

# BIOBAN™ BP-PLUS

Directions For Use label to be used with BIOBAN BP-PLUS drum label.

**IN CASE OF AN EMERGENCY** endangering life or property involving this product, call collect 989-636-4400.

## DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with the labeling.

### GENERAL USE DIRECTIONS

To control the growth of slime-forming, spoilage, odor-causing and corrosion inducing bacteria and algae in industrial applications. Not for control of algae in California.

BIOBAN BP-PLUS can be dosed directly or by preparing a stock solution immediately prior to application either by open pouring (not cooling water treatment) or by metered pump.

For product preservation BIOBAN BP-PLUS is best added after any heating stage or when the product has cooled below 40°C.

This product may be used in terrestrial and off-shore oil drilling muds and packer fluids. Do not apply by open pouring of liquid to cooling water systems; a metering pump delivery system is required for this use and application method.

Applicators and other handlers must wear:

- Coveralls over long-sleeved shirt and long pants.
- Goggles and face shield.
- Socks plus shoes.
- Chemical resistant gloves.

- Dust/mist filtering respirator (MSHA/NIOSH) approval number prefix (TC-21C), or a NIOSH approved respirator with any N, R, P, or HE prefix(es).

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing or other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

### INDUSTRIAL RECIRCULATING WATER COOLING TOWERS AND EVAPORATIVE CONDENSERS

To control slime-forming bacteria and algae in industrial recirculation cooling towers and evaporative condensers, BIOBAN BP-PLUS may be dosed as the solid directly into the sump or basin or it may be added to the cooling water return at a suitable point. The BIOBAN BP-PLUS should be added at a point where there is adequate flow or turbulence to ensure quick dissolution (e.g. the pump outlet from the wet sump).

**FREQUENCY AND DOSE:** BIOBAN BP-PLUS may be slug-dosed once or twice weekly as a normal routine. Where contamination is heavy, more frequent dosing may be required. BIOBAN BP-PLUS should be shock-dosed at between 0.21-0.84 lb/1000 gallons depending on the condition of the tower, the quality of the raw water input, and the amount of bleed off.



**THE DOW CHEMICAL COMPANY**

Midland, Michigan 48674 U.S.A.

1-800-258-CHEM

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Made in Korea

84059-10/11/2001-1718 Active

### PRODUCED WATER

To inhibit the growth of slime-forming or corrosion-inducing sulfate-reducing bacteria in formation water produced by wells together with oil or gas, BIOBAN BP-PLUS may be used as the solid or pre-dissolved in a quantity of warm water or alcohol, then injected into the water-containing oil or gas stream at any convenient point. It should be injected as slug doses, not as a continuous feed.

**FREQUENCY AND DOSE:** Depending on severity and rapidity of contamination, BIOBAN BP-PLUS should be slug-dosed from once a week to once a month with 0.018-0.036 lb per barrel.

### INDUSTRIAL PROCESS WATER

Use BIOBAN BP-PLUS to effectively control bacterial and algal growth in industrial process water, including closed circuit machine cooling (injection molding, etc.) and stored (non-potable) water, as well as to reduce the biofouling of pipework, heat exchangers, condenser tubes, and to minimize microbially produced corrosion. Dosing should be carried out into the sump/bank of the process water system. Shock-dosing is preferred. It is not necessary to dilute BIOBAN BP-PLUS concentrate prior to dosing. BIOBAN BP-PLUS can also be used as an intermittent, flush treatment during regular maintenance cleaning of tank and equipment.

**FREQUENCY AND DOSE:** In open systems, shock-dosing should be carried out on a once weekly to once monthly basis, depending on the degree of contamination. In closed circuit systems, less frequent dosing (once or twice monthly) would be sufficient. Dosing should be carried out to give an initial concentration of 50 ppm (0.42 lb /1000 gallons). When the above treatment has been successful, dosing can be lowered to a minimum of 10 ppm BIOBAN BP-PLUS (0.08 lb /1000 gallons). For intermittent treatment of industrial process waters during routine maintenance, BIOBAN BP-PLUS should be used at 100 ppm (0.84 lb /1000 gallons) and a contact time of at least one hour.

### DRILLING FLUIDS AND WORKOVER AND COMPLETION FLUIDS

To inhibit growth of cellulolytic, slime-forming or sulfate-reducing bacteria in oil and gas well drilling muds and brines, BIOBAN BP-PLUS may be used as the solid or pre-dissolved in a quantity of warm water, then dosed directly into the mud or brine.

