

464-692

12/23/2008

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460



Office of Pesticide Programs

The Dow Chemical Company  
1803 Building  
Midland, Mi 48674

DEC 23 2008

Attention: Maureen Mikszal  
Senior Regulatory Specialist

Subject: **UCARCIDE 45 Antimicrobial**  
EPA Registration No. 464-692  
Amendment Dated November 24, 2008

The amendment, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended, is acceptable.

- Minor Labeling Changes to the Directions For Use

A stamped copy of the "accepted" labeling is enclosed for your records.

If you have any questions concerning this letter, please contact Martha Terry at (703) 308-6217.

Sincerely

Marshall Swindell  
Product Manager 33  
Regulatory Management Branch 1  
Antimicrobials Division (7510P)

Enclosure

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

**DANGER**

**KEEP OUT OF REACH OF CHILDREN**

*Corrosive. Causes irreversible eye damage. Causes skin burns. Harmful if inhaled. May be fatal if swallowed. Harmful if absorbed through skin. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Causes asthmatic signs and symptoms in hyper-reactive individuals.*

Do not get in eyes, on skin, on clothing.  
Avoid breathing vapor. Do not swallow.  
Wear goggles, protective clothing, and butyl or nitrile gloves.  
Wash thoroughly with soap and water after handling.  
Remove contaminated clothing and wash before reuse.

**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.

**STORAGE AND HANDLING**

UCARCIDE™ 45 Antimicrobial is incompatible with many commonly used materials of construction such as steel, galvanized iron, aluminum, tin, and zinc. UCARCIDE™ 45 Antimicrobial can be stored and handled in baked phenolic-lined steel, polyethylene, stainless steel, or reinforced epoxy-plastic equipment. This product freezes at about 1° F (-17° C). Therefore, unless the storage tank is inside or underground, heating and insulation may be required. If heating is needed, exposure to high temperatures should be avoided. For short storage times (up to about 1 month), temperatures of up to 100° F (37.8° C) can be tolerated but the preferred maximum storage temperature is about 80° F (26.7° C).

A stainless steel centrifugal pump is suggested for transfer service. Spiral-wound stainless steel with TEFLON® Polymer is suitable for gaskets and packing.

Handle in a well-ventilated area. If vapors are irritating to the nose or eyes, special ventilation or respiratory protection (MSHA/NIOSH approved air purifying respirator equipped with an organic vapor cartridge) may be required.

**LIMITED WARRANTY AND DISCLAIMER**

Seller warrants that the product conforms to its chemical description as contained on this label and is reasonably fit for the purposes stated on this label when used in accordance with directions under normal conditions of use. THE WARRANTIES MADE IN THIS PARAGRAPH ARE SELLER'S SOLE WARRANTIES WITH RESPECT TO THE PRODUCT AND ARE MADE EXPRESSLY IN LIEU OF AND EXCLUDE ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE AND ALL OTHER EXPRESS OR IMPLIED REPRESENTATIONS AND WARRANTIES.

**BEFORE HANDLING OR USING THIS PRODUCT, SEE  
YOUR EMPLOYER AND READ CURRENT MATERIAL  
SAFETY DATA SHEET.**

**STORAGE AND DISPOSAL**

**PESTICIDE DISPOSAL:** Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited. Pesticide wastes are toxic. 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 your Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**CONTAINER DISPOSAL: Metal Containers or Plastic Containers:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or other procedures approved by state and local authorities. **Plastic Containers:** May be incinerated, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke. **Metal Containers:** Must not be incinerated. Do not cut or weld on or near metal containers.



65662S-04/11/2008

**NOTICE**

Do Not Ship or Store  
with Food, Feeds,  
Drugs, or Clothing

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# UCARCII

A highly effective Microbiocide for use in control Sulfate-Reducing Bacteria, Fungi (Yeast and Molds Systems, Recirculating Cooling and Process Wa Osmosis Membranes and Service Water and Aux Systems Including Wastewater Sludge and Holding Water Systems and in Paper Mills and Paper Mill F for Paper and Paperboard, Water Based Coatings fc Lubricants and Aqueous Metalworking Fluids ar Industrial, Institutional and Consumer Processes Based Solutions, Slurries and Emulsions and in O Field Water Systems, Oil and Gas Production and T Fields and Equipment; such as Steam-Injection W Injection Water, Holding Pond Water, Disposal-Well related Refinery and Oil Field Closed, Industrial Rec

Active Ingredient: GI  
Inert Ingredients:  
Total

**KEEP OUT OF RE  
DAN**

**FIR**

**If swallowed:**

- Call a poison control center or a doctor immediately for
- **DO NOT INDUCE VOMITING.**
- Do not give anything to drink.

