



BIOBAN™ Bronopol PC BIOBAN Bronopol PC 30

Preservative For Cosmetics And Personal Care Products

CAS Reg. No. 52-51-7

EINECS No. 200-143-0

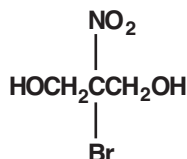
CFTA/INCI Adopted Name: 2-bromo-2-nitropropane-1,3-diol

General

BIOBAN™ Bronopol PC preservative (a crystalline solid) and BIOBAN Bronopol PC 30 preservative (a 30% active liquid) are broad-spectrum antimicrobial agents for topical cosmetics and toiletries.

BIOBAN Bronopol PC and BIOBAN Bronopol PC 30 provide the following benefits:

- Broad-spectrum bactericide
- Excellent efficacy against *Pseudomonas sp.*
- Low toxicity profile
- Excellent in combination with other preservatives, particularly isothiazolinone based preservatives



Physical Properties

The following are typical properties of BIOBAN Bronopol PC and BIOBAN Bronopol PC 30; **they are not to be considered product specifications.**

BIOBAN Bronopol PC

Description:..... White or off-white crystals
 Purity, % by weight:..... 99-100
 Water content:..... Less than 0.5%
 Melting Point °C:..... ~130

BIOBAN Bronopol PC 30

Appearance:..... Pale yellow to colorless liquid
 Active, % by wt.:..... 29.1-30.9
 Propylene Glycol, % by wt.:..... ~60
 Water, % by wt.:..... ~10
 pH (as is):..... 4.5 Max.
 Specific Gravity @ 20°C:..... 1.19-1.21
 Flash Point:..... Does not have a flash point as measured by SETAFASH Closed Cup.

Antimicrobial Activity

BIOBAN Bronopol PC and BIOBAN Bronopol PC 30 effectively inhibit the growth of most bacteria and show the greatest long-term chemical stability at pH levels between about 4 to 8. Its effectiveness against a representative group of microorganisms is illustrated by the minimum inhibitory concentrations (MIC) listed below for organisms as determined by agar dilution. These data are intended only as an indication of the broad spectrum of activity of BIOBAN Bronopol PC and should not be interpreted as having relevance to the effectiveness or dosage against specific microorganisms in formulated products.

Suggested Use in Cosmetics and Personal Care Formulations

BIOBAN™ Bronopol PC, in contrast to the majority of other antibacterial agents, is markedly inhibitory to *Pseudomonas aeruginosa*. This organism is difficult to control with most antimicrobial agents and can develop resistance to preservatives. To date, no strains of microorganisms with acquired resistance to BIOBAN Bronopol PC have been reported.

In general, BIOBAN Bronopol PC preservative and BIOBAN Bronopol PC 30 preservative provide effective microbial control at concentrations of 0.01% to 0.1% by weight active ingredient in cosmetic formulations depending on the choice of other ingredients and the degree of protection required. A typical use concentration is 300 ppm when used alone. BIOBAN Bronopol PC and BIOBAN Bronopol PC 30 are particularly useful as preservatives for creams and lotions, especially those containing aloe, lanolin, jojoba, and other natural products.

BIOBAN Bronopol PC and BIOBAN Bronopol PC 30 are recommended for use in products with acidic, neutral, or slightly alkaline pH. They are soluble in water, alcohols, glycols and other polyols. BIOBAN Bronopol PC and BIOBAN Bronopol PC 30, unlike many preservatives, retain activity in the presence of most commonly used cosmetics and toiletry surfactants.

The addition of BIOBAN Bronopol PC or BIOBAN Bronopol PC 30 to formulations containing reducing agents, aluminum, cysteine, or sulfhydryl compounds is not recommended, as such compounds can result in inactivation.

The effectiveness of BIOBAN Bronopol PC and BIOBAN Bronopol PC 30 can be enhanced by use in combination with other cosmetic preservatives. Especially effective combinations with greatly enhanced antifungal activity are obtained by using BIOBAN Bronopol PC or BIOBAN Bronopol PC 30 in combination with parabens, EDTA salts, or isothiazolinones. The most popular combination is with 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one (CMIT/MIT). A typical use rate when used in combination is 100 ppm active bronopol with 7.5 ppm CMIT/MIT.

The benefits of the combination of BIOBAN Bronopol PC products and isothiazolinones are as follows:

- Synergistic activity has been reported between bronopol and isothiazolinones in both the USA and Japan.
- *Pseudomonas* efficacy – BIOBAN Bronopol PC and BIOBAN Bronopol PC 30 have extremely good efficacy against *Pseudomonas*, a weakness of isothiazolinone chemistry.
- BIOBAN Bronopol PC and BIOBAN Bronopol PC 30 are more effective in the presence of reducing agents as compared to isothiazolinones. In addition, BIOBAN Bronopol PC and BIOBAN Bronopol PC 30 can improve the stability of CMIT/MIT in the presence of reducing agents.
- BIOBAN Bronopol PC and BIOBAN Bronopol PC 30 can be used to lower the levels of isothiazolinones.

