

APPLICATION TESTS

The potential utility of Giv-Gard BNS<sup>®</sup>25%-AF as a microbial growth inhibitor for various types of products was demonstrated by tests in several aqueous systems. Various concentrations of Giv-Gard BNS<sup>®</sup>25%-AF were added to a textile lubricant emulsion and to a SBR latex emulsion. Replicate samples of these materials were inoculated with 0.1 ml of a 24-hour nutrient broth culture of Pseudomonas aeruginosa and a mixed spore suspension of Aspergillus niger and Penicillium piscarium. The samples were incubated at 28°C, examined for growth, and reinoculated weekly with the test organisms. Results of these tests are summarized below:

SBR LATEX EMULSION

| Conc. Giv-Gard BNS <sup>®</sup> 25%-AF (ppm) | Weeks Incubation |   |   |   |   |   |   |   |
|--|------------------|---|---|---|---|---|---|---|
|  | 1                |   | 2 |   | 3 |   | 4 |   |
|  | A                | B | A | B | A | B | A | B |
| 2000   | -                | - | - | - | - | - | - | - |
| 1000   | -                | - | - | - | - | - | - | - |
| 500  | -                | - | - | - | - | - | - | - |
| 0  | +                | + | + | + | + | + | + | + |

TEXTILE LUBRICANT EMULSION

| Conc. Giv-Gard BNS <sup>®</sup> 25%-AF (ppm) | Weeks Incubation |   |   |   |   |   |   |   |
|--|------------------|---|---|---|---|---|---|---|
|  | 1                |   | 2 |   | 3 |   | 4 |   |
|  | A                | B | A | B | A | B | A | B |
| 2000   | -                | - | - | - | - | - | - | - |
| 1000   | -                | - | - | - | - | - | - | - |
| 500  | -                | - | - | - | - | - | - | - |
| 0  | +                | + | + | + | + | + | + | + |

A = P.aeruginosa

B = Mixed Molds

+ = Microorganisms recovered

- = Microorganisms not recovered

#### RECOMMENDED DOSAGE AND METHOD OF APPLICATION

It is suggested that Giv-Gard BNS<sup>®</sup> 25%-AF be evaluated in products at a concentration of 0.10% (1000 ppm) by weight of the finished product. It can be incorporated directly or diluted with a suitable cosolvent such as acetone, benzene, propylene glycol, or isopropyl myristate.

For Secondary and Tertiary Oil Recovery Systems, the product should be used at levels of 10 to 800 ppm, depending on the type of system and degree of fouling.

#### STABILITY

Giv-Gard BNS<sup>®</sup> 25%-AF is stable under normal storage conditions. It is stable in nonalcoholic solvents in the dark or artificial light but decomposes in these solvents on exposure to direct sunlight for prolonged periods of time. Giv-Gard BNS<sup>®</sup> 25%-AF will react with alcoholic solvents resulting in reduced activity.

Giv-Gard BNS<sup>®</sup> 25%-AF hydrolyzes in aqueous solutions with no loss of antimicrobial properties.

#### TOXICOLOGICAL PROPERTIES

The acute oral LD<sub>50</sub> for Giv-Gard BNS<sup>®</sup> 25%-AF administered to rats was about 2000 mg/kg.

#### **DANGER**

**Corrosive!** Do not get into eyes, on skin or on clothing. Harmful or fatal if swallowed or absorbed through skin. Causes eye burns and skin irritation. Avoid breathing vapor or mist. Use with adequate ventilation. Wear rubber gloves and goggles or face shield when handling. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

#### First Aid

If Swallowed: Drink milk or plenty of water. Do not induce vomiting. Immediately contact physician.

If on Skin: Wash thoroughly with soap and water after handling. Immediately contact physician.

If in Eyes: Flush eyes immediately with plenty of clear water for at least 15 minutes. Immediately contact physician.

If on Clothing: Remove contaminated clothing and wash before reuse.

**Note to Physician:** Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsion may be needed.

**FISH TOXICITY**

The fish toxicity of Giv-Gard BNS<sup>®</sup>, the active ingredient in Giv-Gard BNS<sup>®</sup>25%-AF was as follows:

**GIV-GARD BNS<sup>®</sup>FISH TOXICITY (LC<sub>50</sub>)**

| Rainbow trout and bluegill sunfish |           |
|------------------------------------|-----------|
| 24 hours                           | 0.12 mg/l |
| 48 hours                           | 0.11 mg/l |
| 96 hours                           | 0.11 mg/l |

This product is toxic to fish. Do not contaminate water by cleaning of equipment or disposal of wastes.