**If in eyes:**

- Wash immediately and continuously with flowing water
- Remove contact lenses after the first 5 minutes and coi preferably from an ophthalmologist.
- Call a poison control center or a doctor immediately for

**If on skin or clothing:**

- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 r
- Call a poison control center or a doctor for treatment at

**If inhaled:**

- Move person to fresh air.
- If person is not breathing, call 911 or an ambulance, ar possible.
- Call a poison control center or a doctor for further treat

**NOTE TO PHYSICIAN:** Aspiration may cause lung dan of gastric lavage.

Have the MSDS and, if available, the product container doctor, or going for treatment.

**SEE SIDE PANEL FOR ADDITION**

Produced for:



**The Dow Chemical Company**

Midland, Michigan 48674 U.S.A.

(989)636-4400

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Net Contents: 5, 30, 55 gallons or Bulk

CONTAINER SIZE TOTE 260.5 GALLONS	CONTAINER SIZE 55 GALLONS	CONTAINER SIZE 30 GALLONS	CC
2,425 POUNDS NET WEIGHT	504 POUNDS NET WEIGHT	279 POUNDS NET WEIGHT	I

**IN CASE OF AN EMERGENCY** endanger collect (989)-636-4400.

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# UCARCIDE™ 45 ANTIMICROBIAL

## DIRECTIONS

It is a violation of Federal Law to use this product in a manner not specified on the label.

### AIR WASHERS AND INDUSTRIAL RECIRCULATING COOLING AND F

This product may be used only in industrial air washers and recirculating cooling and filtration systems that have mist-eliminating components.

UCARCIDE™ 45 Antimicrobial should be added to a water treatment system at a convenient point of addition. Addition may be made intermittently (SLUG DOSE) or continuously (CONTINUOUS FEED METHOD).  
UCARCIDE™ 45 Antimicrobial can be used in recirculating cooling and filtration systems that contain ultra filtration units and non-medical reverse osmosis membranes (for compatibility by the membrane manufacturer).

**INTERMITTENT (SLUG DOSE) METHOD**  
**Initial Dose:** When the system is noticeably fouled, UCARCIDE™ 45 Antimicrobial per 1,000 gallon of water should be added.

**Subsequent Dose:** When microbial control is achieved, UCARCIDE™ 45 Antimicrobial per 1,000 gallons of water should be added to maintain control.

**CONTINUOUS FEED METHOD**  
**Initial Dose:** When the system is noticeably fouled, UCARCIDE™ 45 Antimicrobial per 1,000 gallons of water should be added.

**Subsequent Dose:** Maintain this treatment level at 12.7 fluid ounces of UCARCIDE™ 45 Antimicrobial per 1,000 gallons of water.

**Service Water and Air Washers**  
Badly fouled systems must be cleaned before treatment.

**HEAT TRANSFER**  
(Evaporative Condensers, Dairy Sweetwater and Retorts, and Pasteurizers)

UCARCIDE™ 45 Antimicrobial should be used in the same manner as described above. It should be allowed to mix uniformly throughout the system.

**INDUSTRIAL WASTE**  
(Wastewater Systems, Wastewater Sludge)

UCARCIDE™ 45 Antimicrobial should be added in the same manner as described above. It should be allowed to mix uniformly throughout the system.

**BET SUGAR MILLS AND BEET SUGAR SYSTEM**  
UCARCIDE™ 45 Antimicrobial should be added to the diffuser, transport water pump, and washers. Additions may be made intermittently (SLUG DOSE) or continuously (CONTINUOUS FEED METHOD).

**CONTINUOUS FEED METHOD**  
**Initial Dose:** When the system is noticeably fouled, UCARCIDE™ 45 Antimicrobial per 1,000 gallons of water should be added.

**Subsequent Dose:** When microbial control is achieved, UCARCIDE™ 45 Antimicrobial per 1,000 gallons of water should be added to maintain control.

