

BRONOPOL

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SECTION 1: IDENTIFICATION

1.1 GHS Product identifier:

BRONOPOL
Synonyms: 2-Bromo-2-nitropropane-1,3-diol; 2-Bromo-2-nitro-1,3-propanediol
CAS: 52-51-7

Other means of identification:

Not relevant

1.2 Recommended use of the chemical and restrictions on use:

Relevant uses: Preservative/biocide for cosmetics, personal care, metalworking fluids, paints, adhesives and industrial process water (cooling towers, oilfield water systems). For industrial user only.
Uses advised against: All uses not specified in this section or in section 7.3.

1.3 Supplier's details:

SURAJ CHEMICALS
No 92, Govindappa Naicken Street, Shiva Complex, Chennai – 600001, Tamil Nadu, India
Tel: +91 - 7092722822, +91 - 9840284032 / +91 - 44 - 25393652, 42130281
Email: sales@surajchemicals.com | Website: www.surajchemicals.com
GST No: 33ACEPV8190L1ZZ

1.4 Emergency phone number:

Emergency Contact No: +91 - 7092722822, +91 - 9840284032

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS), based on the published harmonized classification for bronopol.

Acute Tox. 4 (oral)	Acute oral toxicity, Category 4, H302
Skin Corr. 1B	Skin corrosion, Category 1B, H314
Skin Sens. 1	Skin sensitisation, Category 1, H317
Aquatic Acute 1	Hazardous to the aquatic environment, acute hazard, Category 1, H400
Aquatic Chronic 1	Hazardous to the aquatic environment, chronic hazard, Category 1, H410

2.2 GHS label elements, including precautionary statements:

GHS: Danger

Hazard statements:

H302 – Harmful if swallowed.
H314 – Causes severe skin burns and eye damage.
H317 – May cause an allergic skin reaction.
H400 – Very toxic to aquatic life.
H410 – Very toxic to aquatic life with long lasting effects.

Precautionary statements:

P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P273: Avoid release to the environment.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353: IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310: Immediately call a POISON CENTER or doctor/physician.
P333+P313: If skin irritation or rash occurs, get medical advice/attention.
P391: Collect spillage.
P501: Dispose of contents/container in accordance with local/national regulations on hazardous waste.

2.3 Other hazards which do not result in classification:

Under certain conditions, bronopol can release formaldehyde as a decomposition product. Not a PBT/vPvB substance per current assessment criteria.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:

Chemical description: 2-Bromo-2-nitropropane-1,3-diol
In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 52-51-7	Bronopol — Acute Tox. 4: H302; Skin Corr. 1B: H314; Skin Sens. 1: H317; Aquatic Acute 1: H400; Aquatic Chronic 1: H410 – Danger	≥98% (technical grade) / diluted grades on request

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

3.2 Mixtures:

Non-applicable (supplied as a technical-grade single substance; aqueous diluted/formulated grades available on request – see current specification sheet).

SECTION 4: FIRST AID MEASURES

4.1 Description of necessary first-aid measures:

Request medical assistance immediately, showing the SDS of this product.

By inhalation:

Remove the person affected to fresh air and keep at rest. Seek medical attention if symptoms develop.

By skin contact:
Remove contaminated clothing immediately. Rinse skin with plenty of water for at least 15 minutes. Seek medical attention – may cause burns and sensitisation.

By eye contact:
Rinse eyes thoroughly with lukewarm water for at least 15 minutes, holding eyelids open. Remove contact lenses if present and easy to do. Seek immediate medical attention.

By ingestion/aspiration:
Rinse mouth with water. Do NOT induce vomiting. Seek immediate medical attention.

4.2 Most important symptoms/effects, acute and delayed:
Acute and delayed effects are indicated in sections 2 and 11. Repeated skin contact may provoke sensitisation/allergic dermatitis.

4.3 Indication of immediate medical attention and special treatment needed, if necessary:
Treat symptomatically. No specific antidote known.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Suitable extinguishing media:
Suitable: Water spray/fog, foam, dry chemical powder, carbon dioxide.
Unsuitable: None known.

5.2 Specific hazards arising from the chemical:
Non-flammable solid under normal conditions. On thermal decomposition may release toxic fumes including nitrogen oxides, hydrogen bromide and formaldehyde.

5.3 Special protective actions for fire-fighters:
Wear SCBA and full protective clothing. Cool containers with water spray if safe to do so. Prevent fire-fighting run-off from entering drains/watercourses.

