



SAFETY DATA SHEET BRONOPOL (INN)

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name	BRONOPOL (INN)
Product number	1176
Synonyms; trade names	MIDPOL 100, BIOBAN BP-PLUS PRESERVATIVE, BIOBAN BP 100 ANTIMICROBIAL, AQUICAR BP 100 WATER TREATMENT
CAS number	52-51-7
EU index number	603-085-00-8
EC number	200-143-0

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Biocide Industrial application
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1.3. Details of the supplier of the safety data sheet

Supplier	Univar Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 sds@univar.com
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1.4. Emergency telephone number

Emergency telephone	SGS - +32 (0)3 575 55 55 (24h)
Sds No.	1176

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards	Not Classified
Health hazards	Acute Tox. 3 - H301 Acute Tox. 4 - H312 Acute Tox. 3 - H331 Skin Irrit. 2 - H315 Eye Dam. 1 - H318 STOT SE 3 - H335
Environmental hazards	Aquatic Acute 1 - H400 Aquatic Chronic 2 - H411

2.2. Label elements

EC number	200-143-0
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BRONOPOL (INN)

Hazard pictograms



Signal word

Danger

Hazard statements

H301+H331 Toxic if swallowed or if inhaled.
 H312 Harmful in contact with skin.
 H315 Causes skin irritation.
 H318 Causes serious eye damage.
 H335 May cause respiratory irritation.
 H400 Very toxic to aquatic life.
 H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

P261 Avoid breathing dust.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
 P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
 P330 Rinse mouth.
 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/ doctor.
 P403+P233 Store in a well-ventilated place. Keep container tightly closed.
 P501 Dispose of contents/ container in accordance with local regulations.

Supplemental label information

RCH002a Restricted to professional users.

2.3. Other hazards

This substance is not classified as PBT or vPvB according to current EU criteria.

SECTION 3: Composition/information on ingredients

3.1. Substances

Product name	BRONOPOL (INN)
EU index number	603-085-00-8
CAS number	52-51-7
EC number	200-143-0
Composition comments	The data shown are in accordance with the latest EC Directives.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information	First aid personnel should wear appropriate protective equipment during any rescue. Wear protective clothing as described in Section 8 of this safety data sheet.
Inhalation	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. If breathing stops, provide artificial respiration. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. It may be dangerous for first aid personnel to carry out mouth-to-mouth resuscitation. Get medical attention immediately.
Ingestion	Rinse mouth thoroughly with water. Give plenty of water to drink. Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.

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Skin contact	After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues. Wash clothing and clean shoes thoroughly before reuse.
Eye contact	Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

Inhalation	Toxic if inhaled. May cause respiratory system irritation.
Ingestion	Toxic if swallowed.
Skin contact	Causes skin irritation. Harmful in contact with skin.
Eye contact	Causes serious eye damage. May cause permanent damage if eye is not immediately irrigated.

4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor	No specific recommendations. If in doubt, get medical attention promptly. Skin contact may aggravate preexisting dermatitis. Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome). Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. If burn is present, treat as any thermal burn, after decontamination. The decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.
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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards	Containers can burst violently or explode when heated, due to excessive pressure build-up. Dust may form explosive mixture with air. Eliminate all sources of ignition. When heated and in case of fire, toxic vapours/gases may be formed.
Hazardous combustion products	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours. Hydrogen bromide (HBr). Bromine. Oxides of the following substances: Nitrogen. Carbon.

5.3. Advice for firefighters

Protective actions during firefighting	No action shall be taken without appropriate training or involving any personal risk. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Do not use water jet as an extinguisher, as this will spread the fire. Contain and collect extinguishing water. Avoid the spillage or runoff entering drains, sewers or watercourses. Evacuate area.
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Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Evacuate area. Wear protective clothing as described in Section 8 of this safety data sheet. Follow precautions for safe handling described in this safety data sheet. No action shall be taken without appropriate training or involving any personal risk. Keep upwind. Provide adequate ventilation. Take care as floors and other surfaces may become slippery.

6.2. Environmental precautions

Environmental precautions Do not discharge into drains or watercourses or onto the ground. Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Stop leak if safe to do so. Remove spillage with vacuum cleaner or collect with a shovel and broom, or similar. Collect and place in suitable waste disposal containers and seal securely. Label the containers containing waste and contaminated materials and remove from the area as soon as possible. For waste disposal, see Section 13.

