

## SAFETY DATA SHEET

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### 1. SUBSTANCE AND SOURCE IDENTIFICATION

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**Product Identifier**

**SRM Number:** 977  
**SRM Name:** Isotopic Standard for Bromine  
**Other Means of Identification:** Not applicable.

**Recommended Use of This Material and Restrictions of Use**

This Standard Reference Material (SRM) is intended for use as an isotopic calibrant for Bromine (Br) isotope amount ratios measurements in samples of interest. The  $^{79}\text{Br}/^{81}\text{Br}$  isotope amount ratio in this reference material has been fully calibrated and is therefore considered absolute. A unit of SRM 977 consists of 0.25 g of sodium bromide powder packaged in a glass bottle.

**Company Information**

National Institute of Standards and Technology  
Standard Reference Materials Program  
100 Bureau Drive, Stop 2300  
Gaithersburg, Maryland 20899-2300

Telephone: 301-975-2200  
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E-mail: SRMMSDS@nist.gov  
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Emergency Telephone ChemTrec:  
1-800-424-9300 (North America)  
+1-703-527-3887 (International)

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### 2. HAZARDS IDENTIFICATION

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**Classification**

**Physical Hazard:** Not classified.  
**Health Hazard:** Not classified.

**Label Elements**

**Symbol:** No Symbol/No Pictogram.  
**Signal Word:** No signal word.  
**Hazard Statement(s):** Not applicable.  
**Precautionary Statement(s):** Not applicable.  
**Hazards Not Otherwise Classified:** Not applicable.  
**Ingredients(s) with Unknown Acute Toxicity:** Not applicable.

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### 3. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

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**Substance:** Sodium bromide

**Other Designations:** Bromide salt of sodium; sedoneural; bromnatrium

Components are listed in compliance with OSHA's 29 CFR 1910.1200; for the actual values see the NIST Certificate of Analysis.

Component(s)	CAS Number	EC Number (EINECS)	Nominal Mass Concentration (%)
Sodium bromide	7647-15-6	231-599-9	100

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## 4. FIRST AID MEASURES

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### Description of First Aid Measures:

**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. If necessary, seek medical attention.

**Eye Contact:** Flush eyes with water for at least 15 minutes. If necessary, seek medical attention.

**Ingestion:** If a large amount is swallowed, get medical attention.

**Most Important Symptoms/Effects, Acute and Delayed:** Generated dust may cause mechanical irritation.

**Indication of any immediate medical attention and special treatment needed, if necessary:** If any of the above symptoms are present, seek medical attention if needed.

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## 5. FIRE FIGHTING MEASURES

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**Fire and Explosion Hazards:** Negligible fire hazard. See Section 9, "Physical and Chemical Properties" for flammability properties.

### Extinguishing Media

Suitable: Use extinguishing agents appropriate for surrounding fire.

Unsuitable: None listed.

**Specific Hazards Arising from the Chemical:** Not applicable.

**Special Protective Equipment and Precautions for Fire-Fighters:** Move container from fire area if it can be done without personal risk. Avoid inhalation of material or combustion by-products. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus (SCBA).

**NFPA Ratings** (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health = 0                  Fire = 0                  Reactivity = 0

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## 6. ACCIDENTAL RELEASE MEASURES

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**Personal Precautions, Protective Equipment and Emergency Procedures:** Any accumulated material on surfaces should be removed and properly disposed of. Use suitable protective equipment; see Section 8, "Exposure Controls and Personal Protection".

**Methods and Materials for Containment and Clean up:** Collect spilled material in appropriate container for disposal.

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## 7. HANDLING AND STORAGE

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**Safe Handling Precautions:** Use suitable personal protection equipment (PPE). See Section 8, "Exposure Controls and Personal Protection".

**Storage and Incompatible Materials:** Store and handle in accordance with all current regulations and standards. Keep separated from incompatible substances (see Section 10, "Stability and Reactivity").

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## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

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**Exposure Limits:** This material is a particulate matter and adequate inhalation/respiratory protection should be used to minimize exposure. No occupational exposure limits have been established for fine particulate matter. The exposure limits for Particulates Not Otherwise Regulated are applicable.

OSHA (PEL): 15 mg/m<sup>3</sup> (TWA, total particulates)  
5 mg/m<sup>3</sup> (TWA, respirable particulates)

**Engineering Controls:** Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

**Personal Protection Measures:** In accordance with OSHA 29 CFR 1910.132, subpart I, wear appropriate PPE to minimize exposure to this material.

