

464-688

03/09/2007

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



United States  
Environmental Protection  
Agency

Office of Pesticide Programs

The Dow Chemical Company  
1803 Building  
Midland, MI 48674

Attention: Maureen Mikszal  
Senior Regulatory Specialist

**Subject: UCARACIDE 25 Antimicrobial**  
EPA Registration No. 464-688  
Notification Dated January 29, 2007  
EPA Received Date February 8, 2007

This will acknowledge receipt of your notification to add the text "produced for" to the product label, submitted under the provisions of FIFRA Section 3(c)(9). Based on a review of the submitted material, the following comments apply.

The Notification dated January 29, 2007 is in compliance with PR Notice 98-10 and is acceptable. This information has been made a part of your file.

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

Sincerely

A handwritten signature in cursive script that reads "Marshall Swindell".

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



January 30, 2007

The Dow Chemical Company  
171 River Road  
Piscataway, NJ 08854  
USA

**Overnight Delivery**

Document Processing Desk (NOTIF)  
Office of Pesticides Programs (7504P)  
Antimicrobials Division  
U. S. Environmental Protection Agency  
Room S-4900, One Potomac Yard  
2777 South Crystal Drive  
Arlington, VA 22202-4501

Subject UCARCIDE™ 25 Antimicrobial, EPA Reg. No. 464-688  
**Notification of Minor Label Change**

Dear Sir/Madam:

Per PR Notice 98-10, The Dow Chemical Company is submitting a notification to the registration for UCARCIDE™ 25 Antimicrobial, EPA Reg. No. 464-688. This notification includes a minor change to the UCARCIDE™ 25 Antimicrobial, EPA Reg. No. 464-688 labeling. Please find enclosed the following documentation in support of this application:

- Application Form, EPA Form 8570-1
- Draft label with highlighted changes

Please contact me at 732-563-5586 with questions or comments regarding this submission. Thank you for your assistance.

Sincerely,

Maureen Miksztal  
Senior Regulatory Specialist

cc: Mr. Marshall Swindell, PM-33

Enclosure



United States  
**Environmental Protection Agency**  
 Washington, DC 20460

<input type="checkbox"/>	Registration
<input type="checkbox"/>	Amendment
<input checked="" type="checkbox"/>	Other

OPP Identifier Number

**Application for Pesticide - Section I**

1. Company/Product Number 464-688	2. EPA Product Manager M. Swindell	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) UCARCIDE 25 Antimicrobial	PM# 33	
5. Name and Address of Applicant (Include ZIP Code) The Dow Chemical Company 1803 Building Midland, MI 48674 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

**Section - II**

<input type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input checked="" type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

**Explanation:** Use additional page(s) if necessary. (For section I and Section II.)

The Dow Chemical Company is submitting a notification to the label to clarify that Dow is not the producer. The text, "produced for:" has been added to the label. This notification is consistent with the provisions of PR Notice 98-10 and EPA regulations at 40CFR 152.46, and no other changes have been made to the labeling or the confidential statement of formula of this product. I understand that it is a violation of 18U.S.C. Sec. 1001 to willfully make any false statement to EPA. I further understand that if this notification is not consistent with the terms of PR Notice 98-10 and 40CFR 152.46, this product may be in violation of FIFRA and I may be subject to enforcement action and penalties under section 12 and 14 of FIFRA.

**Section - III**

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input checked="" type="checkbox"/> Metal	<input checked="" type="checkbox"/> Plastic
* Certification must be submitted		If "Yes" Unit Packaging wgt.	No. per container	If "Yes" Package wgt.	No. per container
				<input type="checkbox"/> Glass	<input type="checkbox"/> Paper
				<input type="checkbox"/> Other (Specify) _____	
3. Location of Net Contents Information <input checked="" type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container 5 and 55 gallon and bulk		5. Location of Label Directions <input checked="" type="checkbox"/>	
6. Manner in Which Label is Affixed to Product <input checked="" type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled				<input type="checkbox"/> Other _____	

**Section - IV**

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name Maureen Mikszal	Title Senior Regulatory Specialist	Telephone No. (Include Area Code) 732-563-5586
<b>Certification</b> I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.		6. Date Application Received <b>(Stamped)</b>
2. Signature 	3. Title Senior Regulatory Specialist	
4. Typed Name Maureen Mikszal	5. Date 1/29/07	

PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**DANGER**  
KEEP OUT OF REACH OF CHILDREN

Corrosive Causes irreversible eye damage. Causes skin irritation. Harmful if inhaled. Harmful 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 vapors. 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™ 25 Antimicrobial is incompatible with many commonly used materials of construction such as steel, galvanized iron, aluminum, tin, anti-zinc. UCARCIDE™ 25 Antimicrobial can be stored and handled in unlined phenolic-lined steel, polyethylene, stainless steel or reinforced epoxy-plastic equipment. The product freezes at about 14°F (-10°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 (M/HA/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. If pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture or residue 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.

