Bronopol or 2-Bromo-2-nitropropane-1,3-diol, or 2-bromo-2-nitro-1,3-propanediol

SDS, Safety Data Sheet
MSDS Sheet, Material Safety Data Sheet

1. Product Identification

Product Name & Other Names: Bronopol or 2-Bromo-2-nitropropane-1,3-diol, or 2-bromo-2-nitro-1,3-propanediol. Relevant uses and uses advised against (if any): Industrial use only.	CAS No.: 52-51-7 EINECS EC-No.: 200-143-0 Molecular Weight: 199.99 Chemical Formula: C3H6BrNO4 Supplier: SevenPH Interchem (Ankleshwar, Gujarat, India) (Mob: +91 98247 02795) (info@7phchem.com)

2. Hazards Identification

GHS, Globally Harmonized System Classification in accordance with 29 CFR 1910
Classification according to Regulation (EC) No 1272/2008

Acute toxicity, Oral Category 4 - H302
Acute toxicity, dermal Category 4 - H312
Skin irritation Category 2 - H315
Skin corrosion/irritation Category 2 - H318
Specific target organ toxicity - single exposure Category 3, Respiratory system - H335
Long-term (chronic) aquatic hazard Category 1, H410

Labeling according to Regulation (EC) No 1272/2008

GHS Label Elements	GHS Label Elements
	
Corrosive	Aquatic Toxicity

Signal Words: Danger

Hazard statements:
H302: Harmful if swallowed.
H312: Harmful in contact with skin.
H315 Causes skin irritation.
H318: Causes serious eye damage.
H335 May cause respiratory irritation.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements:
P261: Avoid breathing dust/fume/gas/mist/vapors/spray.
P262: Do not get in eyes, on skin, or on clothing.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink, or smoke when using this product.
P271: Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection.
P314: Get Medical advice/attention if you feel unwell.
P330: Rinse mouth.
P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P302+352: IF ON SKIN: Wash with soap and water.
P332+313: If skin irritation occurs: Get medical advice/attention.
P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+ P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 If eye irritation persists: Get medical advice/ attention.
P360: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.
P501 Dispose of contents/ container to an approved waste disposal plant.

Classification according to EU Directives 67/548/EEC or 1999/45/EC:
Hazard Symbols:
Xn = Harmful
C = Corrosive
N = Dangerous for the environment
Risk Phrases:
R21/22 Harmful in contact with skin and if swallowed.
R41 Risk of serious damage to eyes.
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3. Composition/Information on Ingredients

Product Name & Other Names: Bronopol or 2-Bromo-2-nitropropane-1,3-diol, or 2-bromo-2-nitro-1,3-propanediol.
CAS No.: 52-51-7
EINECS EC-No.: 200-143-0

4. First Aid Measures

Always seek medical attention after first aid measures are provided.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Ingestion: Give large amounts of water to drink. Never give anything by mouth to an unconscious person. Get medical attention.
Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.
Eye Contact: Check for and remove any contact lenses. Immediately flush eyes, with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention.

5. Fire Fighting Measures

Auto ignition temperature: High heat or direct flame is necessary to cause ignition.
Specific Hazards Arising from the Chemical: Dust can form an explosive mixture with air. Do not allow run-off from firefighting to enter drains or water courses. Fine dust dispersed in air may ignite.
Fire Extinguishing Media: Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. Avoid solid stream of water. Water spray may be used to keep fire exposed containers cool. Carbon dioxide and carbon monoxide, Nitrogen oxides (NOx), Hydrogen bromide will be formed on combustion.
Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode. At high temperatures under fire conditions, it may produce toxic or irritating fumes.

6. Accidental Release Measures

Personal precautions, protective equipment, and emergency procedures: Avoid breathing dust/fumes/gas/mist/vapors/spray. Use individual protective equipment (waterproof boots, suitable protective clothing, safety glasses, etc.). Restrict unprotected personnel from the area. Prevent any contact with hot surfaces. Do not approach facing the wind. Do not touch the spilled material.
Environmental precautions: Do not let the product enter drains, soil, or water sources.
Methods and materials used for containment cleanup procedures and Storage:
Small Spill: Mop up and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
Large Spill: Keep away from heat. Keep away from sources of ignition. Stop leaking, without risk. Pick up and dispose of hazardous waste. Keep in suitable, closed containers for disposal. Finish cleaning by spreading water on the contaminated surface and dispose as per law.

