

# Material Safety Data Sheet

Version 2.0  
Revision Date 01/19/2006MSDS Number 30000005353  
Print Date 01/19/2006

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : SELECTFLUOR (II) F-TEDA-BF4

Chemical formula : C7H15B2F9N2

Synonyms : N-fluoro-N'-methyl-triethylenediamine bis(tetrafluoroborate), Selectfluor II

Company : Air Products and Chemicals, Inc  
7201 Hamilton Blvd.  
Allentown, PA 18195-1501

Telephone : 1-800-345-3148 Chemicals  
1-800-752-1597 Gases and Electronic Chemicals

Emergency telephone number : 800-523-9374 USA  
01-610-481-7711 International

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS Number	Concentration (Weight)
1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane bis(tetrafluoroborate)	159269-48-4	100 %

## 3. HAZARDS IDENTIFICATION

### Emergency Overview

Toxic if swallowed.  
Mild skin irritant.  
Moderate eye irritant.  
Mild respiratory tract irritant.  
May cause sensitization by skin contact.  
Decomposes in contact with water.

### Potential Health Effects

Inhalation : May cause nose, throat, and lung irritation. Inhalation of vapors and/or aerosols in high concentration may cause irritation of respiratory system.

Eye contact : Causes eye irritation.

Skin contact : Mild skin irritation.

Ingestion : May be fatal if swallowed. Toxic if swallowed.

Chronic Health Hazard : This product contains no listed carcinogens according to IARC, ACGIH, NTP and/or OSHA in concentrations of 0.1 percent or greater. May cause allergic skin reaction.

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## Exposure Guidelines

- Target Organs : Eyes.  
Skin.
- Symptoms : Repeated and/or prolonged exposure to low concentrations of vapors and/or aerosols may cause: Sore throat.

## Aggravated Medical Condition

Eye disease Skin disorders and Allergies.

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## 4. FIRST AID MEASURES

- General advice : Seek medical advice. If breathing has stopped or is labored, give assisted respirations. Supplemental oxygen may be indicated. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation immediately.
- Eye contact : Rinse immediately with plenty of water also under the eyelids for at least 20 minutes. Remove contact lenses.
- Skin contact : Wash off immediately with plenty of water for at least 20 minutes. Wash off with soap and water. Immediately remove contaminated clothing, and any extraneous chemical, if possible to do so without delay. Take off contaminated clothing and shoes immediately. NOTE TO PHYSICIANS: Application of corticosteroid cream has been effective in treating skin irritation.
- Ingestion : Never give anything by mouth to an unconscious person. If a person vomits when lying on his back, place him in the recovery position. Prevent aspiration of vomit. Turn victim's head to the side.
- Inhalation : If breathing has stopped or is labored, give assisted respirations. Supplemental oxygen may be indicated. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation immediately. Move to fresh air.

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## 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : The product itself does not burn.  
Carbon dioxide (CO<sub>2</sub>).  
Dry chemical.  
Dry sand.  
Limestone powder.
- Specific hazards : Incomplete combustion may form carbon monoxide. Potential dust explosion hazard. As discussed in NFPA 68 and NFPA 69 standards, mixing any dust that can propagate a deflagration with flammable vapor will increase the hazard rating. Where explosive dusts are contained in equipment, that equipment should contain adequate explosion relief vents, explosion suppression systems, or an oxygen-deficient atmosphere. Care should be taken to prevent the escape of dust from horizontal surfaces. Downwind personnel must be

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evacuated.

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

Further information : The product, as distributed, is noncombustible.

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## 6. ACCIDENTAL RELEASE MEASURES

Personal precautions : Wear suitable protective clothing, gloves and eye/face protection. Use self-contained breathing apparatus and chemically protective clothing. Evacuate personnel to safe areas.

Methods for cleaning up : Approach suspected leak areas with caution. Contact Air Products' Emergency Response Center for advice. Place in appropriate chemical waste container.

Additional advice : Open enclosed spaces to outside atmosphere. If possible, stop flow of product.

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## 7. HANDLING AND STORAGE

### Handling

Avoid dust formation. Do not breathe vapors/dust. Emergency showers and eye wash stations should be readily accessible. Adhere to work practice rules established by government regulations. Avoid contact with eyes. Use only in well-ventilated areas. Use personal protective equipment. When using, do not eat, drink or smoke.

### Storage

Keep in a dry, cool place.

Storage temperature :  $\leq 86$  °F ( $\leq 30$  °C)

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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Engineering measures

Provide readily accessible eye wash stations and safety showers.

Provide natural or explosion-proof ventilation adequate to ensure concentrations are kept below exposure limits.

### Personal protective equipment

Respiratory protection : Respirator must be worn if exposed to dust. Wear appropriate respirator when ventilation is inadequate.

Hand protection : The breakthrough time of the selected glove(s) must be greater than the intended use period.

Eye protection : Dust resistant safety goggles.  
Chemical resistant goggles must be worn.