6.4. Reference to other sections

Reference to other sections Wear protective clothing as described in Section 8 of this safety data sheet. For waste disposal, see Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Keep away from heat, sparks and open flame. Avoid contact with skin and eyes. Wash skin thoroughly after handling. Container must be kept tightly closed when not in use. Provide adequate ventilation. Observe good chemical hygiene practices. Wear protective clothing as described in Section 8 of this safety data sheet. Follow precautions for safe handling described in this safety data sheet.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly-closed, original container in a dry, cool and well-ventilated place. Store away from incompatible materials (see Section 10). Store at temperatures not exceeding 25°C. Do not store for more than 24 months. Store away from the following materials: Amines. Alkalis. Strong acids. Strong oxidising agents.

Storage class Toxic storage.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Ingredient comments No exposure limits known for ingredient(s).

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DNEL

Workers - Dermal; Long term systemic effects: 2.3 mg/kg
 Workers - Inhalation; Long term systemic effects: 4.1 mg/m³
 Workers - Inhalation; Short term systemic effects: 12.3 mg/m³
 Workers - Inhalation; Short term local effects: 4.2 mg/m³
 Workers - Dermal; Short term systemic effects: 7 mg/kg
 Workers - Dermal; Long term, Short term local effects: 0.013 mg/cm²
 Consumer - Dermal; Long term systemic effects: 1.4 mg/kg
 Consumer - Oral; Long term systemic effects: 0.35 mg/kg
 Consumer - Dermal; Long term, Short term local effects: 0.008 mg/cm²
 Consumer - Dermal; Short term systemic effects: 4.2 mg/kg
 Consumer - Inhalation; Short term, Long term local effects: 1.3 mg/m³
 Consumer - Inhalation; Short term systemic effects: 3.7 mg/m³
 Consumer - Oral; Short term systemic effects: 1.1 mg/kg

PNEC

- Fresh water; 0.01 mg/l
 - marine water; 0.0008 mg/l
 - Intermittent release; 0.0025 mg/l
 - STP; 0.43 mg/l
 - Sediment (Freshwater); 0.041 mg/l
 - Sediment (Marinewater); 0.00328 mg/l
 - Soil; 0.5 mg/l

8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls as the primary means to minimise worker exposure.

Eye/face protection

Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. The following protection should be worn: Chemical splash goggles. Personal protective equipment for eye and face protection should comply with European Standard EN166.

Hand protection

The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. Polyvinyl chloride (PVC). Neoprene. Nitrile rubber. Thickness: > 0.35 mm To protect hands from chemicals, gloves should comply with European Standard EN374.

Other skin and body protection

Wear appropriate clothing to prevent any possibility of skin contact.

Hygiene measures

Wash promptly if skin becomes contaminated. Wash at the end of each work shift and before eating, smoking and using the toilet. Remove contaminated clothing and protective equipment before entering eating areas. Eye wash facilities and emergency shower must be available when handling this product.

Respiratory protection

Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. Ensure all respiratory protective equipment is suitable for its intended use and is 'CE'-marked. If ventilation is inadequate, suitable respiratory protection must be worn. Particulate filter, type P2. EN 136/140/141/145/143/149

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

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Appearance	Dusty powder.
Colour	White. to Yellow.
Odour	Odourless.
Odour threshold	No information available.
pH	pH (diluted solution): 5.1 - 7.0
Melting point	123.0 - 130.0°C
Initial boiling point and range	No information available.
Flash point	No information available.
Evaporation rate	No information available.
Evaporation factor	No information available.
Flammability (solid, gas)	No information available.
Upper/lower flammability or explosive limits	No information available.
Other flammability	No information available.
Vapour pressure	0.00492 hPa @ 20°C
Vapour density	No information available.
Relative density	1.894 @ 20°C
Bulk density	No information available.
Solubility(ies)	Soluble in water. 281.7 g/l water @ 20°C
Partition coefficient	log Pow: -0.42
Auto-ignition temperature	No information available.
Decomposition Temperature	No information available.
Viscosity	No information available.
Explosive properties	Not considered to be explosive.
Explosive under the influence of a flame	No information available.
Oxidising properties	Does not meet the criteria for classification as oxidising.
<u>9.2. Other information</u>	
Other information	Not determined.
Refractive index	No information available.
Particle size	No information available.
Molecular weight	199.9
Volatility	No information available.
Saturation concentration	No information available.
Critical temperature	No information available.
Volatile organic compound	No information available.