**PAPER MILLS AND PAPER MILL P**  
UCARCIDE™ 45 Antimicrobial should be added to the diffuser, transport water pump, and washers. Additions may be made intermittently (SLUG DOSE) or continuously (CONTINUOUS FEED METHOD).

**CONTINUOUS FEED METHOD**  
**Initial Dose:** When the system is noticeably fouled, UCARCIDE™ 45 Antimicrobial per 1,000 gallons of water should be added.

**Subsequent Dose:** When microbial control is achieved, UCARCIDE™ 45 Antimicrobial per 1,000 gallons of water should be added to maintain control.

**PIGMENTS AND FILLER SLURRIES F**  
(For use in food and non-food contact)

Use from 0.11 to 0.7 lbs. of UCARCIDE™ 45 Antimicrobial to produce a concentration from 111 to 667 ppm mixed slurry.

**WATER BASED COATINGS FOR F**  
**NOTE:** For use in non-food contact coatings only. Use from 0.11 to 0.7 lbs. of UCARCIDE™ 45 Antimicrobial to produce a concentration from 111 to 667 ppm mixed slurry.

**AQUEOUS METALWORK**  
UCARCIDE™ 45 Antimicrobial should be added to the fluid collection tank (SLUG DOSE) at intervals of one week or less.

**Initial Dose:** When the system is noticeably fouled, UCARCIDE™ 45 Antimicrobial per 10,000 gallons of metalwork should be added.

**Subsequent Dose:** When microbial control is achieved, UCARCIDE™ 45 Antimicrobial per 10,000 gallons of metalwork should be added to maintain control.

## ANIMALS

## LDREN

Animals. Harmful if skin. Prolonged contact in some hyper-reactive.

Using this product in water unless in large quantities. Prolonged contact in writing product to sewer plant authority. If the EPA.

Commonly used in iron, tin, and zinc. Used phenolic-lined equipment. This age tank is inside. Rating is needed, range times (up to tolerated but the).

Use. Spiral-wound and packing.

Use nose or eyes, used air purifying used.

Use. The USER'S SOLE ID ARE MADE WARRANTIES OF PURPOSE AND ACTIONS AND

DUCT, SEE MATERIAL

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Use by storage or toxic. Improper use of Federal law. Label instructions, Agency, or the use for guidance. Containers: Triple or puncture and y state and local yed by state and tal Containers: siners.

A highly effective Microbiocide for use in controlling Bacteria including Slime Forming Bacteria and Sulfate-Reducing Bacteria, Fungi (Yeast and Molds) and Algae in Air Washers and Industrial Scrubbing Systems, Recirculating Cooling and Process Water Systems including those that contain Reverse Osmosis Membranes and Service Water and Auxiliary Systems, Heat Transfer Systems, Wastewater Systems including Wastewater Sludge and Holding Tanks, Beet Sugar Mills and Beet Sugar Mill Process Water Systems and in Paper Mills and Paper Mill Process Water Systems, Pigments and Filler Slurries for Paper and Paperboard, Water Based Coatings for Paper and Paperboard and in Functional Fluids and Lubricants and Aqueous Metalworking Fluids and for use by Manufacturers as a Preservative in Industrial, Institutional and Consumer Processes and Products and for use in Preserving Aqueous-Based Solutions, Slurries and Emulsions and in Oil Well Drilling, Oil Field Processing Applications, Oil Field Water Systems, Oil and Gas Production and Transmission Pipelines and Systems, and Gas Storage Fields and Equipment; such as Steam-Injection Water Holding Tanks, Flood Water, Fracturing Fluids, Injection Water, Holding Pond Water, Disposal-Well Water, Water Holding Tanks, Fuel Storage Tanks and related Refinery and Oil Field Closed, Industrial Recirculating Water Handling Systems.

Active Ingredient: Glutaraldehyde 45%  
Inert Ingredients: 55%  
Total 100%

## KEEP OUT OF REACH OF CHILDREN DANGER FIRST AID

### If swallowed:

- Call a poison control center or a doctor immediately for treatment advice.
- DO NOT INDUCE VOMITING.
- Do not give anything to drink.

### If in eyes:

- Wash immediately and continuously with flowing water for at least 30 minutes.
- Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist.
- Call a poison control center or a doctor immediately for treatment advice.