**Respiratory Protection:** If workplace conditions warrant a respirator, a respiratory protection program that meets OSHA 29CFR 1910.134 must be followed. Refer to NIOSH 42 CFR 84 for applicable certified respirators.

**Eye/Face Protection:** Eye and face protection is required when dust is generated. Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

**Skin and Body Protection:** Standard PPE is recommended to avoid irritation.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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### Descriptive Properties

<b>Appearance (physical state, color, etc.)</b>	white powder
<b>Molecular Formula</b>	NaBr
<b>Molar Mass (g/mol)</b>	102.9
<b>Odor</b>	not available
<b>Odor threshold</b>	not available
<b>pH</b>	6.5 to 8
<b>Evaporation rate</b>	not available
<b>Melting point/freezing point</b>	747 °C (1377 °F)
<b>Density</b>	3.203 at 25 °C
<b>Vapor Pressure</b>	not available
<b>Vapor Density (air = 1)</b>	not available
<b>Viscosity</b>	not available
<b>Solubilities</b>	water: 116 % at 50 °C, other solubility: not available
<b>Partition coefficient (n-octanol/water)</b>	not available
<b>Particle Size</b>	not available
<b>Thermal Stability Properties</b>	
<b>Autoignition Temperature</b>	not available
<b>Thermal Decomposition</b>	not available
<b>Initial boiling point and boiling range</b>	1390 °C (2534 °F)
<b>Explosive Limits, LEL (Volume %)</b>	not available
<b>Explosive Limits, UEL</b>	not available
<b>Flash Point</b>	not applicable
<b>Flammability (solid, gas)</b>	not applicable

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## 10. STABILITY AND REACTIVITY

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**Reactivity:** Stable at normal temperatures and pressure.

**Stability:**  Stable  Unstable

**Possible Hazardous Reactions:**

**Conditions to Avoid:** Avoid incompatible materials.

**Incompatible Materials:** Acids, combustible materials, halogens, metal salts.

**Hazardous Decomposition:** Hydrogen bromide, sodium monoxide.

**Hazardous Polymerization:**  Will Occur  Will Not Occur

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## 11. TOXICOLOGICAL INFORMATION

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**Route of Exposure:**  X  Inhalation  X  Skin  X  Ingestion

**Symptoms Related to the Physical, Chemical and Toxicological Characteristics:** Generated dust may cause mechanical irritation.

### Potential Health Effects (Acute, Chronic, and Delayed)

**Inhalation:** Inhalation of dust may cause irritation. Repeated or prolonged exposure may cause rhinitis and bronchial irritation.

**Skin Contact:** Skin exposure may result in mechanical irritation.

**Eye Contact:** Direct contact may cause mechanical irritation.

**Ingestion:** Ingestion of large amounts may cause gastrointestinal irritation with immediate abdominal pain, nausea, and vomiting. Chronic ingestion may cause bromism which affects the gastrointestinal system, central nervous system, and skin.

### Numerical Measures of Toxicity

**Acute Toxicity:** Not classified.

Rat, Oral LD50: 4 200 mg/kg

Rabbit, Dermal LD50: >2 000 mg/kg

**Skin Corrosion/Irritation:** Not classified; no data available.

**Serious Eye Damage/Eye Irritation:** Not classified; no data available.

**Respiratory Sensitization:** Not classified; no data available.

**Skin Sensitization:** Not classified; no data available.

**Germ Cell Mutagenicity:** Not classified; no data available.

**Carcinogenicity:** Not classified.

**Listed as a Carcinogen/Potential Carcinogen**   Yes  X  No  
Sodium bromide is not listed by IARC, NTP, or OSHA as carcinogens/potential carcinogens.

**Reproductive Toxicity:** Not classified.

**Specific Target Organ Toxicity, Single Exposure:** Not classified; no data available.

**Specific Target Organ Toxicity, Repeated Exposure:** Not classified; no data available.

**Aspiration Hazard:** Not applicable.

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## 12. ECOLOGICAL INFORMATION

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### Ecotoxicity Data:

Fish: Bluegill (*Lepomis macrochirus*) LC50: >1 000 mg/L (static, 96 h).

Invertebrate: Water flea (*Daphnia magna*) EC50: 5 700 to 10 800 mg/L (static, 48 h).