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SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity There are no known reactivity hazards associated with this product.

10.2. Chemical stability

Stability Stable at normal ambient temperatures and when used as recommended.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions Corrosive when wet. Will not polymerise. Generates toxic gas in contact with alkalis. Formaldehyde

10.4. Conditions to avoid

Conditions to avoid Avoid excessive heat for prolonged periods of time.

10.5. Incompatible materials

Materials to avoid Amines. Alkalis. Strong acids. Strong oxidising agents. Some metals. Corrosive when wet.

10.6. Hazardous decomposition products

Hazardous decomposition products Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours. Hydrogen bromide (HBr). Bromine. Oxides of the following substances: Carbon. Nitrogen.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 193.0

Species Rat

Notes (oral LD₅₀) Toxic if swallowed.

ATE oral (mg/kg) 193.0

Acute toxicity - dermal

Notes (dermal LD₅₀) Harmful in contact with skin.

ATE dermal (mg/kg) 1,100.0

Acute toxicity - inhalation

Acute toxicity inhalation (LC₅₀ dust/mist mg/l) 0.5888

Species Rat

Notes (inhalation LC₅₀) Toxic if inhaled.

ATE inhalation (dusts/mists mg/l) 0.5888

Skin corrosion/irritation

Animal data Causes skin irritation.

Serious eye damage/irritation

Serious eye damage/irritation Causes serious eye damage. May cause chemical eye burns.

Respiratory sensitisation

Respiratory sensitisation No information available.

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Skin sensitisation

Skin sensitisation Not sensitising. Guinea pig Mouse

Germ cell mutagenicity

Genotoxicity - in vitro This substance has no evidence of mutagenic properties.

Carcinogenicity

Carcinogenicity No evidence of carcinogenicity in animal studies.

Reproductive toxicity

Reproductive toxicity - fertility This substance has no evidence of toxicity to reproduction.

Specific target organ toxicity - single exposure

STOT - single exposure May cause respiratory irritation.

Target organs Respiratory tract

Specific target organ toxicity - repeated exposure

STOT - repeated exposure No information available.

Aspiration hazard

Aspiration hazard Based on available data the classification criteria are not met.

Inhalation Toxic by inhalation. May cause respiratory system irritation.

Ingestion Toxic if swallowed.

Skin contact Causes skin irritation. Harmful in contact with skin.

Eye contact Causes serious eye damage. May cause permanent damage if eye is not immediately irrigated.

SECTION 12: Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects.

12.1. Toxicity

Toxicity Very toxic to aquatic life with long lasting effects.

Acute aquatic toxicity

LE(C)₅₀ 0.01 < L(E)C₅₀ ≤ 0.1

M factor (Acute) 10

Acute toxicity - fish LC₅₀, 96 hours: 11 mg/l, *Lepomis macrochirus* (Bluegill)

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 1.08 mg/l, *Daphnia magna*

Acute toxicity - aquatic plants ErC₅₀, 72 hours: 0.25 mg/l, *Pseudokirchneriella subcapitata*
NOEC, 72 hours: 0.03 mg/l, *Pseudokirchneriella subcapitata*

Chronic aquatic toxicity

Chronic toxicity - fish early life stage NOEC, 49 days: 21.5 mg/l, *Oncorhynchus mykiss* (Rainbow trout)

Chronic toxicity - aquatic invertebrates NOEC, 21 days: 0.06 mg/l, *Daphnia magna*

12.2. Persistence and degradability

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Persistence and degradability The product is biodegradable.

Biodegradation - Degradation 51 - 57&: 28 days

12.3. Bioaccumulative potential

Bioaccumulative potential May accumulate in soil and water systems. BCF: 3.16,

Partition coefficient log Pow: -0.42

12.4. Mobility in soil

Mobility The product is soluble in water.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current EU criteria.

12.6. Other adverse effects

Other adverse effects Not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information Waste is classified as hazardous waste. Do not puncture or incinerate, even when empty.