Do not reuse empty drum. Return to drum reconditioner or destroy by perforating or crushing and burying in a safe place.

Our recommendations for use of this product are based upon tests believed to be reliable. The use of this product being beyond the control of the manufacturer, no guarantee, expressed or implied, is made as to the effects of such or the results to be obtained if not used in accordance with directions and established safe practice. The buyer must assume all responsibility, including injury or damage, resulting from its misuse as such, or in combination with other materials.

Products incorporating Giv-Gard BNS<sup>®</sup>25%-AF that differ from the product formulations described herein and that can be identified as economic poisons under the Federal Insecticide, Fungicide and Rodenticide Act may require further efficacy and/or safety testing by the purchaser.

ACCEPTED  
15 MAR 1982  
824-10  
UNDER THE FEDERAL INSECTICIDE  
FUNGICIDE AND QUATERNARY ACT  
FOR BIOLOGICAL PESTICIDE REGISTE-  
RED UNDER NO.



**GIVAUDAN**<sup>®</sup>  
GIVAUDAN CORPORATION • 125 DELAWANNA AVE., CLIFTON, N. J. 07014

**GIV-GARD BNS 25%-A**  
INDUSTRIAL PRESERVATIVE

**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND  
DOMESTIC ANIMALS**

**DANGER**

**Corrosive:** Do not get into eyes, on skin or on clothing. Harmful or fatal if swallowed or absorbed through skin. Causes eye burns and skin irritation. Avoid breathing vapor or mist. Use with adequate ventilation. Wear rubber gloves and goggles or face shield when handling. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

**ENVIRONMENTAL HAZARDS**

This pesticide is toxic to fish and wildlife. Do not apply in marine and/or estuarine oil fields. Do not apply directly to water unless in accordance with an NPDES permit. Contact the Regional Office of EPA for guidance. Do not contaminate water by cleaning of equipment or disposal of wastes. **APPLY THIS PESTICIDE ONLY AS SPECIFIED ON THIS LABEL.**

**PHYSICAL AND CHEMICAL HAZARDS**

Do not use, pour or store near heat or open flame.

**DIRECTIONS FOR USE**

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

**For Microbial Growth Control in Latex Emulsions, Textile Lubricant Emulsions and Dye Dispersions**

Giv-Gard BNS 25%-AF will effectively control microbial growth of bacteria and fungi in aqueous systems. It should be used at a level of 0.10% (1000 ppm) by weight of the system to be protected. It can be used directly as is or diluted with a co-solvent such as acetone, propylene glycol or isopropyl myristate. It is not inactivated by the presence of nonionic surfactants or high concentration of oils.

**Packer Fluids and Drilling Muds**

Giv-Gard BNS 25%-AF should be applied directly to packer fluids or drilling muds at a level of 50 to 500 pounds per 1000 barrels or 80 to 800 parts per million, depending upon the severity of the problem.

**ACTIVE INGREDIENT:**

*β*-Bromo-*β*-nitrostyrene .....25%

**INERT INGREDIENTS:** .....75%

**KEEP OUT OF REACH OF CHILDREN**

**DANGER**

See Side Panel for Other Precautionary Statements

**FIRST AID**

**If Swallowed:** Drink milk or plenty of water. Do not induce vomiting. Immediately contact physician.

**If on Skin:** Wash thoroughly with soap and water after handling. Immediately contact physician.

**If in Eyes:** Flush eyes immediately with plenty of clear water for at least 15 minutes. Immediately contact physician.

**If on Clothing:** Remove contaminated clothing and wash before reuse.

**Note to Physician:** Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsion may be needed.

\*U.S. Pat. 3,629,465, 3,871,860 EPA Reg. No. 824-10 EPA Est. No. 824 NJ 1

**FOR MANUFACTURING OR REFORMULATION USE ONLY**

NET

LOT NO.

**For Secondary and Tertiary**

For controlling slime-form and fungi in oil field water disposal systems and/or muds and packer muds.

Giv-Gard BNS 25%-AF should be applied either continuously or intermittently every 4 to 7 days until control of the problem. Badly fouled systems require treatment is begun.

**Intermittent Method of Use**

For noticeably fouled systems, apply 100 lbs. per 1000 barrels intermittently every 4 to 7 days until control is achieved. For 500 to 1000 barrels of muds, apply 2 to 3 days to maintain control.

**Continuous Feed Method**

Use the same levels as for intermittent use. For systems, then reduce the level to 3 to 50 pounds per 1000 barrels per million.

**STORAGE**

Do not contaminate water.