Toxicity

For all toxicological and eco-toxicological information on Dow Biocides products, please refer directly to the Safety Data Sheet (SDS) available from your local Dow representative or the Dow Customer Information Group (CIG).

First Aid

In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician. Flush skin with water.

If swallowed, do not induce vomiting. Drink egg whites or gelatin solution. If these are not available, drink large amounts of water (do not administer liquids to an unconscious person). Call a physician.

If inhaled, remove person to fresh air.

If on skin, immediately flush skin with plenty of water for 15 minutes.

NOTE TO PHYSICIAN

Probable mucosal damage may contraindicate the use of gastric lavage.

FOR INDUSTRY USE ONLY

Precautionary Labeling

Labels for BIOBAN™ Bronopol PC preservative bear the following precautionary statements:

WARNING!

CAUSES IRRITATION.

HARMFUL IF SWALLOWED.

Avoid contact with skin, eyes, clothing.

Avoid breathing dust.

Wash thoroughly after handling.

Store at temperatures below 25°C.

Keep container closed.

Avoid contact with metal equipment.

Do not use before reading the Safety Data Sheet (SDS).

Labels for BIOBAN Bronopol PC 30 preservative bear the following precautionary statements:

DANGER!

CORROSIVE: CAUSES EYE AND SKIN DAMAGE

HARMFUL IF SWALLOWED.

Do not get in eyes, on skin or clothing.

Wash thoroughly with soap and water after handling.

Wear goggles or face shield and rubber gloves when handling.

Remove contaminated clothing and wash before reuse.

Do not use before reading the Safety Data Sheet (SDS).

Handling and Storage

BIOBAN™ Bronopol PC is stable almost indefinitely if stored at temperatures below 25°C and protected from moisture. Keep BIOBAN Bronopol PC sealed in its polyethylene liner except when in use. Because they tend to cause discoloration of BIOBAN Bronopol PC, avoid all contact with metals. Use plastic scoops for handling.

Shipping and Packaging

BIOBAN Bronopol PC

BIOBAN Bronopol PC preservative is classified as a Class 4.1 hazardous material in the U.S. Department of Transportation regulations and in the international regulations for air and open transport.

The bill of lading description used by Dow is:

2-BROMO-2-NITROPROPANE-1,3-DIOL,4.1,UN3241,III. DISINFECTANT NOI, OTHER THAN MEDICINAL OR TOILET PREPARATIONS. NMFC ITEM 57100 SUB 3 CLASS 60. TRADE NAME = BIOBAN Bronopol PC

Shipping Containers	Net Wt.	Gross Wt.
25 kg Fiber Drug	25 kg	80 lb
Palletized	600 kg/pallet	

BIOBAN Bronopol PC 30

BIOBAN Bronopol PC 30 preservative is classified as a Class 8 Packing Group III corrosive liquid in the U.S. Department of Transportation regulations and in the international regulations for air and ocean transport because of its corrosive effects on aluminum.

The bill of lading description used by Dow is:

DISINFECTANT, LIQUID, CORROSIVE, N.O.S. (2-BROMO-2-NITROPROPANE-1,3-DIOL SOLUTION),8,UN3265,III. DISINFECTANT NOI, OTHER THAN MEDICINAL OR TOILET PREPARATIONS. NMFC ITEM 57100 SUB 3 CLASS 60. TRADE NAME = BIOBAN Bronopol PC 30

Shipping Containers	Net Wt.	Gross Wt.
55 gallon HDPE drums	500 lb	520 lb
1000 Liter IBC*	2,645 lb	2,354 lb

*Intermediate bulk container (tote tank) with HDPE bottle and steel cage and pallet.

Product Stewardship

Dow Microbial Control encourages its customers to review their applications of Dow Microbial Control products from the standpoint of human health and environmental quality. To help ensure that Dow Microbial Control products are not used in ways for which they are not intended or tested, Dow Microbial Control personnel are willing to assist customers in dealing with ecological and product safety considerations. Contact your representative if you need any assistance or information. When considering the use of any Dow product in a particular application, review the latest Safety Data Sheet and country-specific product label to ensure the intended use is within the scope of approved uses and can be accomplished safely. Before handling any of the products mentioned in the text, obtain available product safety information and take necessary steps to ensure safety of use.

For further information visit our website:
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