### 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 a doctor for treatment advice.

### If inhaled:

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

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

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

## SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

Produced for:



The Dow Chemical Company  
Midland, Michigan 48674 U.S.A.  
(989)636-4400

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EPA Reg. No. 464-692

EPA Est. No. 10352-WV-2 (A) 464-WV-1 (B)

ACCEPTED with COMMENTS  
EPA Letter Dated: L90226 (J 01/07) PE0208

DEC 23 2008

Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide, registered under EPA Reg. No. 464-692

Net Contents: 5, 30, 55 gallon sizes or Bulk

CONTAINER SIZE TOTE 260.5 GALLONS	CONTAINER SIZE 55 GALLONS	CONTAINER SIZE 30 GALLONS	CONTAINER SIZE 5 GALLONS	SHIPPING NAME	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (CONTAINS GLUTARALDEHYDE)	
2,425 POUNDS NET WEIGHT	504 POUNDS NET WEIGHT	279 POUNDS NET WEIGHT	46 POUNDS NET WEIGHT	HAZARD CLASS 8	ID NUMBER UN 3265	PGII

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

## WATER BASED COATINGS FOR F

NOTE: For use in non-food contact coatings only. Use from 0.11 to 0.7 lbs. of UCARCIDE™ 45 Antimicrobial to produce a concentration from 111 to 667 ppm mixed slurry.

## AQUEOUS METALWORK

UCARCIDE™ 45 Antimicrobial should be added to the fluid collection tank (SLUG DOSE) at intervals of one week or less.

**Initial Dose:** When the system is noticeably fouled, UCARCIDE™ 45 Antimicrobial per 10,000 gallons of metalwork should be added.

**Subsequent Dose:** When microbial control is achieved, UCARCIDE™ 45 Antimicrobial per 10,000 gallons weekly, or as needed to maintain control. Badly fouled treatment is begun.

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# 45 MICROBIAL

Forming Bacteria and Industrial Scrubbing that contain Reverse Systems, Wastewater Beet Sugar Mill Process and Filler Slurries in Functional Fluids and as a Preservative in Preserving Aqueous-essing Applications, Oil stems, and Gas Storage later, Fracturing Fluids, Fuel Storage Tanks and items.

## DIRECTIONS FOR USE

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

### AIR WASHERS AND INDUSTRIAL SCRUBBING SYSTEMS/ RECIRCULATING COOLING AND PROCESS WATER SYSTEMS

This product may be used only in industrial air washers and air washer systems which have mist-eliminating components.

**UCARCIDE™ 45 Antimicrobial** should be added at the application rates described below to a water treatment system at a convenient point of uniform mixing such as the basin area. Addition may be made intermittently (SLUG DOSE) or continuously. Badly fouled systems can be shock treated with UCARCIDE™ 45 Antimicrobial. Under these conditions, blowdown should be discontinued for up to 24 hours.

UCARCIDE™ 45 Antimicrobial can be used in industrial process water systems that contain ultra filtration units and non-medical reverse osmosis membranes (where approved for compatibility by the membrane manufacturer) and associated distribution systems.

#### INTERMITTENT (SLUG DOSE) METHOD

**Initial Dose:** When the system is noticeably fouled, apply 12.7 to 25.4 fluid ounces of UCARCIDE™ 45 Antimicrobial per 1,000 gallons of water in the system. Repeat until control is achieved.

**Subsequent Dose:** When microbial control is evident, add 5.1 to 12.7 fluid ounces of UCARCIDE™ 45 Antimicrobial per 1,000 gallons of water in the system weekly, or as needed to maintain control.

Badly fouled systems must be cleaned before treatment is begun.

#### CONTINUOUS FEED METHOD

**Initial Dose:** When the system is noticeably fouled, apply 12.7 to 25.4 fluid ounces of UCARCIDE™ 45 Antimicrobial per 1,000 gallons of water in the system.

**Subsequent Dose:** Maintain this treatment level by starting a continuous feed of 2.5 to 12.7 fluid ounces of UCARCIDE™ 45 Antimicrobial per 1,000 gallons of water in the system per day.

Badly fouled systems must be cleaned before treatment is begun.

### SERVICE WATER AND AUXILIARY SYSTEMS

UCARCIDE™ 45 Antimicrobial should be used at the same application rates, and in the same manner as described above. It should be added to the system at a point that will allow for uniform mixing throughout the system.