Open dumping is prohibited.

Pesticide or rinsate that cannot be used should be disposed of in a safe place away from water.

Triple rinse the container before recycling or destroying in a safe place. Consult your local health department for approved alternative procedures.

**KEEP CONTAINER COVERED**

(See Technical Bulletin)



# GIVAUDAN®

GIVAUDAN CORPORATION • 125 DELAWANNA AVE., CLIFTON, N. J. 07014

## GIV-GARD BNS® 25%-AF

INDUSTRIAL PRESERVATIVE

### PRECAUTIONARY STATEMENTS

HUMANS AND  
DOMESTIC ANIMALS

### HAZARD

Avoid contact with skin or on clothing. Harmful or irritating if inhaled through skin. Causes eye burns and irritation. Avoid breathing vapor or mist. Use with adequate ventilation, gloves and goggles or face shield. Wash thoroughly with soap and water after handling and wash before reuse.

### ENVIRONMENTAL HAZARDS

Avoid contact with wildlife. Do not apply in marine areas. Do not apply directly to water unless specifically permitted. Contact the Regional Office for information. Do not contaminate water by cleaning of equipment. **APPLY THIS PESTICIDE ONLY**

### CHEMICAL HAZARDS

Avoid contact with heat or open flame.

### RECOMMENDATIONS FOR USE

Use this product in a manner consistent with the label.

Latex Emulsions, Textile Dispersions

Use to control microbial growth of systems. It should be used at a concentration of 10 to 500 pounds per 1000 barrels depending upon the severity of the problem.

Do not apply directly to packer fluids. Use at 10 to 500 pounds per 1000 barrels depending upon the severity of the problem.

### ACTIVE INGREDIENT:

*p*-Bromo-*p*-nitrostyrene ..... 25%

### INERT INGREDIENTS:

..... 75%

**KEEP OUT OF REACH OF CHILDREN**

## DANGER

See Side Panel for Other Precautionary Statements

### FIRST AID

**If Swallowed:** Drink milk or plenty of water. Do not induce vomiting. Immediately contact physician.

**If on Skin:** Wash thoroughly with soap and water after handling. Immediately contact physician.

**If in Eyes:** Flush eyes immediately with plenty of clear water for at least 15 minutes. Immediately contact physician.

**If on Clothing:** Remove contaminated clothing and wash before reuse.

**Note to Physician:** Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsion may be needed.

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**FOR MANUFACTURING OR REFORMULATION USE ONLY**

NET

LOT NO.

### For Secondary and Tertiary Oil Recovery Systems

For controlling slime-forming and sulfide-producing bacteria, algae and fungi in oil field water, polymer or micellar floods, water disposal systems and/or other oil field water systems, drilling muds and packer muds.

Giv-Gard BNS 25%-AF should be added to the systems as needed, either continuously or intermittently, depending upon the severity of the problem. Badly fouled systems must be cleaned before treatment is begun.

### Intermittent Method of Usage

For noticeably fouled systems, the initial dosage should be 50 to 100 lbs. per 1000 barrels of water or 150 to 300 parts per million intermittently every 4 to 8 hours per day and from 1 to 4 times per week until control is obtained. After that, use 10 to 50 pounds to 1000 barrels of water or 30-300 parts per million every 2 to 3 days to maintain control.

### Continuous Feed Method

Use the same levels as above initially for especially fouled systems, then reduce the level to continuously feed into the system 3 to 50 pounds per 1000 barrels of water or 10 to 150 parts per million.

### STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited. Do not reuse empty container.

Pesticide or rinsate that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticides or buried in a safe place away from water supplies.

Triple rinse the container or equivalent before sending to drum conditioner or destroying by perforation or crushing and burying in a safe place. Consult Federal, state or local authorities for approved alternative procedures.

**KEEP CONTAINER COVERED — STORE IN A DRY PLACE**

(See Technical Bulletin BNS-AF for Additional Details)

PRINTED IN USA

ACCEPTED  
15 MAR 1982

824-10

UNDER THE FEDERAL INSECTICIDE  
ACT AND THE FEDERAL FERTILIZER ACT  
FOR ECONOMIC POLICY REGISTERED  
UNDER NO.