**UCARCIDE™ 25**  
**Antimicrobial**

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, Paper Mills and Paper Mill Process Water Systems, Pigments and Filler Slurries for Paper and Paperboard, Water Based Coatings for Paper and Paperboard and 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 a Molluscicide for use in controlling Macrofouling in Service Water and Auxiliary Systems and Recirculating Cooling and Process Water Systems and in Oil Well Drilling, Oil Field Processing Applications, Oil Field Water Systems, Gas Production and Transmission Pipelines and Systems, and Gas Storage Fields and Equipment; such as Steam-Injection Water Holding Tanks, Flood Water, 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 ..... 25%  
Inert Ingredients: ..... 75%  
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 USA.  
1-800-258-CHEM  
\*Trademark of THE DOW CHEMICAL COMPANY

EPA Reg. No. 464-888  
EPA Est. No. 10352-WV-2 (A), 464-WV-1 (B)  
(A) 5 gallon pails in pallets, all drums; bulk  
(B) Single 5 gallon pails only

40207  
L90223 (G-06/04)  
Made in USA  
PE0704  
0257

CONTAINER SIZE	CONTAINER SIZE	CONTAINER SIZE
55 GALLONS	5 GALLONS	TOTE
50 POUNDS	44 POUNDS	2,194 POUNDS
NET WEIGHT	NET WEIGHT	NET WEIGHT

Net Contents: 5 or 55 gallons

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

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

DIFF

It is a violation of Federal law

**AIR WASHERS AND INDUSTRIAL RECIRCULATING COOLING**

This product may be used only in industrial dust-eliminating components. UCARCIDE™ 25 Antimicrobial should be used in a recirculating cooling treatment system at a convenient point made intermittently (SLUG DOSE) or UCARCIDE™ 25 Antimicrobial Once 24 hours. UCARCIDE™ 25 Antimicrobial can be used in filtration units and non-medical reverse membrane manufacturing and associated processes.

**INTERMITTENT**

Initial Dose: When the system is not Antimicrobial per 1,000 gallons of water. Subsequent Dose: Maintain this concentration of UCARCIDE™ 25 Antimicrobial per 1,000 gallons of water. Badly fouled systems must be cleaned.

**CONTINUOUS**

Initial Dose: When the system is not Antimicrobial per 1,000 gallons of water. Subsequent Dose: Maintain this concentration of UCARCIDE™ 25 Antimicrobial per 1,000 gallons of water. Badly fouled systems must be cleaned.

**SERVICE WATER AND AIR**

UCARCIDE™ 25 Antimicrobial should be used in a recirculating cooling treatment system at a convenient point made intermittently (SLUG DOSE) or UCARCIDE™ 25 Antimicrobial Once 24 hours.

**HEAT TRANSFER SYSTEM**

(Evaporative Condensers, Dairy Sweet Pasteurizers and Warmers and Once

UCARCIDE™ 25 Antimicrobial should be used in a recirculating cooling treatment system at a convenient point made intermittently (SLUG DOSE) or UCARCIDE™ 25 Antimicrobial Once 24 hours.

**INDUSTRIAL WASTEWATER**

(Wastewater Systems, Wastewater S

UCARCIDE™ 25 Antimicrobial should be used in a recirculating cooling treatment system at a convenient point made intermittently (SLUG DOSE) or UCARCIDE™ 25 Antimicrobial Once 24 hours.

**PAPER MILLS AND PAPER**

UCARCIDE™ 25 Antimicrobial should be used in a recirculating cooling treatment system at a convenient point made intermittently (SLUG DOSE) or UCARCIDE™ 25 Antimicrobial Once 24 hours.

**PIGMENTS AND FILLERS**

For use in food and non

Use from 0.2 to 1.2 lbs. of UCARCIDE™ 25 Antimicrobial per 1,000 gallons of water.

**WATER BASED COATING**

NOTE: For use in non-food contact oc

Use from 0.2 to 1.2 lbs. of UCARCIDE™ 25 Antimicrobial per 1,000 gallons of water.

**AQUEOUS METALWORKING**

UCARCIDE™ 25 Antimicrobial should be used in a recirculating cooling treatment system at a convenient point made intermittently (SLUG DOSE) or UCARCIDE™ 25 Antimicrobial Once 24 hours.