#### HEAT TRANSFER SYSTEMS

(Evaporative Condensers, Dairy Sweetwater Systems, Hydrostatic Sterilizers and Retorts, and Pasteurizers and Warmers)

UCARCIDE™ 45 Antimicrobial should be used at the same application rates, and in the same manner as described above. It should be added to the system at a point of uniform mixing such as a basin area, sump area or other reservoir or collecting area from which the treated water will be circulated uniformly throughout the system.

### INDUSTRIAL WASTEWATER SYSTEMS

(Wastewater Systems, Wastewater Sludge and Wastewater Holding Tanks)

UCARCIDE™ 45 Antimicrobial should be added to a wastewater system or sludge at a convenient point of uniform mixing such as the digester. Add 0.45 to 2.2 gallons (500 to 2,500 ppm UCARCIDE™ 45 Antimicrobial) per 1,000 gallons of wastewater or sludge.

### BET SUGAR MILLS AND BET SUGAR MILL PROCESS WATER SYSTEMS

UCARCIDE™ 45 Antimicrobial should be added to the system at a point of uniform mixing such as the diffuser, transport water pump, weir box, or diffuser feed water pump. Additions may be made intermittently (SLUG DOSE) or continuously.

#### INTERMITTENT (SLUG DOSE) METHOD

**Initial Dose:** When the system is noticeably contaminated, add 6.1 to 15.2 fluid ounces (222 to 560 ppm product) of UCARCIDE™ 45 Antimicrobial per ton or 200 to 500 mL of UCARCIDE™ 45 Antimicrobial per metric ton of sliced beets as a slug dose. Repeat until control is achieved.

**Subsequent Dose:** When microbial control is evident, add 0.9 to 9.1 fluid ounces (33 to 330 ppm) of UCARCIDE™ 45 Antimicrobial per ton or 30 to 300 mL of UCARCIDE™ 45 Antimicrobial per metric ton of sliced beets in the system as a slug dose as necessary to maintain control. The total should not exceed 118 gallons per 1,000 tons of beets sliced per day.

#### CONTINUOUS FEED METHOD

**Initial Dose:** When the system is noticeably contaminated, add 6.1 to 15.2 fluid ounces/minute (222 to 560 ppm product) of UCARCIDE™ 45 Antimicrobial per ton or 200 to 500 mL/minute of UCARCIDE™ 45 Antimicrobial per metric ton of beets sliced per minute in the system via automatic pump of suitable construction.

**Subsequent Dose:** When microbial control is evident, add 0.9 to 9.1 fluid ounces/minute (33 to 330 ppm) of UCARCIDE™ 45 Antimicrobial per ton or 30 to 300 mL/minute of UCARCIDE™ 45 Antimicrobial per metric ton of beets sliced per minute in the system, or as necessary to maintain control. The total should not exceed 118 gallons per 1,000 tons of beets sliced per day.

### PAPER MILLS AND PAPER MILL PROCESS WATER SYSTEMS

UCARCIDE™ 45 Antimicrobial should be added to the paper making system at a point of uniform mixing such as the beaters, broke chest pump, save-all tank, or white-water tank.

**Initial Dose:** When the system is noticeably contaminated, add 0.6 to 3.3 lbs of UCARCIDE™ 45 Antimicrobial per ton of pulp or paper (dry basis) as a slug dose. Repeat until control is achieved. Heavily fouled systems should be boiled out prior to initial treatment.

**Subsequent Dose:** When microbial control is evident, add 0.3 to 2.2 lbs of UCARCIDE™ 45 Antimicrobial per ton of pulp or paper (dry basis) as a slug dose as necessary to maintain control.

### PIGMENTS AND FILLER SLURRIES FOR PAPER AND PAPERBOARD

(For use in food and non-food contact pigments and filler slurries)

Use from 0.11 to 0.7 lbs. of UCARCIDE™ 45 Antimicrobial per 1,000 lbs. of dry powder to produce a concentration from 111 to 667 ppm as product (based on slurry solids) in the mixed slurry.