# GIVAUDAN®

GIVAUDAN CORPORATION • 125 DELAWANNA AVE., CLIFTON, N. J. 07014

## GIV-GARD BNS® 25%-AF

INDUSTRIAL PRESERVATIVE

### PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

#### DANGER

Corrosive: Do not get into eyes, on skin or on clothing. Harmful or fatal if swallowed or absorbed through skin. Causes eye burns and skin irritation. Avoid breathing vapor or mist. Use with adequate ventilation. Wear rubber gloves and goggles or face shield when handling. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

#### ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish and wildlife. Do not apply in marine and/or estuarine oil fields. Do not apply directly to water unless in accordance with an NPDES permit. Contact the Regional Office of EPA for guidance. Do not contaminate water by cleaning of equipment or disposal of wastes. APPLY THIS PESTICIDE ONLY AS SPECIFIED ON THIS LABEL.

#### PHYSICAL AND CHEMICAL HAZARDS

Do not use, pour or store near heat or open flame.

#### DIRECTIONS FOR USE

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

#### For Microbial Growth Control In Latex Emulsions, Textile Lubricant Emulsions and Dye Dispersions

Giv-Gard BNS 25%-AF will effectively control microbial growth of bacteria and fungi in aqueous systems. It should be used at a level of 0.10% (1000 ppm) by weight of the system to be protected. It can be used directly as is or diluted with a co-solvent such as acetone, propylene glycol or isopropyl myristate. It is not inactivated by the presence of nonionic surfactants or high concentration of oils.

#### Packer Fluids and Drilling Muds

Giv-Gard BNS 25%-AF should be applied directly to packer fluids or drilling muds at a level of 50 to 500 pounds per 1000 barrels or 80 to 800 parts per million, depending upon the severity of the problem.

#### ACTIVE INGREDIENT:

$\mu$ -Bromo- $\mu$ -nitrostyrene ..... 25%

INERT INGREDIENTS: ..... 75%

KEEP OUT OF REACH OF CHILDREN

### DANGER

See Side Panel for Other Precautionary Statements

#### FIRST AID

If Swallowed: Drink milk or plenty of water. Do not induce vomiting. Immediately contact physician.

If on Skin: Wash thoroughly with soap and water after handling. Immediately contact physician.

If in Eyes: Flush eyes immediately with plenty of clear water for at least 15 minutes. Immediately contact physician.

If on Clothing: Remove contaminated clothing and wash before reuse.

Note to Physician: Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsion may be needed.

\*U.S. Pat. 3,629,465; 3,871,860 EPA Reg. No. 824-10 EPA Est. No. 824-NJ-1

FOR MANUFACTURING OR REFORMULATION USE ONLY

NET

LOT NO.

#### For Secondary and Tertiary Oil Recovery

For controlling slime-forming and sulfide and fungi in oil field water, polymer disposal systems and/or other oil field muds and packer muds.

Giv-Gard BNS 25%-AF should be added either continuously or intermittently, depending on the problem. Badly fouled systems treatment is begun.

#### Intermittent Method of Usage

For noticeably fouled systems, the initial 100 lbs. per 1000 barrels of water or 150 lbs. per 1000 barrels of water or 150 lbs. intermittently every 4 to 8 hours per day per week until control is obtained. At 1000 lbs. per 1000 barrels of water or 30-300 lbs. per 1000 barrels of water or 2 to 3 days to maintain control.

#### Continuous Feed Method

Use the same levels as above initially for 1 to 2 weeks, then reduce the level to continuous feed of 3 to 50 pounds per 1000 barrels of water per million.

#### STORAGE AND DISPOSAL

Do not contaminate water, food or feed. Open dumping is prohibited. Do not reuse.

Pesticide or rinsate that cannot be used should be disposed of in a landfill approved by the state or buried in a safe place away from water supply.

Triple rinse the container or equivalent conditioner or destroying by perforation in a safe place. Consult Federal, state approved alternative procedures.

KEEP CONTAINER COVERED — STORE

(See Technical Bulletin BNS-AF for

PRINTED IN USA

# GIVAUDAN®

GIVAUDAN CORPORATION • 125 DELAWANNA AVE., CLIFTON, N. J. 07014

## GARD BNS® 25%-AF

INDUSTRIAL PRESERVATIVE

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$\mu$ -Bromo- $\mu$ -nitrostyrene.....25%

INERT INGREDIENTS:.....75%

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**DANGER**

See Side Panel for Other Precautionary Statements

### FIRST AID

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**If on Skin:** Wash thoroughly with soap and water after handling. Immediately contact physician.

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**If on Clothing:** Remove contaminated clothing and wash before reuse.

**Note to Physician:** Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsion may be needed.

\*U.S. Pat. 3,629,465; 3,871,860 EPA Reg. No. 824-10 EPA Est. No. 824-NJ-1

FOR MANUFACTURING OR REFORMULATION USE ONLY

NET

LOT NO.

