

## MATERIAL SAFETY DATA SHEET

Date Printed: 03/29/2011

Date Updated: 01/29/2006

Version 1.3

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Section 1 - Product and Company Information

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Product Name                    CADMIUM TETRAFLUOROBORATE, 99.99%, 45  
                                  WT . % SOLUTION IN WATER  
Product Number                481734  
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

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Section 2 - Composition/Information on Ingredient

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Substance Name	CAS #	SARA 313
CADMIUM TETRAFLUOROBORATE, 99.99%, 45 WT.% SOLUTION IN WATER	14486-19-2	No
Formula	Cd(BF <sub>4</sub> ) <sub>2</sub>	
Synonyms	Borate(1-), tetrafluoro-, cadmium (2:1) (9CI) * Cadmium fluoroborate * Cadmium tetrafluoroborate (7CI) * TL 1026	
RTECS Number:	EV0525000	

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Section 3 - Hazards Identification

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## EMERGENCY OVERVIEW

Toxic.

Causes burns. Toxic by inhalation, in contact with skin and if  
swallowed. May cause cancer.

Target organ(s): Liver. Kidneys. Lachrymator.

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

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Section 4 - First Aid Measures

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## 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.

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Section 5 - Fire Fighting Measures

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FLASH POINT  
235 °F 113 °C Method: closed cup

AUTOIGNITION TEMP  
N/A

FLAMMABILITY  
N/A

EXTINGUISHING MEDIA  
Suitable: Dry chemical powder.

FIREFIGHTING  
Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.  
Specific Hazard(s): Emits toxic fumes under fire conditions.

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#### Section 6 - Accidental Release Measures

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PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL  
Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)  
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP  
Absorb on sand or vermiculite and place in closed containers for disposal. Ventilate area and wash spill site after material pickup is complete.

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#### Section 7 - Handling and Storage

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

STORAGE  
Suitable: Keep tightly closed. Store in a cool dry place.

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#### Section 8 - Exposure Controls / PPE

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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. Faceshield (8-inch minimum).

GENERAL HYGIENE MEASURES  
Wash thoroughly after handling. Wash contaminated clothing before reuse. Discard contaminated shoes.

EXPOSURE LIMITS, RTECS

Country	Source	Type	Value
USA	ACGIH	TWA	0.01 MG(CD)/M3
Remarks: inhalable dust			
USA	ACGIH	TWA	0.002 MG(CD)/M3
Remarks: respirable dust			
USA	MSHA Standard-air	TWA	0.2 MG(CD)/M3
USA	NIOSH		LOWEST FEASIBLE CONC.

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## Section 9 - Physical/Chemical Properties

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Molecular Weight	286.01 AMU	
pH	N/A	
BP/BP Range	N/A	
MP/MP Range	N/A	
Freezing Point	N/A	
Vapor Pressure	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
SG/Density	1.485 g/cm <sup>3</sup>	
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	235 °F 113 °C	Method: closed cup
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

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## Section 10 - Stability and Reactivity

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### STABILITY

Stable: Stable.

Materials to Avoid: Strong bases.

### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Hydrogen fluoride,  
Cadmium/cadmium oxides.

### HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

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## Section 11 - Toxicological Information

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### ROUTE OF EXPOSURE

Multiple Routes: Harmful if swallowed, inhaled, or absorbed  
through skin.

### TARGET ORGAN(S) OR SYSTEM(S)

Blood. Lungs. Kidneys. Liver.

### SIGNS AND SYMPTOMS OF EXPOSURE

Symptoms of fluoride overexposure may include salivation,  
nausea, vomiting, abdominal pain, fever, and labored breathing.  
Fluoride ion can reduce serum calcium levels possibly causing  
fatal hypocalcemia. Prolonged exposure to fluoride dusts,  
vapors, or mists results in perforation of the nasal septum.

Chronic effects include excessive calcification of the bones, ligaments, and tendons. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

#### CHRONIC EXPOSURE - CARCINOGEN

Result: This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

#### OSHA CARCINOGEN LIST

Rating: cancer hazard

#### IARC CARCINOGEN LIST

Rating: Group 1

#### ACGIH CARCINOGEN LIST

Rating: A2

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#### Section 12 - Ecological Information

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No data available.

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#### Section 13 - Disposal Considerations

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#### 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.

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#### Section 14 - Transport Information

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#### DOT

Proper Shipping Name: Corrosive liquids, toxic, n.o.s.  
UN#: 2922  
Class: 8  
Packing Group: Packing Group III  
Hazard Label: Corrosive  
Hazard Label: Toxic substances.  
PIH: Not PIH

#### IATA

Proper Shipping Name: Corrosive liquid, toxic, n.o.s.  
IATA UN Number: 2922  
Hazard Class: 8  
Packing Group: III

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#### Section 15 - Regulatory Information

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#### EU ADDITIONAL CLASSIFICATION

Symbol of Danger: T  
Indication of Danger: Toxic.  
R: 45-23/24/25-34  
Risk Statements: May cause cancer. Toxic by inhalation, in contact with skin and if swallowed. Causes burns.  
S: 53-26-27-28-36/37/39-45

Safety Statements: Avoid exposure - obtain special instructions before use. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Take off immediately all contaminated clothing. After contact with skin, wash immediately with plenty of water. 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: Toxic.

Risk Statements: Causes burns. Toxic by inhalation, in contact with skin and if swallowed. May cause cancer.

Safety Statements: After contact with skin, wash immediately with plenty of water. Take off immediately all contaminated clothing. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Wear suitable protective clothing, gloves, and eye/face protection.

US Statements: Target organ(s): Liver. Kidneys. Lachrymator.

#### UNITED STATES REGULATORY INFORMATION

SARA LISTED: No

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

NDSL: No

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#### Section 16 - Other Information

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#### 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 2010 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.