



## MATERIAL SAFETY DATA SHEET

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### SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**MSDS Name:** 1-Bromo-4,4,4-trifluorobutane, 99%

**Catalog Numbers:**

177

**Synonyms:**

4,4,4-Trifluorobutyl bromide

**Company Identification**

LEONID CHEMICALS

62/A-2 2nd Stage, Industrial Suburb

Yeshwanthpur, Bangalore -22, INDIA

Ph- +91-80-23378354

### SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS

CAS# : 406-81-5  
Chemical Name : 1-Bromo-4,4,4-trifluorobutane  
% : 99  
EINECS# : unlisted  
Haz Symbols : XI  
Risk Phrases : 36/37/38

### SECTION 3 - HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

Irritating to eyes, respiratory system and skin.

#### Potential Health Effects

Eye:

Causes eye irritation.

Skin:

Causes skin irritation. May be harmful if absorbed through the skin.

Ingestion:

May cause irritation of the digestive tract. May be harmful if swallowed.

Inhalation:

Causes respiratory tract irritation. May be harmful if inhaled.

Chronic:

Not available.

### SECTION 4 - FIRST AID MEASURES

Eyes:



Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

**Skin:**

Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

**Ingestion:**

Get medical aid. Wash mouth out with water.

**Inhalation:**

Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

**Notes to Physician:**

Treat symptomatically and supportively.

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## SECTION 5 - FIRE FIGHTING MEASURES

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**General Information:**

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.

**Extinguishing Media:**

Use water spray, dry chemical, carbon dioxide, or chemical foam.

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## SECTION 6 - ACCIDENTAL RELEASE MEASURES

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**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:**

Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container.

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## SECTION 7 - HANDLING and STORAGE

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**Handling:**

Avoid breathing dust, vapor, mist, or gas. Avoid contact with skin and eyes. Use only in a chemical fume hood.

**Storage:**

Store in a cool, dry place. Store in a tightly closed container.

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## SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION

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**Engineering Controls:**

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

**Personal Protective Equipment**

**Eyes:**

Wear chemical goggles.

Skin:

Wear appropriate protective gloves to prevent skin exposure.

Clothing:

Wear appropriate protective clothing to prevent skin exposure.

Respirators:

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

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## SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

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Physical State: Liquid

Color: clear to slight yellow

Odor: organohalide-like - characteristic odor

pH: Not available.

Vapor Pressure: Not available.

Viscosity: Not available.

Boiling Point: 103 - 105 deg C @ 760mmHg

Freezing/Melting Point: Not available.

Autoignition Temperature: Not available.

Flash Point: Not available.

Explosion Limits, lower: Not available.

Explosion Limits, upper: Not available.

Decomposition Temperature:

Solubility in water:

Specific Gravity/Density: 1.3817

Molecular Formula: C<sub>4</sub>H<sub>6</sub>BrF<sub>3</sub>

Molecular Weight: 190.99

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## SECTION 10 - STABILITY AND REACTIVITY

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Chemical Stability:

Not available.

Conditions to Avoid:

Incompatible materials.

Incompatibilities with Other Materials:

Strong oxidizing agents, strong reducing agents, strong acids, strong bases.

Hazardous Decomposition Products:

Carbon monoxide, carbon dioxide, hydrogen fluoride gas, hydrogen bromide.

Hazardous Polymerization: Has not been reported.

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## SECTION 11 - TOXICOLOGICAL INFORMATION

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RTECS#:

CAS# 406-81-5 unlisted.  
LD50/LC50:  
Not available.  
Carcinogenicity:  
1-Bromo-4,4,4-trifluorobutane -  
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.  
See actual entry in RTECS for complete information.

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## SECTION 12 - ECOLOGICAL INFORMATION

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## SECTION 13 - DISPOSAL CONSIDERATIONS

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Dispose of in a manner consistent with federal, state, and local regulations.

## SECTION 14 - TRANSPORT INFORMATION

IATA  
No information available.  
IMO  
No information available.  
RID/ADR  
No information available.

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## SECTION 15 - REGULATORY INFORMATION

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### European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XI

Risk Phrases:

R 36/37/38 Irritating to eyes, respiratory system  
and skin.

Safety Phrases:

S 26 In case of contact with eyes, rinse immediately  
with plenty of water and seek medical advice.

S 37/39 Wear suitable gloves and eye/face  
protection.

WGK (Water Danger/Protection)

CAS# 406-81-5: No information available.

United Kingdom Occupational Exposure Limits

United Kingdom Maximum Exposure Limits

Canada

None of the chemicals in this product are listed on the DSL/NDSL list.

CAS# 406-81-5 is not listed on Canada's Ingredient Disclosure List.

Exposure Limits

US FEDERAL

TSCA

CAS# 406-81-5 is not listed on the TSCA inventory.  
It is for research and development use only.

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## SECTION 16 - ADDITIONAL INFORMATION

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MSDS Creation Date: 7/16/1996 Revision #2 Date: 3/20/2002

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