Disposal methods Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

SECTION 14: Transport information

General Wear protective clothing as described in Section 8 of this safety data sheet.

14.1. UN number

UN No. (ADR/RID) 3241

UN No. (IMDG) 3241

UN No. (ICAO) 3241

UN No. (ADN) 3241

14.2. UN proper shipping name

Proper shipping name (ADR/RID) 2-BROMO-2-NITROPROPANE-1,3-DIOL

Proper shipping name (IMDG) 2-BROMO-2-NITROPROPANE-1,3-DIOL

Proper shipping name (ICAO) 2-BROMO-2-NITROPROPANE-1,3-DIOL

Proper shipping name (ADN) 2-BROMO-2-NITROPROPANE-1,3-DIOL

14.3. Transport hazard class(es)

ADR/RID class 4.1

ADR/RID classification code SR1

ADR/RID label 4.1

IMDG class 4.1

ICAO class/division 4.1

ADN class 4.1

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Transport labels



14.4. Packing group

ADR/RID packing group	III
IMDG packing group	III
ICAO packing group	III
ADN packing group	III

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant



14.6. Special precautions for user

EmS	F-J, S-G
ADR transport category	3
Tunnel restriction code	(D)

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Not applicable.

Annex II of MARPOL 73/78
and the IBC Code

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU legislation	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended). Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended). Commission Regulation (EU) No 2015/830 of 28 May 2015. This product may impact SEVESO storage regulations.
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15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

Inventories

EU - EINECS/ELINCS

All the ingredients are listed or exempt.

SECTION 16: Other information

BRONOPOL (INN)

Abbreviations and acronyms used in the safety data sheet

ATE: Acute Toxicity Estimate.
 ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
 ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
 CAS: Chemical Abstracts Service.
 DNEL: Derived No Effect Level.
 IATA: International Air Transport Association.
 IMDG: International Maritime Dangerous Goods.
 Kow: Octanol-water partition coefficient.
 LC₅₀: Lethal Concentration to 50 % of a test population.
 LD₅₀: Lethal Dose to 50% of a test population (Median Lethal Dose).
 PBT: Persistent, Bioaccumulative and Toxic substance.
 PNEC: Predicted No Effect Concentration.
 REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006.
 RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
 vPvB: Very Persistent and Very Bioaccumulative.
 IARC: International Agency for Research on Cancer.
 MARPOL 73/78: International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978.
 cATpE: Converted Acute Toxicity Point Estimate.
 BCF: Bioconcentration Factor.
 BOD: Biochemical Oxygen Demand.
 EC₅₀: 50% of maximal Effective Concentration.
 LOAEC: Lowest Observed Adverse Effect Concentration.
 LOAEL: Lowest Observed Adverse Effect Level.
 NOAEC: No Observed Adverse Effect Concentration.
 NOAEL: No Observed Adverse Effect Level.
 NOEC: No Observed Effect Concentration.
 LOEC: Lowest Observed Effect Concentration.
 DMEL: Derived Minimal Effect Level.
 EL50: Exposure Limit 50
 hPa: Hectopascal
 LL50: Lethal Loading fifty
 OECD: Organisation for Economic Co-operation and Development
 POW: Octanol-water partition coefficient
 SCBA: self-contained breathing apparatus
 STP: Sewage Treatment Plant
 VOC: Volatile Organic Compounds

Classification abbreviations and acronyms

Acute Tox. = Acute toxicity
 Aquatic Acute = Hazardous to the aquatic environment (acute)
 Aquatic Chronic = Hazardous to the aquatic environment (chronic)

Key literature references and sources for data

Supplier's information.

Revision comments

NOTE: Lines within the margin indicate significant changes from the previous revision.

Revision date

15/05/2019

Version number

2.000

Supersedes date

15/02/2012

SDS number

1176

BRONOPOL (INN)**SDS status**

Approved.

Hazard statements in full

H301 Toxic if swallowed.

H312 Harmful in contact with skin.

H315 Causes skin irritation.

H318 Causes serious eye damage.

H331 Toxic if inhaled.

H335 May cause respiratory irritation.

H400 Very toxic to aquatic life.

H411 Toxic to aquatic life with long lasting effects.

Signature

Lisa Bland