**FREQUENCY AND DOSE:** A single slug dose one to three times each 24 hours. Dosing may be less frequent where the contamination is low. Each slug dose should be 0.018 to 0.036 lb per barrel total mud volume.

### PIPELINE MAINTENANCE

To control aerobic and anaerobic bacteria, particularly sulfate-reducing bacteria, growth in oil and gas related production piping and transportation systems, pre-dissolve BIOBAN BP-PLUS in warm water or in a carrier solvent to give up to 20% concentrate. This concentrate can be injected directly into the pipeline or may be added to the hydrocarbon phase. Using carrier solvent addition of the BIOBAN BP-PLUS will produce long-term water phase concentrations by a diffusion process.

**FREQUENCY AND DOSE:** Carrier additions will vary with the degree of contamination and volume of fluids through the pipeline. Slug treatments are recommended and can vary from daily to monthly to control growth. BIOBAN BP-PLUS should be dosed at a rate which will achieve concentrations of 25-200 ppm in the aqueous phase. When using a carrier solvent, higher concentrations may be used to allow diffusion into the aqueous phase. Dose will depend on the volume of crude or oil and the expected water fraction.

### WATERFLOOD

To inhibit the growth of anaerobic and aerobic bacteria and all waterflood base fluids used in recovery of oil and gas reservoirs, add BIOBAN BP-PLUS as a dry product or pre-dissolve in any base fluid, or inject directly at the well head.

**FREQUENCY AND DOSE:** BIOBAN BP-PLUS should be added continuously to waterflood fluids or slug-dosed depending on the bottom hold temperature and fluid chemistry at the rate of 25-100 ppm (0.009-0.036 lb per barrel) depending on the quality of the base fluid.

### INJECTION FLUIDS

For the control of contamination and corrosion from bacterial sources in fluids/waste fluids that are disposed of through injection into an approved well following approved guidelines, add BIOBAN BP-PLUS as a dry product or pre-dissolved in each volume of fluid prior to injection.

**FREQUENCY AND DOSE:** BIOBAN BP-PLUS should be added at a rate of 50-100 ppm (0.018-0.036 lb per barrel) based on the water percent of the injection fluid.

### ENHANCED OIL RECOVERY (EOR) FLUIDS

For the effective control of bacterial growth and eliminating degradation of EOR gels and fluids used in the oil and gas industry, add BIOBAN BP-PLUS during mixing as a dry product or pre-dissolve or add by injection during the EOR process.

**FREQUENCY AND DOSE:** BIOBAN BP-PLUS should be added throughout the EOR operation at the rate of 50-100 ppm (0.018-0.036 lb per barrel) depending on the quality of the makeup water.

### WELL SQUEEZE FLUIDS

For the effective control of aerobic and anaerobic bacteria in squeeze fluids and downhole well bore areas, add BIOBAN BP-PLUS during pre-mixing of the well squeeze fluid or (in the case of direct mix injection systems) an aqueous solution may be added by direct injection at the well head during the well squeeze procedure.

**FREQUENCY AND DOSE:** BIOBAN BP-PLUS should be used for each well squeeze operation to ensure best results. Add BIOBAN BP-PLUS at a rate of 0.21-1.89 lb /1000 gallons, depending on the quality of the makeup water.

### FRACTURING FLUIDS

BIOBAN BP-PLUS reduces bacterial contamination and degradation of fracturing gels and fluids used as well stimulants in the oil and gas industry. BIOBAN BP-PLUS may be added during pre-mixing of the fracturing fluid or (in the case of direct mix injection systems) an aqueous solution may be added by direct injection at the head during the fracturing procedure.

**FREQUENCY AND DOSE:** BIOBAN BP-PLUS should be used for each fracturing operation to ensure best results. BIOBAN BP-PLUS should be added at a rate of 0.42-0.84 lb / 1000 gallons depending on the quality of the makeup water.