Additional provisions:
None specific.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:
For non-emergency personnel:
Avoid raising dust and direct contact. Use PPE per section 8.

For emergency responders:
Wear full protective equipment. Keep unprotected persons away.

6.2 Environmental precautions:
Prevent entry into drains, watercourses and soil – very toxic to aquatic life with long-lasting effects.

6.3 Methods and materials for containment and cleaning up:
Sweep up carefully and collect in a suitable labelled container for disposal. Avoid generating dust. Flush residual area with water, containing run-off.

6.4 Reference to other sections:
See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling:
A. General precautions for safe use:
Avoid generating and breathing dust. Avoid all contact with skin and eyes. Use adequate ventilation.

B. Technical recommendations for the prevention of fires and explosions:
Keep away from strong oxidizers and strong alkalis, which can accelerate decomposition.

C. Technical recommendations on general occupational hygiene:
Do not eat, drink or smoke while handling. Wash hands and exposed skin thoroughly after use.

D. Technical recommendations to prevent environmental risks:
Avoid release to drains and watercourses. See section 6.

7.2 Conditions for safe storage, including any incompatibilities:
A. Specific storage requirements:

Minimum Temp.	5°C
Maximum Temp.	30°C
Maximum time	24 Months (unopened, original packaging)

B. General conditions for storage:
Store in a cool, dry, well-ventilated place away from direct sunlight, strong alkalis and strong oxidizers. Keep containers tightly closed.

7.3 Specific end use(s):
Except for the instructions already specified, it is not necessary to provide any special recommendation regarding the uses of this product.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters:
No specific occupational exposure limit is established for bronopol in India.

Identification	Occupational Exposure Limit Type	Value
Bronopol (as total dust) CAS: 52-51-7	Time Weighted average concentration (8 hrs)	Typical value – refer to current specification sheet

8.2 Appropriate engineering controls:
Use local exhaust/dust extraction when handling powder, supplemented by PPE.

B. Respiratory protection:
Dust mask/respirator with P2 particulate filter where dust is generated.

C. Specific protection for the hands:
Chemical-resistant gloves (nitrile or neoprene). Replace at any sign of damage.

D. Eye and face protection:
Chemical splash goggles/face shield.

E. Bodily protection:
Chemical-resistant apron/coveralls and closed footwear.

F. Additional emergency measures:
Emergency shower and eyewash stations should be available.

Environmental exposure controls:

Avoid environmental release of both product and container.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Appearance	
Physical state at 20°C	Solid (crystalline powder/flakes)
Appearance	White to off-white crystalline solid
Color	White / off-white
Odor	Odorless to faint characteristic odor
Odour threshold	Not relevant *
Volatility	
Boiling point at atmospheric pressure	Decomposes before boiling (>130°C)
Vapour pressure at 20°C / 50°C	Typical value – refer to current specification sheet (low)
Evaporation rate at 20°C	Not relevant *
Product Description	
Density / Relative density at 20°C	Typical value – refer to current specification sheet
Dynamic / Kinematic viscosity	Non-applicable (solid)
Concentration	≥98% typical (technical grade)
pH (1% aqueous solution)	5.0 – 6.0 (typical, mildly acidic)
Vapour density at 20°C	Not relevant *
Partition coefficient n-octanol/water 20°C	log Kow ≈ 0.1 (low)
Solubility in water at 20°C	Highly soluble, >250 g/L
Decomposition temperature	~130°C
Melting point/freezing point	125 – 130°C
Flammability	
Flash Point	Non-applicable (solid)
Flammability (solid, gas)	Not readily flammable
Autoignition temperature	Typical value – refer to current specification sheet
Lower / Upper flammability limit	Not relevant *
Particle Characteristics	
Median equivalent diameter	Typical value – refer to current specification sheet

* Not relevant due to the nature of the product, not providing information on the properties of its hazards.

9.2 Other information:

Explosive properties	Not relevant *
Oxidising properties	Not an oxidizer; not classified
Corrosive to metals	Not relevant *
Heat of combustion	Typical value – refer to current specification sheet
Surface tension at 20°C	Not relevant *
Refraction index	Not relevant *

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:

Decomposes under strongly alkaline conditions or elevated temperature, with potential release of formaldehyde and other decomposition products. Reacts with strong oxidizers.

10.2 Chemical stability:

Stable under recommended storage conditions (cool, dry, neutral to mildly acidic pH). Decomposes under alkaline conditions and prolonged high heat.

10.3 Possibility of hazardous reactions:

Under the specified conditions, hazardous reactions leading to excessive temperature or pressure are not expected.

