

# MATERIAL SAFETY DATA SHEET

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## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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**MATHESON TRI-GAS, INC.**  
**150 Allen Road Suite 302**  
**Basking Ridge, New Jersey 07920**  
**Information: 1-800-416-2505**

**Emergency Contact:**  
**CHEMTREC 1-800-424-9300**  
**Calls Originating Outside the US:**  
**703-527-3887 (Collect Calls Accepted)**

**SUBSTANCE: BUTYL NITRITE**

**TRADE NAMES/SYNONYMS:**

NITROUS ACID, BUTYL ESTER; N-BUTYL NITRITE; 1-BUTYL NITRITE; UN 2351; C<sub>4</sub>H<sub>9</sub>NO<sub>2</sub>; MAT03602; RTECS RA0780000

**CHEMICAL FAMILY:** alkyls, nitrites

**CREATION DATE:** Mar 02 1989

**REVISION DATE:** Dec 11 2008

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## 2. COMPOSITION, INFORMATION ON INGREDIENTS

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**COMPONENT:** BUTYL NITRITE

**CAS NUMBER:** 544-16-1

**PERCENTAGE:** 100.0

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## 3. HAZARDS IDENTIFICATION

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**NFPA RATINGS (SCALE 0-4):** HEALTH=4 FIRE=3 REACTIVITY=3



**EMERGENCY OVERVIEW:**

**COLOR:** yellow

**PHYSICAL FORM:** liquid

**ODOR:** distinct odor

**MAJOR HEALTH HAZARDS:** harmful if inhaled or swallowed, respiratory tract irritation, skin irritation, eye irritation, blood damage

**PHYSICAL HAZARDS:** May explode when heated. Flammable liquid and vapor. Vapor may cause flash fire. May ignite combustibles.

**POTENTIAL HEALTH EFFECTS:**

**INHALATION:**

**SHORT TERM EXPOSURE:** irritation, nausea, vomiting, irregular heartbeat, headache, dizziness, fainting, bluish skin color, coma

**LONG TERM EXPOSURE:** convulsions

**SKIN CONTACT:**

**SHORT TERM EXPOSURE:** irritation, vomiting, headache, dizziness, bluish skin color, coma

**LONG TERM EXPOSURE:** same as effects reported in short term exposure

**EYE CONTACT:**

**SHORT TERM EXPOSURE:** irritation, tearing

**LONG TERM EXPOSURE:** same as effects reported in short term exposure

**INGESTION:**

**SHORT TERM EXPOSURE:** nausea, vomiting, irregular heartbeat, headache, dizziness, fainting, visual disturbances, bluish skin color

**LONG TERM EXPOSURE:** same as effects reported in short term exposure

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## 4. FIRST AID MEASURES

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**INHALATION:** If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

**SKIN CONTACT:** Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

**EYE CONTACT:** Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

**INGESTION:** If swallowed, drink plenty of water, do NOT induce vomiting. Get immediate medical attention. Induce vomiting only at the instructions of a physician. Do not give anything by mouth to unconscious or convulsive person.

**ANTIDOTE:** methylene blue, intravenous; ascorbic acid, intravenous.

**NOTE TO PHYSICIAN:** For ingestion, consider gastric lavage, activated charcoal slurry and catharsis.

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## 5. FIRE FIGHTING MEASURES

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**FIRE AND EXPLOSION HAZARDS:** Severe fire hazard. Vapor/air mixtures are explosive. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. Oxidizer. May ignite or explode on contact with combustible materials.

**EXTINGUISHING MEDIA:** alcohol-resistant foam, carbon dioxide, regular dry chemical, water

Large fires: Use alcohol-resistant foam or flood with fine water spray.

**FIRE FIGHTING:** Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Evacuation radius: 800 meters (1/2 mile). Do not attempt to extinguish fire unless flow of material can be stopped first. Flood with fine water spray. Do not scatter spilled material with high-pressure water streams. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

**FLASH POINT:** 9 F (-13 C) (CC)

**FLAMMABILITY CLASS (OSHA):** IB

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## 6. ACCIDENTAL RELEASE MEASURES

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### **OCCUPATIONAL RELEASE:**

Avoid heat, flames, sparks and other sources of ignition. Remove sources of ignition. Stop leak if possible without personal risk. Reduce vapors with water spray. Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Large spills: Dike for later disposal. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.