### WATER BOTTOMS IN OIL OR TRANSPORTATION TANKS

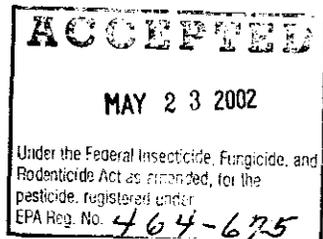
For effective control of bacterial contamination in water bottoms, in crude, and refined hydrocarbon storage systems. Above and below ground storage tanks and large marine systems are all suitable for treatment. BIOBAN BP-PLUS may be pre-dissolved in warm water to give up to a 20% concentrate. This concentrate can be injected directly into the water bottom or may be sprayed over the surface of the hydrocarbon phase and allowed to percolate through. Using a carrier solvent for addition of BIOBAN BP-PLUS into the hydrocarbon phase will provide long-term water concentrations by a diffusion process.

**FREQUENCY AND DOSE:** Direct addition to the water phase should be carried out every 30-60 days. Using a carrier solvent for addition to the hydrocarbon phase will provide long term water concentrations depending on frequency of hydrocarbon movement, draining of water bottom, and other factors. BIOBAN BP-PLUS should be dosed at a rate which will achieve concentrations of 50-100 ppm in the aqueous phase. When using a carrier solvent, higher initial concentrations may be used to allow diffusion into the aqueous phase.

### PAPER MILL PROCESS WATER

To control slime-forming bacteria in paper or paperboard process water systems, BIOBAN BP-PLUS may be dosed as the solid at a convenient point early in the process system. Suitable dosing points are the machine chest, constant head box, or backwater loop system.

**FREQUENCY AND DOSE:** BIOBAN BP-PLUS should be shock-dosed once, twice, or three times daily in quantities sufficient to meet the required dose based on the daily production of finished products. Dose at between 0.02-0.5 lb per ton of finished paper or paperboard depending on the complexity of the system, quality of the raw paper and type and the degree of contamination.



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#### PAPER MILLS - BULK PULP

To preserve bulk quantities of pulp in paper and paperboard manufacturing systems or to prevent foul odors and general biodegradation of stock when it is stored in bulk for any significant period of time, add BIOBAN BP-PLUS as the solid or pre-dissolve in a quantity of warm water, then dose directly into the hydropulper, machine chest, or stock chest.

**FREQUENCY AND DOSE:** In general, a single slug dose will provide protection for up to 3 days or longer depending upon the initial level of contamination in the stock. In situations where contamination is high, repeat dosing every 1-7 days may be required. BIOBAN BP-PLUS should be dosed at between 0.09-0.44 lb per ton of stock (0.42-1.7 lb / 1000 gallons) depending on the type and degree of contamination.

#### WATER-BASED PRINTING INKS AND FOUNT SOLUTIONS

To inhibit the growth of spoilage bacteria during the storage and use of water-based printing inks and fount solutions. For in-can preservation, add BIOBAN BP-PLUS at any convenient point during the manufacturing process. Ideally, it should be added as a final step after any heating stage and when the product has cooled to below 40°C. To control bacterial spoilage during the use of fount solutions, BIOBAN BP-PLUS should be shock-dosed at a suitable point in the fount reservoir where there is adequate flow or turbulence to ensure quick dissolution. BIOBAN BP-PLUS may be shock-dosed once or twice weekly as a normal routine. Where conditions indicate, more frequent shock-dosing may be required.

**IN-CAN PRESERVATION:** BIOBAN BP-PLUS should be shock-dosed at 100 to 500 ppm based on the final formulation volume (0.84- 4.2 / 1000 gallons).

**FOUNT SOLUTIONS:** BIOBAN BP-PLUS should be shock-dosed at between 25 and 100 ppm (0.21-0.84 / 1000 gallons) depending on the contamination levels in the fount reservoir.

#### INDUSTRIAL AND/OR COMMERCIAL AIR WASHERS

For the effective control of bacterial growth in air scrubbing units and to reduce built up slime deposits. Dosing should be carried out into the water pump of the scrubbing unit on a routine basis. Shock dosing is preferred. It is not necessary to dilute BIOBAN BP-PLUS concentrate prior to dosing. BIOBAN BP-PLUS can also be used as an intermittent flush treatment during regular maintenance/cleaning of the scrubbing unit.

**FREQUENCY AND DOSE:** Shock dosing should be carried out on a regular basis. Heavily fouled systems may require twice weekly treatment. Light to moderate contamination will require once weekly to once monthly additions. Dosing should be carried out to give an initial concentration of 50 ppm (0.42 lb / 1000 gallons). When the above treatment has been successful, dosing can be lowered to a minimum of 25 ppm (0.21 lb / 1000 gallons). For intermittent treatment of air scrubbing systems during routine maintenance/cleaning BIOBAN BP-PLUS should be used at 100 ppm (0.84 lb / 1000 gallons) and a contact time of at least one hour.