10.4 Conditions to avoid:

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Not applicable	Avoid prolonged high heat	Avoid prolonged exposure	Avoid prolonged moisture exposure

10.5 Incompatible materials:

Strong Alkalis	Strong Oxidizers	Strong Acids	Combustible Materials	Metals
Avoid contact – promotes decomposition	Avoid contact	No special precautions	No special precautions	No special precautions

10.6 Hazardous decomposition products:

Nitrogen oxides, hydrogen bromide and formaldehyde on thermal decomposition or strongly alkaline hydrolysis.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

In case of exposure that is repetitive, prolonged, or at concentrations higher than the recommended occupational exposure limits, adverse health effects may result depending on the means of exposure:

A. Ingestion (acute effect):

Harmful if swallowed. Causes burns to the mouth, throat and gastrointestinal tract.

B. Inhalation (acute effect):

Dust may cause irritation of the respiratory tract.

C. Contact with skin and eyes (acute effect):

Causes severe skin burns. Causes serious eye damage.

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity):

Classification criteria are not met based on available data.

E. Sensitizing effects:

Known skin sensitiser (H317); may cause allergic contact dermatitis on repeated exposure.

F. Specific target organ toxicity (STOT) – single exposure:

Classification criteria are not met based on available data.

G. Specific target organ toxicity (STOT) – repeated exposure:

Classification criteria are not met based on available data.

H. Aspiration hazard:

Classification criteria are not met based on available data.

Product-specific toxicological information:

Identification	Acute Toxicity	Genus
Bronopol CAS: 52-51-7	LD50 oral: 180 – 400 mg/kg	Rat
	LD50 dermal: >1,600 mg/kg	Rabbit

SECTION 12: ECOLOGICAL INFORMATION

Very toxic to aquatic life with long lasting effects.

12.1 Toxicity:

Identification	Acute Toxicity	Species	Genus
Bronopol CAS: 52-51-7	LC50: 1.1 mg/L (96h)	Oncorhynchus mykiss	Fish
	EC50: 0.6 mg/L (48h)	Daphnia magna	Crustacean

12.2 Persistence and degradability:

Hydrolyses/biodegrades in the environment; biocidal action is time-limited and the substance is not considered highly persistent, though breakdown products (including formaldehyde) warrant caution.

12.3 Bioaccumulative potential:

Low bioaccumulation potential based on log Kow.

12.4 Mobility in soil:

Koc	Henry	Dry Soil	Moist Soil
Low	Low	High (water-soluble)	High (water-soluble)

12.5 Results of PBT and vPvB assessment:

Not identified as a PBT or vPvB substance per current assessment criteria.

12.6 Other adverse effects:

Not described

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods:

Dispose of via a licensed hazardous-waste handler in accordance with local and national regulations. Do not discharge to drains or watercourses. For packaging: use dedicated containers; avoid rinsing to drain.

SECTION 14: TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR 2023 / RID 2023):

14.1 UN number	UN3077
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (BRONOPOL)
14.3 Transport hazard class(es)	9
14.4 Packing group	III
14.5 Environmental hazard	Yes
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by sea (IMDG 41-22):

14.1 UN number	UN3077
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (BRONOPOL)
14.3 Transport hazard class(es)	9
14.4 Packing group	III
14.5 Marine pollutant	Yes
14.6 Special precautions for user	EmS Codes: F-A, S-F
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by air (IATA/ICAO 2024):

14.1 UN number	UN3077
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (BRONOPOL)
14.3 Transport hazard class(es)	9
14.4 Packing group	III
14.5 Environmental hazard	Yes
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations specific for the product in question:

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances, in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product.

Other legislation:

- Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989
- The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
- The Insecticides Act, 1968 (where applicable to biocidal end-use)
- Public Liability Insurance Act, 1991

SECTION 16: OTHER INFORMATION

Legislation related to safety data sheets:

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3:

- H302: Harmful if swallowed.
- H314: Causes severe skin burns and eye damage.
- H317: May cause an allergic skin reaction.
- H400: Very toxic to aquatic life.
- H410: Very toxic to aquatic life with long lasting effects.

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.

Advice related to training:

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources:

United Nations GHS (Rev. 8); European Chemicals Agency (ECHA) classification and labelling inventory; publicly available chemical supplier safety data sheets for this CAS number.

Abbreviations and acronyms:

ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Log-POW: Octanol-water partition coefficient | Koc: Partition coefficient of organic carbon

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

END OF SAFETY DATA SHEET