### WATER BASED COATINGS FOR PAPER AND PAPERBOARD

**NOTE:** For use in non-food contact coatings only.

Use from 0.11 to 0.7 lbs. of UCARCIDE™ 45 Antimicrobial per 1,000 lbs. of dry powder to produce a concentration from 111 to 667 ppm as product (based on slurry solids) in the mixed slurry.

### AQUEOUS METALWORKING FLUIDS

UCARCIDE™ 45 Antimicrobial should be added to a metalworking fluid system at a point of uniform mixing such as the fluid collection tank. Additions may be made intermittently (SLUG DOSE) at intervals of one week or less.

**Initial Dose:** When the system is noticeably fouled apply 2 to 6 gallons of UCARCIDE™ 45 Antimicrobial per 10,000 gallons of metalworking fluid to the system. Repeat until control is achieved.

**Subsequent Dose:** When microbial control is evident, add 0.8 to 4 gallons of UCARCIDE™ 45 Antimicrobial per 10,000 gallons of metalworking fluid to the system weekly, or as needed to maintain control. Badly fouled systems should be cleaned before treatment is begun.

### WATER BASED CONVEYOR LUBRICANTS

(Brewery, Juice, Dairy, Beverage, and Food Processing Systems)

#### Avoid contamination of food in application of product.

Thoroughly clean all tracks and conveyors to remove gross soil. Rinse well. Use an automatic feed system as recommended by your Dow representative to provide 1.3 to 7.6 fluid ounces (50 to 300 ppm active) of UCARCIDE™ 45 Antimicrobial per 100 gallons of diluted lubricant.

### GENERAL PRESERVATIVE USE

UCARCIDE™ 45 Antimicrobial is recommended for use in aqueous or water containing products and systems, including industrial, institutional and consumer in-can processes and products, to control the growth of bacteria and fungi. For effective preservation, add UCARCIDE™ 45 Antimicrobial to the product formulation at a rate of 0.022% to 0.22% (22.5 to 2,225.5 ppm) based on the water content of the product (0.22 to 2.2 lbs UCARCIDE™ 45 Antimicrobial per 1,000 lbs water content). Mix uniformly.

### PRESERVATIVE FOR CONCENTRATES

For use in concentrates where effective preservation is needed after dilution, add UCARCIDE™ 45 Antimicrobial to the product formulation at a rate such that the diluted end-use product will contain 0.022% to 0.22% UCARCIDE™ 45 Antimicrobial.

**At no time during the preservation process should the level of UCARCIDE™ 45 Antimicrobial exceed 2.2%.**

### REVERSE OSMOSIS MEMBRANES

For effective preservation of reverse osmosis elements (where approved for compatibility by membrane manufacturer), immerse elements in a tank containing 0.22% to 2.2% UCARCIDE™ 45 Antimicrobial.

UCARCIDE™ 45 Antimicrobial can also be added to in-line recirculating systems for preservation of installed out-of-service reverse osmosis equipment (where approved for compatibility by membrane manufacturer). Add 0.22% to 2.2% UCARCIDE™ 45 Antimicrobial to the tank in the circulating system. Maintain the concentration of UCARCIDE™ 45 Antimicrobial by periodic addition to counteract any system leakage.

### CONCRETE ADMIXTURES

For effective preservation of concrete admixtures, add UCARCIDE™ 45 Antimicrobial to the product formulation at a rate of 2,222 to 8,889 ppm based on the weight of the admixture (2.2 to 8.9 lbs UCARCIDE™ 45 Antimicrobial per 1,000 lbs. concrete admixture). Mix uniformly.

### WATER FLOODS

UCARCIDE™ 45 Antimicrobial should be added to a water flood system at a point of uniform mixing.

**Initial Treatment:** When the system is noticeably contaminated, add 110 to 5,500 ppm UCARCIDE™ 45 Antimicrobial to the system (0.1 to 4.9 gallons UCARCIDE™ 45 Antimicrobial per 1,000 gallons flood water). Repeat until control is achieved.

**Subsequent Dose:** When microbial control is evident, add 22 to 5,500 ppm UCARCIDE™ 45 Antimicrobial (0.02 to 4.9 gallons UCARCIDE™ 45 Antimicrobial per 1,000 gallons flood water) to the system weekly, or as needed to maintain control.