Skin and body protection : Long sleeve shirts and trousers without cuffs.

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Special instructions for protection and hygiene : Provide readily accessible eye wash stations and safety showers. Wash at the end of each workshift and before eating, smoking or using the toilet.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

Form : Powder.  
Color : White.  
Molecular Weight : 319.8 g/mol  
Density : 53.064 lb/ft<sup>3</sup> (0.85 g/cm<sup>3</sup>) at  
Water solubility : Reacts slightly with water.  
Completely soluble.

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## 10. STABILITY AND REACTIVITY

Stability : Stable under normal conditions.  
Conditions to avoid : Elevated temperatures. Decomposes on heating. To avoid thermal decomposition, do not overheat.  
Materials to avoid : Reducing agents.  
Alkalies.  
Flammable materials.  
Hazardous decomposition products : Carbon monoxide.  
Carbon dioxide (CO<sub>2</sub>).  
Hydrogen fluoride.  
Boron trifluoride hydrates.  
organic acids

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## 11. TOXICOLOGICAL INFORMATION

### Acute Health Hazard

Ingestion : Harmful if swallowed.

Ingestion - Components  
1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane bis(tetrafluoroborate) LD50 : > 200 - < 500 mg/kg Species : Rat.

Inhalation : No data is available on the product itself.

Skin. : No data is available on the product itself.

Skin. - Components

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1-Fluoro-4-methyl-1,4-diazoniabicyclo[2.2.2]octane bis(tetrafluoroborate)

LD50 : > 2,000 mg/kg

Species : Rabbit.

- Eye irritation/corrosion : Moderate eye irritation.
- Acute dermal irritation/corrosion : Mild skin irritation.
- Sensitization : May cause sensitization by skin contact.

## Chronic Health Hazard

Boron compounds (particularly boric acid) have caused anemia, and adverse liver, kidney, central nervous system and reproductive effects. Testicular atrophy, reduced sperm counts, abnormal sperm and sterility have been observed in mice, rats and dogs fed at a daily level of 45 mg/kg of body weight based on boron product equivalents. Oral administration of boric acid to pregnant mice, rats and rabbits has caused increased incidences of fetal death and malformed offspring.

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity effects

- Aquatic toxicity : No data is available on the product itself.
- Toxicity to other organisms : No data available.

### Persistence and degradability

- Mobility : No data available.
- Bioaccumulation : No data is available on the product itself.

## 13. DISPOSAL CONSIDERATIONS

- Waste from residues / unused products : Contact supplier if guidance is required.
- Contaminated packaging : Dispose of container and unused contents in accordance with federal, state, and local requirements.

## 14. TRANSPORT INFORMATION

### CFR

- Proper shipping name : Self-heating, solid, organic, n.o.s. (N-fluoro-N-methyl-triethylenediamine bis (tetrafluoroborate) )
- Class : 4.2
- UN/ID No. : UN3088
- Packing group : II

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## IATA

Proper shipping name : Self-heating solid, organic, n.o.s. (N-fluoro-N-methyl-triethylenediamine bis (tetrafluoroborate) )  
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## IMDG

Proper shipping name : SELF-HEATING SOLID, ORGANIC, N.O.S. (N-fluoro-N-methyl-triethylenediamine bis (tetrafluoroborate) )  
Class : 4.2  
UN/ID No. : UN3088  
Packing group : II

## CTC

Proper shipping name : SELF-HEATING SOLID, ORGANIC, N.O.S. (N-fluoro-N-methyl-triethylenediamine bis (tetrafluoroborate) )  
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### Further Information

Not classified as dangerous in the meaning of transport regulations.

## 15. REGULATORY INFORMATION

OSHA Hazard Communication Standard (29 CFR 1910.1200) Hazard Class(es)  
Irritant. Toxic.

Country	Regulatory list	Notification
USA	TSCA	Not on Inventory. This product should be used solely for R&D purposes.
EU	EINECS	Not on Inventory.
Canada	DSL	Not on Inventory.
Australia	AICS	Not on Inventory.
Japan	ENCS	Not on Inventory.
South Korea	ECL	Not on Inventory.
China	SEPA	Not on Inventory.
Philippines	PICCS	Not on Inventory.

EPA SARA Title III Section 312 (40 CFR 370) Hazard Classification:  
Acute Health Hazard

EPA SARA Title III Section 313 (40 CFR 372) Component(s) above 'de minimus' level:  
None.

US. California Safe Drinking Water & Toxic Enforcement Act (Proposition 65)

This product does not contain any chemicals known to State of California to cause cancer, birth defects or any other harm.

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WHMIS Hazard Classification

Toxic Material Causing Other Toxic Effects

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## 16. OTHER INFORMATION

### HMIS Rating

Health : 2

Flammability : 0

Physical hazard : 1

Prepared by : Air Products and Chemicals, Inc. Global EH&S Product Safety Department

For additional information, please visit our Product Stewardship web site at  
<http://www.airproducts.com/productstewardship/>

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