1. PRODUCT AND COMPANY IDENTIFICATION

Product name: 1-Bromo-4-fluorobenzene
Product Number: B67201
Brand: Aldrich
Company: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA
Telephone: +1 800-325-5832
Fax: +1 800-325-5052
Emergency Phone #: (314) 776-6555

2. HAZARDS IDENTIFICATION

Emergency Overview
OSHA Hazards
Combustible Liquid, Irritant

GHS Label elements, including precautionary statements
Pictogram

Signal word Warning
Hazard statement(s)
H226 Flammable liquid and vapour.
H303 May be harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.

Precautionary statement(s)
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS Classification
Health hazard: 2
Flammability: 2
Physical hazards: 0

NFPA Rating
Health hazard: 2
Fire: 2
Reactivity Hazard: 0

Potential Health Effects
Inhalation May be harmful if inhaled. Causes respiratory tract irritation.
Skin May be harmful if absorbed through skin. Causes skin irritation.
Eyes Causes eye irritation.
Ingestion May be harmful if swallowed.
3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula: \( C_6H_4BrF \)
Molecular Weight: 175.00 g/mol

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Concentration</th>
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<tbody>
<tr>
<td>460-00-4</td>
<td>207-300-2</td>
<td>-</td>
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1-Bromo-4-fluorobenzene

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
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

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

Suitable extinguishing media
For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

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

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low 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).

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. Take measures to prevent the build up of electrostatic charge.

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. Store in cool place.
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**
Face shield and safety glasses. 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 antistatic 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**
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**
- Form: clear, liquid
- Colour: light yellow

**Safety data**
- pH: no data available
- Melting point: -16 °C (3 °F) - lit.
- Boiling point: 150 °C (302 °F) - lit.
- Flash point: 53 °C (127 °F) - closed cup
- Ignition temperature: no data available
- Lower explosion limit: no data available
- Upper explosion limit: no data available
- Density: 1.593 g/cm³ at 25 °C (77 °F)
- Water solubility: no data available

10. STABILITY AND REACTIVITY

**Chemical stability**
Stable under recommended storage conditions.

**Conditions to avoid**
Heat, flames and sparks.

**Materials to avoid**
Strong oxidizing agents
11. TOXICOLOGICAL INFORMATION

**Acute toxicity**
LD50 Oral - rat - 2,700 mg/kg

**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

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

Inhalation - May cause respiratory irritation.

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

**Aspiration hazard**
no data available

**Potential health effects**

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**Signs and Symptoms of Exposure**
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Additional Information**
RTECS: CY9033750

12. ECOLOGICAL INFORMATION

**Toxicity**
no data available

**Persistence and degradability**
no data available

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen bromide gas, Hydrogen fluoride
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.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN-Number: 1993  Class: 3  Packing group: III
Proper shipping name: Flammable liquids, n.o.s. (1-Bromo-4-fluorobenzene)
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN-Number: 1993  Class: 3  Packing group: III  EMS-No: F-E, S-E
Proper shipping name: FLAMMABLE LIQUID, N.O.S. (1-Bromo-4-fluorobenzene)
Marine pollutant: No

IATA
UN-Number: 1993  Class: 3  Packing group: III
Proper shipping name: Flammable liquid, n.o.s. (1-Bromo-4-fluorobenzene)

15. REGULATORY INFORMATION

OSHA Hazards
Combustible Liquid, Irritant

DSL Status
This product contains the following components listed on the Canadian NDSL list. All other components are on the Canadian DSL list.

1-Bromo-4-fluorobenzene  CAS-No.  460-00-4

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
Fire Hazard, Acute Health Hazard

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

Pennsylvania Right To Know Components

1-Bromo-4-fluorobenzene  CAS-No.  460-00-4  Revision Date
New Jersey Right To Know Components

1-Bromo-4-fluorobenzene

CAS-No. 460-00-4

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
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