requirements.

TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: No

NDSL: Yes

Section 16 - Other Information

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2008 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.