**Persistence and Degradability:** No data available.

**Bioaccumulative Potential:** No bioaccumulation expected for sodium bromide.

**Mobility in Soil:** No data available.

**Other Adverse effects:** No data available.

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## 13. DISPOSAL CONSIDERATIONS

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**Waste Disposal:** Dispose of waste in accordance with all applicable federal, state, and local regulations.

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## 14. TRANSPORTATION INFORMATION

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**U.S. DOT and IATA:** This material is not regulated by DOT or IATA.

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## 15. REGULATORY INFORMATION

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### U.S. Regulations

CERCLA Sections 102a/103 (40 CFR 302.4): Not regulated.

SARA Title III Section 302 (40 CFR 355.30): Not regulated.

SARA Title III Section 304 (40 CFR 355.40): Not regulated.

SARA Title III Section 313 (40 CFR 372.65): Not regulated.

OSHA Process Safety (29 CFR 1910.119): Not regulated.

SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21)

ACUTE HEALTH: No

CHRONIC HEALTH: No

FIRE: No

REACTIVE: No

PRESSURE: No

**State Regulations:** California Proposition 65: Not listed.

**U.S. TSCA Inventory:** Sodium bromide is listed.

**TSCA 12(b), Export Notification:** Not listed.

**Canadian Regulations:** WHMIS Information is not provided for this material.

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## 16. OTHER INFORMATION

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**Issue Date:** 19 June 2015

**Sources:** ChemADVISOR, Inc., SDS *Sodium Bromide*, 20 March 2015.

Hazardous Substances Data Bank (HSDB), National Library of Medicine's TOXNET system *Sodium bromide*, CAS No. 7647-15-6, available at <http://toxnet.nlm.nih.gov> (accessed Jun 2015).

European Chemical Agency, Registered substances, *Sodium Bromide*, CAS No. 7647-15-6, available at <http://echa.europa.eu/information-on-chemicals> (accessed Jun 2015).

CDC; NIOSH; *NIOSH Pocket Guide to Chemical Hazards*; Department of Health and Human Services (DHHS), Centers for Disease Control and Prevention (CDC), National Institute for Safety and Health; *Particulates Not Otherwise Regulated*, 4 April 2011; available at <http://www.cdc.gov/niosh/npg/npgd0480.html> (accessed Jun 2015).

### Key of Acronyms:

ACGIH	American Conference of Governmental Industrial Hygienists	NRC	Nuclear Regulatory Commission
ALI	Annual Limit on Intake	NTP	National Toxicology Program
CAS	Chemical Abstracts Service	OSHA	Occupational Safety and Health Administration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PEL	Permissible Exposure Limit
CFR	Code of Federal Regulations	RCRA	Resource Conservation and Recovery Act
DOT	Department of Transportation	REL	Recommended Exposure Limit
EC50	Effective Concentration, 50 %	RM	Reference Material
EINECS	European Inventory of Existing Commercial Chemical Substances	RQ	Reportable Quantity
EPCRA	Emergency Planning and Community Right-to-Know Act	RTECS	Registry of Toxic Effects of Chemical Substances
IARC	International Agency for Research on Cancer	SARA	Superfund Amendments and Reauthorization Act
IATA	International Air Transportation Agency	SCBA	Self-Contained Breathing Apparatus
IDLH	Immediately Dangerous to Life and Health	SRM	Standard Reference Material
LC50	Lethal Concentration, 50 %	STEL	Short Term Exposure Limit
LD50	Lethal Dose, 50 %	TLV	Threshold Limit Value
LEL	Lower Explosive Limit	TPQ	Threshold Planning Quantity
MSDS	Material Safety Data Sheet	TSCA	Toxic Substances Control Act
NFPA	National Fire Protection Association	TWA	Time Weighted Average
NIOSH	National Institute for Occupational Safety and Health	UEL	Upper Explosive Limit
NIST	National Institute of Standards and Technology	WHMIS	Workplace Hazardous Materials Information System

**Disclaimer:** Physical and chemical data contained in this SDS are provided only for use in assessing the hazardous nature of the material. The SDS was prepared carefully, using current references; however, NIST does not certify the data in the SDS. The values for this material are given in the NIST Certificate of Analysis.

Users of this SRM should ensure that the SDS in their possession is current. This can be accomplished by contacting the SRM Program: telephone (301) 975-2200; fax (301) 948-3730; e-mail [srmmsds@nist.gov](mailto:srmmsds@nist.gov); or via the Internet at <http://www.nist.gov/srm>.