7. Handling and Storage

Precautions for safe handling: Apply according to good manufacturing and industrial hygiene practices. Ensure proper ventilation. Wash thoroughly after handling. Do not drink, eat, or smoke while handling. Avoid contact with skin, eyes, and clothing. Minimize dust generation. Avoid breathing dust/fumes/gas/mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation. Use individual protective equipment (waterproof boots, suitable protective clothing, safety glasses, etc.). Prevent any contact with hot surfaces.
Conditions for safe storage, including any incompatibilities: Store in cool, dry, and ventilated area away from heat sources and protected from sunlight in tightly closed original container. Keep air contact to a minimum. Do not leave the material container open. Store protected from heat, sparks and ignition sources and incompatible materials. Avoid contact with skin and eyes. Avoid inhalation of dust/mist/vapor. Do not store with incompatible materials like strong oxidizing agents, strong acids, and strong bases. Light sensitive.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits: Not established. Keep below 5 mg/m3.
Ventilation System: A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.
Personal Respirators (NIOSH Approved): Use only under a chemical fume hood. For conditions of use where exposure to the substance is apparent and engineering controls are not feasible, consult an industrial hygienist. For emergencies, or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres.
Skin Protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron, or coveralls, as appropriate, to prevent skin contact.
Eye Protection: Use chemical safety goggles and/or a full-face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.
Other Control Measures: Maintain good housekeeping in work area. Dust deposits on floors and other surfaces may pick up moisture and cause the surfaces to become slippery and present safety hazards. Handle in accordance with good industrial hygiene and safety practice. Wash hands after handling.

9. Physical and Chemical Properties

Appearance: White to pale yellow crystalline powder.
Odor: Odorless.
Odor threshold: Not available.
pH: 5 to 7
Relative density: around 1.1
Boiling Point: Decomposes.
Melting Point: 130C literature.
Flash point: Not available.
Auto-ignition temperature: Not available.
Decomposition temperature: 140C.
Upper/lower flammability or explosive limits: Not available.

Vapor Density (Air=1): Not available.
Vapor Pressure (mm Hg): Not available.
Evaporation Rate (BuAc=1): Not available.
Flammability (solid, gas): Not available.
Partition coefficient: n-octanol/water: Not available.
Solubility: Soluble in water and ethanol.
Viscosity: Not available.
Molecular Weight: 199.99
Chemical Formula: C3H6BrNO4

10. Stability and Reactivity

Stability: Stable under ordinary conditions of use and storage.
Hazardous Decomposition Products: Fumes, Carbon dioxide and carbon monoxide, Nitrogen oxides (NOx) and Hydrogen bromide may form when heated to decomposition.
Hazardous Polymerization: Not reported.
Incompatibilities: Strong oxidizing agents, Strong acids, and Strong bases.
Conditions to Avoid: Heat, flames, ignition sources and incompatibles. Avoid dust formation, Excess heat. Exposure to light and Exposure to atmosphere.

11. Toxicological Information

Oral rat LD50: 305 mg/kg.
Dermal rat LD50: 1.600 mg/kg.
Mutagenic Effects: Not available.
Teratogenic Effects: Not available.
Developmental Toxicity: Not available.
Carcinogenicity: 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, OSHA, NTP.

12. Ecological Information

Very toxic to aquatic life with long lasting effects.
Toxicity to fish: LC50 - Oncorhynchus mykiss (rainbow trout) - 41,2 mg/l - 96 h.
Toxicity to daphnia and other aquatic invertebrates: static test EC50 - Daphnia magna (Water flea) - 1,4 mg/l - 48 h.
Persistence and Degradability: Persistence is unlikely due to water solubility.
Mobility: Mobility likely due to water solubility.
Results of PBT and vPvB assessment: No data available for assessment.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with law.

14. Transport Information

DOT-USA, Canada TDG & ADR/RID Europe:
UN number: 3241; Transport hazard class(es): 4.1; Packing group: III
UN proper shipping name: 2-Bromo-2-nitropropane-1,3-diol
IMDG & IATA:
UN number: 3241; Transport hazard class(es): 4.1; Packing group: III
UN proper shipping name: 2-Bromo-2-nitropropane-1,3-diol.

15. Regulatory Information

USA:
SARA 311/312: Acute: and Chronic as per section 2.
SARA 302 Extremely Hazardous Substance: None present in regulated quantities.
SARA 304 Emergency Release Notification: None present in regulated quantities.
SARA 313 (TRI Reporting): None present in regulated quantities.
US California Proposition 65: No ingredient regulated by CA Prop 65 present.

16. Other Information

European Labeling in Accordance with EC Directives:
H302: Harmful if swallowed.
H312: Harmful in contact with skin.
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DISCLAIMER: *The information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed correct as of the date hereof. It is compiled from various sources, and it is not necessarily all inclusive nor fully adequate in every circumstance. In addition, these suggestions should not be confused with nor followed in violation of applicable laws, regulations, rules, or insurance requirements applicable. This MSDS sheet is intended only as a guide to the appropriate precautionary handling of the material by a professionally trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.*