#### INDUSTRIAL AND/OR COMMERCIAL AIR CONDITIONING AND HUMIDIFYING SYSTEMS

For the effective control of bacterial growth in air conditioning and humidifying systems and to remove built up slime deposits. Dosing should be carried out into the conditioning water sump on a routine basis. Shock dosing is preferred. It is not necessary to dilute BIOBAN BP-PLUS concentrate prior to dosing. BIOBAN BP-PLUS can also be used as an intermittent flush treatment during regular maintenance/cleaning of the air conditioning units.

**FREQUENCY AND DOSE:** Shock dosing should be carried out on a once weekly to once monthly basis. Dosing should be carried out to give an initial concentration of 50 ppm (0.42 lb / 1000 gallons). When the above treatment has been successful, dosing can be lowered to a minimum of 25 ppm (0.21 lb / 1000 gallons). For intermittent treatment of air conditioning systems during routine maintenance BIOBAN BP-PLUS should be used at 100 ppm (0.84 lb / 1000 gallons) and a contact time of at least one hour.

#### ABSORBANT CLAYS, CORN COBS, AND GROUND WOOD

Impregnate absorbant clays, corn cobs, or ground wood with BIOBAN BP-PLUS to inhibit the growth of odor-causing bacteria. The suggested application rate is 25-200 ppm (0.04-0.32 oz av. per 100 pounds of absorbant material).

#### CHEMICAL TOILET DEODORANTS

To inhibit the growth of odor-causing bacteria in chemical toilets. Deodorant concentrates should incorporate BIOBAN BP-PLUS at levels of 1-28% depending on the desired concentration level. To effectively control odor in a portable toilet, a level of 100-500 ppm BIOBAN BP-PLUS is recommended.

#### STARCH, PIGMENT AND EXTENDER SLURRIES

To inhibit the growth of spoilage bacteria during the manufacture, storage and distribution of water-based suspension concentrates, BIOBAN BP-PLUS may be dosed at or close to the end of the manufacturing process as the solid or pre-dissolved in a quantity of the process water. If the manufacturing process involves a heating stage, the BIOBAN BP-PLUS should be added after this stage when the product has cooled to below 40°C.

**FREQUENCY AND DOSE:** BIOBAN BP-PLUS should be dosed at 100 - 500 ppm based on the final formulation volume (0.84-4.2 lb / 1000 gallons).

#### PAINTS, WATER BASED COATING APPLICATION TANKS, AND LATEX AND ANTIFOAM EMULSION SYSTEMS

To provide in-can preservation and prevent bacterial spoilage during storage of acrylic, styrene-acrylic, polyvinyl acetate and other latex emulsion concentrates and latex emulsion based paints. Also for the preservation of silicon and other antifoam emulsion systems, and to prevent spoilage of in-service paint application tanks. Add BIOBAN BP-PLUS at any convenient point during the manufacturing process. Ideally it should be added as a final step just prior to packing of the product into bulk or sales packs. If a heating stage is involved in the manufacture, add BIOBAN BP-PLUS after this stage when the product has cooled to below 40°C. Addition to application tanks should be by slug dosing the tank as needed to prevent bacterial spoilage.

**FREQUENCY AND DOSE:** BIOBAN BP-PLUS should be dosed at 100 to 500 ppm based on the final formulation volume (0.84-4.2 lb / 1000 gallons).

#### ADHESIVES

For the control of microbial contamination, add 0.1-0.5 lb of BIOBAN BP-PLUS per 100 lb total formulation weight. The addition is best accomplished by pre-dissolving the BIOBAN BP-PLUS in any water to be incorporated into the formulation.

#### RAW MATERIALS

To inhibit bacterial spoilage during shelf-life storage and the use of raw materials when supplied for the manufacture of industrial and consumer products, this product may be added at any convenient point during the manufacturing process. Ideally it should be added as a final step just prior to packing of the product into bulk or sales packs. If a heating stage is involved in the manufacture of a product add this product after this stage when the product has cooled to below 40°C.

**FREQUENCY AND DOSE:** this product should be dosed at 100 to 500 ppm based on the final formulation volume (0.84-4.2 lb/1000 gallons).