**WATER BASED CONVEYOR**

(Brewery, Juice, Dairy, Beverage, a

Avoid contamination of food in a

Thoroughly clean all tracks and conveyor systems as recommended by your DX ppm active) of UCARCIDE™ 25 Ant

# 5 Antimicrobial

Including Slime Forming Bacteria in Air Washers and Industrial Auxiliary Systems, Heat Transfer Fluid Holding Tanks, Boat Sugar Paper Mill Process Water, Water Based Coatings for Aqueous Metalworking Fluids, Industrial and Consumer Based Solutions, Slurries and in Service Water and Auxiliary Fluid in Oil Well Drilling, Oil Field and Transmission Pipelines, Steam-Injection Water Holding Tanks, Well Water, Water Holding Tanks, Industrial Recirculating

- 25%
- 75%
- 100%

**CHILDREN**

Medical consultation.

preferably mouth-to-mouth if possible

osial damage may contral indicate the

calling a poison control center or a

**STATEMENTS.**

Reg. No. 484-888  
 St. No. 10352-WV-2 (A), 4 4-WV-1 (B)  
 allow pails in pallets, all drums; bulk  
 5 gallon pails only

ANY

#02107

L90223 (G-86/84)  
 Made in USA  
 PEO704

INNER SIZE

DATE

4 POUNDS

WEIGHT

involving this product, call

## 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 dust-eliminating components.

UCARCIDE™ 25 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™ 25 Antimicrobial. Under these conditions blowdown should be discontinued for up to 24 hours.

UCARCIDE™ 25 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 24 to 48 fluid ounces of UCARCIDE™ 25 Antimicrobial per 1,000 gallons of water in the system. Repeat until control is achieved.

**Subsequent Dose:** When microbial control is evident, add 9.6 to 24 fluid ounces of UCARCIDE™ 25 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 24 to 48 fluid ounces of UCARCIDE™ 25 Antimicrobial per 1,000 gallons of water in the system.

**Subsequent Dose:** Maintain this treatment level by starting a continuous feed of 4.2 to 24 fluid ounces of UCARCIDE™ 25 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™ 25 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 Steamizers and Retorts, and Pasteurizers and Warmers and Once-Through Cooling Water Systems)

UCARCIDE™ 25 Antimicrobial should be added 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™ 25 Antimicrobial should be added to a wastewater system or sludge at a convenient point of uniform mixing such as the digester. Add 10.8 to 54 fluid ounces (0.63 pints to 3.4 quarts) (900 to 4,500 ppm) UCARCIDE™ 25 Antimicrobial per 100 gallons of wastewater or sludge.

### MACROFOULING CONTROL

\*Not for use in the state of California

UCARCIDE™ 25 Antimicrobial should be added continuously to maintain a level of 20 ppm active ingredient in the system for a period of at least 96 hours.

**Initial Dose:** When macrofouling is present in the system, apply 9.6 fluid ounces of UCARCIDE™ 25 Antimicrobial per 1,000 gallons of water in the system. Continue to add as needed to maintain the 20 ppm active ingredient level for a period of at least 96 hours.

### PAPER MILLS AND PAPER MILL PROCESS WATER SYSTEMS

UCARCIDE™ 25 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 1.0 to 6.0 lbs of UCARCIDE™ 25 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 0.6 to 4.0 lbs of UCARCIDE™ 25 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 0.2 to 1.2 lbs. of UCARCIDE™ 25 Antimicrobial per 1,000 lbs. dry powder to produce a concentration of 200 to 1200 ppm as product (based on slurry solids) in the mixed slurry.

### WATER BASED COATINGS

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

Use from 0.2 to 1.2 lbs. of UCARCIDE™ 25 Antimicrobial per 1,000 lbs. dry powder to produce a concentration of 200 to 1,200 ppm as product (based on slurry solids) in the mixed slurry.

### AQUEOUS METALWORKING FLUIDS

UCARCIDE™ 25 Antimicrobial should be added to a metalworking fluid system at a point of uniform mixing such as the fluid sump or tank. Additions may be made intermittently (SLUG DOSE) at intervals of one week or less.

**Initial Dose:** When the system is noticeably fouled apply 4.8 to 14.4 fluid ounces (100 to 300 ppm active) of UCARCIDE™ 25 Antimicrobial per 100 gallons of metalworking fluid to the system. Repeat until control is achieved.

**Subsequent Dose:** When microbial control is evident, add 1.9 to 9.6 fluid ounces (40 to 200 ppm active) of UCARCIDE™ 25 Antimicrobial per 100 gallons of metalworking fluid to the system weekly, or as needed, to maintain control. Badly fouled systems should be cleaned before treatment begins.

### WATER BASED CONVEYOR LUBRICANTS

(Bread, 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 2.4 to 14.4 fluid ounces (50 to 300 ppm active) of UCARCIDE™ 25 Antimicrobial per 100 gallons of diluted lubricant.