### FRAC FLUIDS

UCARCIDE™ 45 Antimicrobial reduces bacterial contamination and degradation of fracturing fluids and gels used in oil and gas well stimulations. Add UCARCIDE™ 45 Antimicrobial to the frac water storage tanks or directly into the well head injection pipeline as the water is being pumped down-hole.

**Dose Range:** UCARCIDE™ 45 Antimicrobial should be added at a rate of 111 to 5,556 ppm (1.0 – 49.7 gals per 10,000 gallons) depending on the degree of bacterial fouling in the source water.

### DRILLING, COMPLETION, AND WORKOVER FLUIDS

UCARCIDE™ 45 Antimicrobial should be added to a drilling fluid system at a point of uniform mixing such as the circulating mud tank.

**Initial Treatment:** Add 55 to 1,100 ppm UCARCIDE™ 45 Antimicrobial (0.21 to 4.1 gallons UCARCIDE™ 45 Antimicrobial per 100 barrels of fluid) to a freshly prepared fluid depending on the severity of contamination.

**Maintenance Dosage:** Maintain a concentration of 55 to 1,100 ppm UCARCIDE™ 45 Antimicrobial by adding 0.21 to 4.1 gallons of UCARCIDE™ 45 Antimicrobial per 100 barrels of additional fluid, or as needed, depending on the severity of contamination.

### PACKER FLUIDS

UCARCIDE™ 45 Antimicrobial should be added to a packer fluid at a point of uniform mixing such as a circulating holding tank. Add 55 to 666 ppm UCARCIDE™ 45 Antimicrobial (0.21 to 2.5 gallons UCARCIDE™ 45 Antimicrobial per 100 barrels of fluid) to a freshly prepared fluid depending on the severity of contamination. Seal the treated packer fluid in the wall between the casing and production tubes.

### OIL AND GAS PRODUCTION AND TRANSMISSION PIPELINE SYSTEMS

UCARCIDE™ 45 Antimicrobial should be added to an oil/gas production or transmission line via direct injection. The application should be conducted to ensure maximum distribution of UCARCIDE™ 45 Antimicrobial throughout the entire internal pipeline surface by adding a sufficient amount of biocide to detect/measure a residual concentration at the back end of the pipeline system. Criteria for success of the treatment will be a reduction in bacterial counts and/or reduced corrosion rates. To facilitate application, it may be desirable to dilute the UCARCIDE™ 45 Antimicrobial with an appropriate solvent immediately before use. The concentration in the solvent should not fall below an active concentration range of 500 to 5,000 ppm based on the volume of water in the pipeline. Injections to the system should be weekly, or as needed to maintain control.

### GAS STORAGE WELLS AND SYSTEMS

Individual injection wells should be treated with a sufficient quantity of UCARCIDE™ 45 Antimicrobial to produce a concentration of 556 to 5,556 ppm UCARCIDE™ 45 Antimicrobial when diluted by the water present in the formation. Injection should take place before gas is injected (during the summer). Injections should be repeated yearly, or as needed to maintain control.

Individual drips should be treated with a sufficient quantity of UCARCIDE™ 45 Antimicrobial to produce a concentration of 222 to 2,222 ppm UCARCIDE™ 45 Antimicrobial when diluted by the water present in the drip. Injections should be repeated yearly, or as needed to maintain control.

### HYDROTESTING

Water used to hydrotest pipelines or vessels should contain 110 to 4,444 ppm UCARCIDE™ 45 Antimicrobial (0.1 to 3.9 gallons UCARCIDE™ 45 Antimicrobial per 1,000 gallons water), depending on water quality and length of time the equipment will remain idle.

### PIPELINE PIGGING AND SCRAPING OPERATIONS

Add UCARCIDE™ 45 Antimicrobial to a slug of water immediately following the scraper (ideally this water volume can be kept to a minimum and contained between the scraper and a trailing pig). Sufficient UCARCIDE™ 45 Antimicrobial should be added to produce a concentration of 0.11 to 1.1% (0.1 to 1.0 gallon UCARCIDE™ 45 Antimicrobial per 100 gallons water), depending on the length of the pipeline and the severity of biofouling.

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may contraindicate the use

son control center or a

## STATEMENTS

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52-WV-2 (A) ;464-WV-1 (B)  
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on pallets less than full pallet  
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PE0208

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o. 464-692

ISIVE LIQUID, ACIDIC,  
GANIC, N.O.S.  
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this product, call