1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Deoxo-Fluor®
Product Number : 494119
Brand : Aldrich
Product Use : For laboratory research purposes.
Supplier : Sigma-Aldrich
Manufacturer : Sigma-Aldrich Corporation
Address : 3050 Spruce Street
            SAINT LOUIS MO  63103
            USA
Telephone : +18003255832
Fax : +18003255052
Emergency Phone # : (314) 776-6555
Preparation Information : Sigma-Aldrich Corporation
                        Product Safety - Americas Region
                        1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Highly toxic by inhalation, Toxic by ingestion, Corrosive

GHS Classification
Substances, which in contact with water, emit flammable gases (Category 2)
Acute toxicity, Inhalation (Category 3)
Acute toxicity, Oral (Category 3)
Skin corrosion (Category 1A)
Serious eye damage (Category 1)

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H261 In contact with water releases flammable gases.
H301 + H331 Toxic if swallowed or if inhaled.
H314 Causes severe skin burns and eye damage.

Precautionary statement(s)
P231 + P232 Handle under inert gas. Protect from moisture.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/ physician.
P422 Store contents under inert gas.

HMIS Classification
Health hazard: 4
Flammability: 0  
Physical hazards: 3

NFPA Rating
Health hazard: 4  
Fire: 0  
Reactivity hazard: 0  
Special hazard: W

Potential Health Effects

Inhalation  
May be fatal if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Skin  
May be harmful if absorbed through skin. Causes skin burns.

Eyes  
Causes eye burns. Causes severe eye burns.

Ingestion  
Toxic if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms  
Bis(2-methoxyethyl)aminosulfur trifluoride

Formula  
C$_6$H$_{14}$F$_3$NO$_2$S

Molecular Weight  
221.24 g/mol

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>202289-38-1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Conditions of flammability
Not flammable or combustible.

Suitable extinguishing media
Dry powder

Special protective equipment for fire-fighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx), Sulphur oxides, Hydrogen fluoride

6. ACCIDENTAL RELEASE MEASURES
Personal precautions
Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Never allow product to get in contact with water during storage.

Recommended storage temperature: 2 - 8 °C
Store under inert gas.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment
Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection
Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals. Flame retardant protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Form liquid
Colour no data available

Safety data
pH no data available
Melting point/freezing point no data available
Boiling point > 80 °C (> 176 °F) at 1,013 hPa (760 mmHg) - Decomposes on heating.
Flash point no data available
Ignition temperature no data available
Autoignition temperature no data available
Lower explosion limit no data available
Upper explosion limit no data available
Vapour pressure no data available
Density 1.2 g/cm³ at 25 °C (77 °F)
Water solubility no data available
Partition coefficient: n-octanol/water no data available
Relative vapour density no data available
Odour no data available
Odour Threshold no data available
Evaporation rate no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
Reacts violently with water.

Conditions to avoid
Exposure to moisture.

Materials to avoid
Strong oxidizing agents, Alcohols, Aldehydes, Ketones, Sulfides

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx), Sulphur oxides, Hydrogen fluoride
Reacts with water to form: - Warning: Hydrolyzes to form hydrofluoric acid! Do not store in glass!, Hydrogen fluoride

11. TOXICOLOGICAL INFORMATION

Acute toxicity
Oral LD₅₀ no data available
Inhalation LC₅₀ no data available
Dermal LD₅₀ no data available

Other information on acute toxicity no data available

Skin corrosion/irritation no data available

Serious eye damage/eye irritation no data available

Respiratory or skin sensitization no data available
Germ cell mutagenicity
no data available

Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

Teratogenicity
no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects
Inhalation May be fatal if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Ingestion Toxic if swallowed.
Skin May be harmful if absorbed through skin. Causes skin burns.
Eyes Causes eye burns. Causes severe eye burns.

Signs and Symptoms of Exposure
Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, Nausea

Synergistic effects
no data available

Additional Information
RTECS: Not available

12. ECOLOGICAL INFORMATION

Toxicity
no data available

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects
no data available

13. DISPOSAL CONSIDERATIONS

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3094  Class: 8 (4.3)  Packing group: I
Proper shipping name: Corrosive liquids, water-reactive, n.o.s. (Sulfur, trifluoro[2-methoxy-N-(2-methoxyethyl)ethanaminato.kappa.N]-, (T-4)-)
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 3094  Class: 8 (4.3)  Packing group: I  EMS-No: F-G, S-L
Proper shipping name: CORROSIVE LIQUID, WATER-REACTIVE, N.O.S. (Sulfur, trifluoro[2-methoxy-N-(2-methoxyethyl)ethanaminato.kappa.N]-, (T-4)-)
Marine pollutant: No

IATA
UN number: 3094  Class: 8 (4.3)  Packing group: I
Proper shipping name: Corrosive liquid, water-reactive, n.o.s. (Sulfur, trifluoro[2-methoxy-N-(2-methoxyethyl)ethanaminato.kappa.N]-, (T-4)-)
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

OSHA Hazards
Highly toxic by inhalation, Toxic by ingestion, Corrosive

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfur, trifluoro[2-methoxy-N-(2-methoxyethyl)ethanaminato.kappa.N]-, (T-4)-</td>
<td>202289-38-1</td>
<td></td>
</tr>
</tbody>
</table>

New Jersey Right To Know Components

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfur, trifluoro[2-methoxy-N-(2-methoxyethyl)ethanaminato.kappa.N]-, (T-4)-</td>
<td>202289-38-1</td>
<td></td>
</tr>
</tbody>
</table>
California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Further information
Copyright 2011 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only. 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 Co., 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.