### GENERAL PRESERVATIVE USE

UCARCIDE™ 25 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™ 25 Antimicrobial to the product formulation at a rate of 0.04% to 0.4% based on the water content of the product (0.4 to 4.0 lbs UCARCIDE™ 25 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™ 25 Antimicrobial to the product formulation at a rate such that the diluted end-use product will contain 0.04% to 0.40% UCARCIDE™ 25 Antimicrobial.

At no time during the preservation process should the level of UCARCIDE™ 25 Antimicrobial exceed 4.0%.

### REVERSE OSMOSIS MEMBRANES

For effective preservation of reverse osmosis elements (where approved for compatibility by membrane manufacturer), immerse elements in a tank containing 0.4% to 4.0% UCARCIDE™ 25 Antimicrobial.

UCARCIDE™ 25 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 0.4% to 4.0% UCARCIDE™ 25 Antimicrobial to the tank in the circulating system. Maintain the concentration of UCARCIDE™ 25 Antimicrobial by periodic addition to counteract any system leakage.

### CONCRETE ADMIXTURES

For effective preservation of concrete admixtures, add UCARCIDE™ 25 Antimicrobial to the product formulation at a rate of 4,000 to 16,000 ppm based on the weight of the admixture (4.0 to 16.0 lbs UCARCIDE™ 25 Antimicrobial per 1,000 lbs concrete admixture). Mix uniformly.

### WATER FLOODS

UCARCIDE™ 25 Antimicrobial should be added to a water flood system at a point of uniform mixing.

**Initial Treatment:** When the system is noticeably contaminated, add 200 to 10,000 ppm UCARCIDE™ 25 Antimicrobial to the system (0.2 to 9.4 gallons UCARCIDE™ 25 Antimicrobial per 1,000 gallons flood water). Repeat until control is achieved.

**Subsequent Dose:** When microbial control is evident, add 40 to 10,000 ppm UCARCIDE™ 25 Antimicrobial (0.04 to 9.4 gallons UCARCIDE™ 25 Antimicrobial per 1,000 gallons flood water) to the system weekly, or as needed to maintain control.

### DRILLING, COMPLETION, AND WORKOVER FLUIDS

UCARCIDE™ 25 Antimicrobial should be added to a drilling fluid system at a point of uniform mixing such as the circulating mud tank.

**Initial Treatment:** Add 100 to 2,000 ppm UCARCIDE™ 25 Antimicrobial (0.4 to 7.9 gallons UCARCIDE™ 25 Antimicrobial per 100 barrels of fluid) to a freshly prepared fluid depending on the severity of contamination.

**Maintenance Dosage:** Maintain a concentration of 100 to 2,000 ppm UCARCIDE™ 25 Antimicrobial by adding 0.4 to 7.9 gallons of UCARCIDE™ 25 Antimicrobial per 100 barrels of additional fluid, or as needed, depending on the severity of contamination.

### PACKER FLUIDS

UCARCIDE™ 25 Antimicrobial should be added to a packer fluid at a point of uniform mixing such as a circulating holding tank. Add 100 to 1,200 ppm UCARCIDE™ 25 Antimicrobial (0.4 to 4.7 gallons UCARCIDE™ 25 Antimicrobial per 100 barrels of fluid) to a freshly prepared fluid depending on the severity of contamination. Seal the treated packer fluid in the well between the casing and production tube.

### GAS PRODUCTION AND TRANSMISSION PIPELINES AND SYSTEMS

UCARCIDE™ 25 Antimicrobial should be added to a gas production or transmission pipeline via direct injection. The application should be conducted to ensure maximum distribution of the UCARCIDE™ 25 Antimicrobial through the entire internal surface of the pipeline. To facilitate application, it may be desirable to dilute the UCARCIDE™ 25 Antimicrobial with an appropriate solvent immediately before use. 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™ 25 Antimicrobial to produce a concentration of 1,000 to 10,000 ppm UCARCIDE™ 25 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 dips should be treated with a sufficient quantity of UCARCIDE™ 25 Antimicrobial to produce a concentration of 400 to 4000 ppm UCARCIDE™ 25 Antimicrobial when diluted by the water present in the dip. Injections should be repeated yearly, or as needed to maintain control.

### HYDROTESTING

Water used to hydrotest pipelines or vessels should contain 200 to 8,000 ppm UCARCIDE™ 25 Antimicrobial (0.2 to 7.5 gallons UCARCIDE™ 25 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™ 25 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™ 25 Antimicrobial should be added to produce a concentration of 0.2 to 2.0% (0.2 to 1.9 gal UCARCIDE™ 25 Antimicrobial per 100 gallons water), depending on the length of the pipeline and the severity of biofouling.