

MATERIAL SAFETY DATA SHEET**I - PRODUCT IDENTIFICATION**

Product: Sodium bromide
Chemical Family: Inorganic bromide
Formula: NaBr
CAS Number: 7647-15-6

II - TRANSPORTATION DATA

U.S. Department of Transportation - 49 CFR

Not regulated

Emergency Telephone Number: Chemtrec 800-424-9300

III - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

<u>Chemical or Common Name</u>	<u>Percent</u>	<u>Exposure Limits</u>
Sodium bromide	98-99.5%	TLV: not established TWA: not established

IV - PHYSICAL/CHEMICAL CHARACTERISTICS

Odor: odorless
Appearance: white, crystalline solid
Solubility in Water: 94.6 g/100 ml at 25°C
Solubility in Other Solvents:
 Ethanol: 95% 7 g/100 ml at 25°C
 Methanol: 14.8 g/100 ml at 25°C
Thermal Decomposition: From ca. 800°C
Vapor Density (Air=1): N/A
Evaporation Rate: N/A
Specific Gravity (H₂O=1): 3.203
Vapor Pressure (mm Hg): 1 at 806°C
Melting Point: 755°C
Boiling Point (@ 760 mm Hg): 1390°C
Molecular Weight: 102.9

V - FIRE AND EXPLOSION HAZARD DATA

Flash Point:
None

Auto-ignition Temperature:

N/A

Flammable Limits

LEL: N/A

UEL: N/A

Extinguishing Media:

Material is not combustible. Use extinguishing media appropriate to surrounding fire conditions

Special Fire-fighting Procedures:

Cool containers with water spray

In closed stores, provide fire-fighters with self-contained breathing apparatus in positive pressure mode

Unusual Explosion Hazards:

Will decompose from ca. 800°C releasing poisonous and corrosive fumes of hydrogen bromide and sodium oxide

VI - REACTIVITY DATA

Stability:

Unstable Stable

Conditions to Avoid:

Heating above 800°C

Incompatibility:

Strong acids, strong oxidants, heavy metal salts, reacts explosively with bromine trifluoride

Hazardous Decomposition or By-Products:

Hydrogen bromide and sodium oxide

Hazardous Polymerization:

May Occur Will Not Occur

VII - PRECAUTIONS FOR SAFE HANDLING AND USE

Personal Precautions:

Wear respirator, chemical safety goggles, rubber gloves and boots

Steps To Be Taken In Case Material Is Spilled Or Released:

Sweep up, place in bag and hold for waste disposal or possible re-use. Ventilate area and wash spill site after material pickup is complete

Waste Disposal Method:

Add into a large vessel containing water and drain into sewer with ample water. The hydrolysis reaction may generate heat and fumes which can be controlled by the rate of addition.

Observe all federal, state and local environmental regulations when disposing of the material

Precautions to Be Taken in Handling and Storage:

Handling:

Avoid bodily contact
Keep containers tightly closed

Storage:

Keep in a well-ventilated area away from incompatible materials

VIII - HEALTH HAZARD DATA

Adverse Human Health Effects:

None under recommended use instructions

NPCA-HMIS Ratings:

Health:

Flammability:

Reactivity:

Personal Protection:

Effects of Overexposure to Material:

Ingestion: abdominal pain, nausea and vomiting. May cause falling asleep, muscular incoordination and respiratory depression

Inhalation: irritant to upper respiratory tract

Skin Contact: not irritant to intact skin. Slightly irritant on prolonged contact to abraded skin.

Eye Contact: mild irritant

Emergency and First Aid Procedures:

Ingestion: if swallowed, wash mouth thoroughly with plenty of water and give water or milk to drink. Get medical attention immediately

Inhalation: in case of dust inhalation or breathing fumes released from heated material, remove person to fresh air. Keep victim quiet and warm. Apply artificial respiration if necessary and get medical attention immediately.

Skin Contact: remove contaminated clothing. Wash skin thoroughly with mild soap and plenty of water for at least 15 minutes. Wash clothing before re-use. Get medical attention if irritation occurs

Eye Contact: holding the eyelids apart, flush eyes promptly with copious flowing water for at least 20 minutes. Get medical attention immediately

NOTE: Never give an unconscious person anything to drink

IX - CONTROL MEASURES

Exposure Control/Personal Protection:

Respiratory: dust respirator

Skin: protective gloves

Eye: chemical safety goggles

- Hygiene: safety shower and eye bath should be provided. Do not eat, drink or smoke until after-work showering and changing clothes
- Other: body covering clothes and boots

X - TOXICOLOGICAL INFORMATION

Toxicity:

- Oral LD50: 4200 mg/kg – rat
Dermal LD50: >2000 mg/kg – rabbit
Dermal Sensitization not a sensitizer – guinea pig

Chronic Toxicity:

Repeated skin contact may cause dermatitis
Repeated oral intake of bromides (>9 mg/kg body weight/day) may affect the central nervous system. Warning symptoms include mental duliness, slurred speech, weakened memory, apathy, anorexia, constipation, drowsiness and loss of sensitivity to touch and pain

Carcinogenicity:

- Not known to be a carcinogen
Not included in NTP 7th Annual Report of Carcinogens
Not classified by IARC

Mutagenicity:

- Not inducing DNA repair in cultured human epithelioid cells
Not clastogenic in human lymphocytes metaphase analysis
Not mutagenic by the Ames Test

Reproductive Toxicity:

Sodium bromide has been shown to cause embryo-fetal toxicity and malformations in rats at dose levels which also produce maternal toxicity. The No-Observed Effect Level (NOEL) is 100 mg/kg/day, and the Acceptable Daily Intake (ADI) for sodium bromide from food and drinking water in humans is 1 mg/kg/day. Comparable high doses of sodium chloride (table salt) similarly cause malformations, embryo-fetal toxicity, and maternal toxicity in mice

XI – ECOLOGICAL INFORMATION

Environmental Fate:

NaBr is an inorganic salt, which fully dissociates in aquatic environment to bromide and sodium ions. It also undergoes degradation in soil to bromide ion (no further degradation or biodegradation will occur)

Octanol/Water Partition Coefficient:

Not applicable since this material is almost completely soluble in water.

Aquatic Toxicity

- Blugill sunfish (96-hour LC50): >1000 mg/l
Rainbow trout (96-hour LC50): >1000 mg/l
Daphnia magna (48-hour EC50): >1000 mg/l

Avian Toxicity:

Bobwhite quail, acute oral LD50: >2250 mg/kg

Mallard duck, dietary LC50: >5633 ppm

Bobwhite quail, dietary LC50: >5633 ppm

Bioaccumulative potential:

Bioaccumulation is not likely to occur since this material is highly soluble in water

XII – REGULATORY INFORMATION

USA:

Reported in the EPA TSCA Inventory

EEC:

Reported in EINECS (No. 2315999)

XIII - ADDITIONAL INFORMATION

ALWAYS COMPLY WITH ALL APPLICABLE INTERNATIONAL, FEDERAL, STATE AND LOCAL REGULATIONS REGARDING THE TRANSPORTATION, STORAGE, USE AND DISPOSAL OF THIS CHEMICAL.

Due to the changing nature of regulatory requirements, the REGULATORY INFORMATION listed in Section XII of this document should NOT be considered all-inclusive or authoritative. International, Federal, State and Local regulations should be consulted to determine compliance with all required reporting requirements.

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