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## 7. HANDLING AND STORAGE

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**STORAGE:** Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.106. NFPA 430 Code for the Storage of Liquid and Solid Oxidizing Materials. Grounding and bonding required. Keep separated from incompatible substances.

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## 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

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### **EXPOSURE LIMITS:**

#### **BUTYL NITRITE:**

No occupational exposure limits established.

**VENTILATION:** Provide local exhaust or process enclosure ventilation system. Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Ensure compliance with applicable exposure limits.

**EYE PROTECTION:** Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

**CLOTHING:** Wear appropriate chemical resistant clothing.

**GLOVES:** Wear appropriate chemical resistant gloves.

**RESPIRATOR:** Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.

Any chemical cartridge respirator with organic vapor cartridge(s).

Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s).

Any air-purifying respirator with a full facepiece and an organic vapor canister.

**For Unknown Concentrations or Immediately Dangerous to Life or Health -**

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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**PHYSICAL STATE:** liquid

**COLOR:** yellow

**TEXTURE:** oily

**ODOR:** distinct odor

**MOLECULAR WEIGHT:** 103.12

**MOLECULAR FORMULA:** C-H<sub>3</sub>-(C-H<sub>2</sub>)<sub>3</sub>-O-N-O

**BOILING POINT:** 172 F (78 C)

**FREEZING POINT:** Not available

**VAPOR PRESSURE:** Not available

**VAPOR DENSITY (air=1):** 3.5

**SPECIFIC GRAVITY (water=1):** 0.8823

**WATER SOLUBILITY:** slightly soluble

**PH:** Not available

**VOLATILITY:** Not available

**ODOR THRESHOLD:** Not available

**EVAPORATION RATE:** Not available

**COEFFICIENT OF WATER/OIL DISTRIBUTION:** Not available

**SOLVENT SOLUBILITY:**

**Soluble:** alcohol, ether

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## 10. STABILITY AND REACTIVITY

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**REACTIVITY:** May explode when heated.

**CONDITIONS TO AVOID:** Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat.

**INCOMPATIBILITIES:** combustible materials, reducing agents

**HAZARDOUS DECOMPOSITION:**

Thermal decomposition products: oxides of carbon, nitrogen

**POLYMERIZATION:** Will not polymerize.

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## 11. TOXICOLOGICAL INFORMATION

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**BUTYL NITRITE:**

**TOXICITY DATA:** 420 ppm/4 hour(s) inhalation-rat LC50; 83 mg/kg oral-rat LD50

**LOCAL EFFECTS:**

Irritant: inhalation, skin, eye

**ACUTE TOXICITY LEVEL:**

Toxic: inhalation, ingestion

**TARGET ORGANS:** blood

**MUTAGENIC DATA:** Available.

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## 12. ECOLOGICAL INFORMATION

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Not available

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## 13. DISPOSAL CONSIDERATIONS

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Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001. D003. Dispose in accordance with all applicable regulations.

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## 14. TRANSPORT INFORMATION

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**U.S. DOT 49 CFR 172.101:**

**PROPER SHIPPING NAME:** Butyl nitrites

**ID NUMBER:** UN2351

**HAZARD CLASS OR DIVISION:** 3

**PACKING GROUP:** I

**LABELING REQUIREMENTS:** 3



**CANADIAN TRANSPORTATION OF DANGEROUS GOODS:**

**SHIPPING NAME:** Butyl nitrites

**UN NUMBER:** UN2351

**CLASS:** 3

**PACKING GROUP/CATEGORY:** II

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## 15. REGULATORY INFORMATION

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### **U.S. REGULATIONS:**

**CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):** Not regulated.

**SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart B):** Not regulated.

**SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart C):** Not regulated.

**SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):**

ACUTE: Yes

CHRONIC: No

FIRE: Yes

REACTIVE: Yes

SUDDEN RELEASE: Yes

**SARA TITLE III SECTION 313 (40 CFR 372.65):** Not regulated.

**OSHA PROCESS SAFETY (29 CFR 1910.119):** Not regulated.

### **STATE REGULATIONS:**

**California Proposition 65:** Not regulated.

### **CANADIAN REGULATIONS:**

**WHMIS CLASSIFICATION:** Not determined.

### **NATIONAL INVENTORY STATUS:**

**U.S. INVENTORY (TSCA):** Listed on inventory.

**TSCA 12(b) EXPORT NOTIFICATION:** Not listed.

**CANADA INVENTORY (DSL/NDSL):** Not determined.

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## 16. OTHER INFORMATION

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