### For Secondary and Tertiary Oil Recovery Systems

For controlling slime-forming and sulfide-producing bacteria, algae and fungi in oil field water, polymer or mycellar floods, water disposal systems and/or other oil field water systems, drilling muds and packer muds.

Giv-Gard BNS 25%-AF should be added to the systems as needed, either continuously or intermittently, depending upon the severity of the problem. Badly fouled systems must be cleaned before treatment is begun.

### Intermittent Method of Usage

For noticeably fouled systems, the initial dosage should be 50 to 100 lbs. per 1000 barrels of water or 150 to 300 parts per million intermittently every 4 to 8 hours per day and from 1 to 4 times per week until control is obtained. After that, use 10 to 50 pounds to 1000 barrels of water or 30-300 parts per million every 2 to 3 days to maintain control.

### Continuous Feed Method

Use the same levels as above initially for especially fouled systems, then reduce the level to continuously feed into the system 3 to 50 pounds per 1000 barrels of water or 10 to 150 parts per million.

### STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited. Do not reuse empty container.

Pesticide or rinsate that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticides or buried in a safe place away from water supplies.

Triple rinse the container or equivalent before sending to drum conditioner or destroying by perforation or crushing and burying in a safe place. Consult Federal, state or local authorities for approved alternative procedures.

**KEEP CONTAINER COVERED — STORE IN A DRY PLACE**

(See Technical Bulletin BNS-AF for Additional Details)

PRINTED IN USA

GIVAUDAN  
chemical  
division

TECHNICAL BULLETIN BNS-AF  
DEVELOPMENT CHEMICAL

ACCEPTED  
15 MAR 1982  
824-10  
UNDER THE FEDERAL INSECTICIDE  
FUNGICIDE AND RODENTICIDE ACT  
FOR ECONOMIC POISON REGISTE  
ED UNDER NO.

GIV-GARD BNS<sup>®</sup> 25%-AF

INDUSTRIAL PRESERVATIVE

Giv-Gard BNS 25%-AF is a microbial growth inhibitor that effectively controls the growth of bacteria and fungi in aqueous systems. Giv-Gard BNS<sup>®</sup>25%-AF shows outstanding activity against Pseudomonas aeruginosa and is not inactivated by the presence of nonionic surfactants or high concentrations of oils.

PHYSICAL PROPERTIES

|                         |              |
|-------------------------|--------------|
| <u>Form</u>             | Clear liquid |
| <u>Color</u>            | Amber        |
| <u>Odor</u>             | Mild         |
| <u>Specific gravity</u> | .98          |
| <u>Density</u>          | 8.2 lb/gal.  |
| <u>Flash point</u>      | 129°F (TCC)  |
| <u>Freezing point</u>   | <23°F        |

\*U.S. Pat. 3,629,465

Giv-Gard BNS<sup>®</sup> is a registered trade mark of Givaudan Corporation

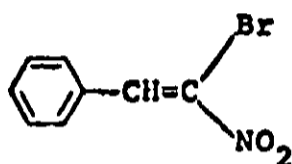
GIVAUDAN CORPORATION • 100 DELAWARE AVE. N.E. CLIFTON, N.J. 07014



CHEMICAL PROPERTIES

|                          |                                       |     |
|--------------------------|---------------------------------------|-----|
| <u>Active ingredient</u> | $\beta$ -Bromo- $\beta$ -nitrostyrene | 25% |
| <u>Inert ingredients</u> | AMSCO-SOLV F                          | 65% |
|                          | Dimethylformamide                     | 10% |

Chemical Structure



BACTERIOSTATIC AND FUNGISTATIC PROPERTIES

These properties of Giv-Gard BNS<sup>®</sup>25%-AF were determined by ten-fold serial dilution tests in agar.

| <u>Organism</u>                 | <u>Minimum Inhibitory Range (ppm)</u> |                  |
|---------------------------------|---------------------------------------|------------------|
|                                 | <u>Inactive at</u>                    | <u>Active at</u> |
| <u>Escherichia coli</u>         | 2.0                                   | 20.0             |
| <u>Pseudomonas aeruginosa</u>   | 2.0                                   | 20.0             |
| <u>Aerobacter aerogenes</u>     | 2.0                                   | 20.0             |
| <u>Aspergillus niger</u>        | 1.0                                   | 10.0             |
| <u>Aspergillus oryzae</u>       | 1.0                                   | 10.0             |
| <u>Chlorella vulgaris</u>       | 2.0                                   | 20.0             |
| <u>Chlamydomonas pseudagloe</u> | 2.0                                   | 20.0             |