#### SURFACTANTS

To inhibit bacterial spoilage during shelf-life storage and the use of bulk anionic, nonionic amphoteric and cationic surfactants when supplied for the manufacture of industrial and consumer products, this product may be added at any convenient point during the manufacturing process. Ideally it should be added as a final step just prior to packing of the product in bulk or sales packs. If a heating stage is involved in the manufacture of a product add this product after this stage when the product has cooled to below 40°C.

**FREQUENCY AND DOSE:** this product should be dosed at 100 to 500 ppm based on the final formulation volume (0.84-4.2 lb/1000 gallons).

#### CONSUMER, HOUSEHOLD AND INSTITUTIONAL PRODUCTS

To inhibit bacterial spoilage during the shelf-life storage and use of consumer, household and institutional products including dishwashing liquids, surface cleaners and polishes, this product may be added at any convenient point during the manufacturing process. Ideally it should be added as a final step just prior to packing of the product into bulk or sales packs. If a heating stage is involved in the manufacture of a product add this product after this stage when the product has cooled to below 40°C.

**FREQUENCY AND DOSE:** this product should be dosed at 100 to 500 ppm based on the final formulation volume (0.84-4.2 lb/1000 gallons).

#### WATER BASED AGRICULTURAL PESTICIDE CONCENTRATES

To inhibit bacterial spoilage during the shelf-life storage and use of water based agricultural pesticide concentrates, this product may be added at any convenient point during the manufacturing process. Ideally it should be added as a final step just prior to packing of the product into bulk or sales packs. If a heat stage is involved in the manufacture of a product add this product after this stage when the product has cooled to below 40°C.

**FREQUENCY AND DOSE:** this product should be dosed at 100 to 500 ppm based on the final formulation volume (0.84-4.2 lb/1000 gallons).

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# BIOBAN™ BP-PLUS

## Active Ingredient(s)

2-Bromo-2-nitropropane-1,3-diol....99.0%

Inert Ingredient(s) .....1.0%

Total 100.0%

E.P.A. Registration No. 464-675

E.P.A. Est. 73721-KOR-001

KEEP OUT OF REACH OF CHILDREN

**DANGER**

## PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

**CORROSIVE. CAUSES IRREVERSIBLE EYE DAMAGE AND SKIN IRRITATION. MAY BE FATAL IF SWALLOWED OR ABSORBED THROUGH SKIN.**

**HARMFUL IF INHALED. PROLONGED OR FREQUENTLY REPEATED SKIN CONTACT MAY CAUSE ALLERGIC REACTION IN SOME INDIVIDUALS.**

Do not get in eyes, on skin or on clothing. Do not breathe dust.

Wear goggles or face shield and chemical resistant rubber gloves.

Wash thoroughly with soap and water after handling and before

eating, drinking, or using tobacco.

Remove contaminated clothing and wash before reuse.



THE DOW CHEMICAL COMPANY

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Made in Korea

## FIRST AID:

If **swallowed**: Call a poison control center or doctor immediately for treatment advice. Have a person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

If **on skin or clothing**: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

If **inhaled**: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth to mouth if possible. Call a poison control center or doctor for further treatment.

If **in eyes**: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first five minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

**NOTE TO PHYSICIAN:** Probable mucosal damage may contraindicate the use of gastric lavage.

## ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

## PHYSICAL AND CHEMICAL HAZARDS

Avoid contact with metal equipment such as scoops, mills or sieves.

**IN CASE OF AN EMERGENCY** endangering life or property involving this product, call collect **989-636-4400**.

## STORAGE AND DISPOSAL

**Storage and Disposal:** Do not contaminate water, food, or feed by storage or disposal.

**Pesticide Storage:** Keep away from heat.

**Pesticide Disposal:** Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**Container Disposal:** Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Dispose of liner in a sanitary landfill, or by incineration, if allowed by state and local authorities. If burned, stay out of smoke.

See Directions For Use label adjacent to the **BIOBAN BP-PLUS** drum label.

ACCEPTED

MAY 23 2002

Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide, registered under EPA Reg. No. 464-675

2-BROMO-2-NITROPROPANE-1,3-DIOL

UN3241

Apply Flammable Solid 4 label.

NET WT: 25 kg / 55.12 lb

**LOT**

U 10/11/2001-1721 Active

W