UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

21164-6 5-8-2002 1/6

MAY - 8 2002

Roger E. Etherington
Vulcan Performance Chemicals
1200 Urban Center Drive
Birmingham, AL 35242

Subject: *Atka Klor 25*
EPA Registration No. 21164-6
Resubmission Dated February 5, 2002

Dear Mr. Etherington:

The original application was for a amendment to add instructions for generation of chlorine dioxide stock solution by activation in place.

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act, as amended, is acceptable with the conditions listed below.

Conditions

1. *The Directions for Use heading should be below the Storage and Disposal section.*

2. *Revise the Physical and Chemical Hazards Statement to read:*

   "DO NOT mix with acids or other chemicals except as indicated for the activation of this compound. Mixing acid or other chemicals may cause evolution of chlorine dioxide gas, which is poisonous and explosive."

   The proposed language was contradictory to the "Mechanical Generation of Chlorine Dioxide" section that required the use of chlorine gas, or a hypochlorite and an acid.

3. *You must add the following phrase to the beginning of the "Food Contact Surfaces" section of the label. " The only activation method that can be used in conjunction with food contact surfaces is FOAM ADD 10."*

4. *Correct the typographical in the first sentence of the application for Sanitization of Food Contact Surfaces to read: ". . .accomplished by manually* ***combining*** *. . ."*

CONCURRENCES

SYMBOL	7510C							
SURNAME	Miller							
DATE	5/8/02							

EPA Form 1320-1A (1/90) Printed on Recycled Paper OFFICIAL FILE COPY

5. *Correct the typographical in the last sentence of the application for Sanitization of Food Contact Surfaces to read: " . . .sanitized surfaces with food or **feed** items. . ."*

6. *The current accepted label for this product has the combine application of 15 oz. of FOAM ADD 10 with 0.75 oz of AKTA KLOR 25. The proposed label combines 15 oz. of FOAM ADD 10 with 2.5 oz of AKTA KLOR 25 without an explanation is to why this change was deemed necessary. The label must return to the 0.75 oz until information or data can be provide to make the change.*

7. *The last paragraph under Sanitization of Food Contact Surfaces should appear just below the Directions for Use.*

8. *The last of the second paragraph under the Feed Requirements should read "The generation system employed should be in good working order **and capable of achieving chlorine dioxide solutions free from chlorine contamination**."*

9. *This product has directions for use for chilled waters, however you have added ice-making under the potable water and wastewater disinfection. There are inadequate directions for this use to be added to label, and the use must removed.*

10. *The residual concentration of chlorine dioxide in process water on fruits and vegetable under the "Food Processing Plants, Dairies, Bottling Plants and Breweries" has been changed from 5ppm to 3ppm without an explanation. The ppm level must remain at 5ppm, unless you can provide information to support the change.*

11. *A brine cooling system has been added to the directions for under "Food Processing Plants, Dairies, Bottling Plants and Breweries" this use cite has not been accepted for this product and must be removed from the label.*

A stamped copy of the label is enclosed for your files. Submit one copy of the final printed label prior to release of the product for shipment.

If you have any questions concerning this letter, please contact Wanda Mitchell at (703) 308-6345.

Sincerely,

Robert S. Brennis
Product Manager 32
Regulatory Management Branch II
Antimicrobials Division (7510C)

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AKTA KLOR 25

CHLORINE DIOXIDE PRECURSOR FOR MICROBIAL CONTROL IN WATER AND WASTEWATER AND ON HARD SURFACES

ACTIVE INGREDIENTS:	
Sodium Chlorite	25%
INERT INGREDIENTS	75%
TOTAL	100%

KEEP OUT OF REACH OF CHILDREN

DANGER

FIRST AID

If in eyes:
- Hold eye open and rinse slowly and gently with water for 15-20 minutes.
- Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
- Call a poison control center or 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 doctor for treatment advice if burning or irritation of the skin persists.

If swallowed:
- Drink large quantities of water.
- DO NOT induce vomiting.
- Call a poison control center or doctor immediately for treatment advice.
- Do not give anything by mouth to an unconscious person.

If inhaled:
- Move person to fresh air and monitor for respiratory distress.
- If cough or difficulty in breathing develops, consult a physician immediately.
- If person is not breathing, call 911 or an ambulance, then give artificial respiration.
- Call a poison control center or doctor for further treatment advice.

NOTE TO PHYSICIAN

Probable mucosal damage may contraindicate the use of gastric lavage.

ACCEPTED
with COMMENTS
In EPA Letter Dated:
MAY - 8 2002

Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide, registered under EPA Reg. No. 21164-6

MANUFACTURED BY:

Vulcan
Performance Chemicals
P. O. Box 385015, Birmingham, AL 35238-5015

EPA Reg. No. 21164-6

EPA Est. No. 5382-KS-01
70547-IL-01

Net Contents: _____ gal (_____ liters)

VMC-6460 (9/01)

PRECAUTIONARY STATEMENTS

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HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER: Corrosive. Causes eye and skin damage. Harmful if swallowed. Irritating to nose and throat. Avoid breathing vapor. Do not get in eyes, on skin or clothing. Wear goggles or face shield, rubber gloves and protective clothing when handling. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

ENVIRONMENTAL HAZARDS

This product is toxic to fish and aquatic organisms. 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 OR CHEMICAL HAZARDS

DO NOT mix with acids or other chemicals except water. Mixing with acid or other chemicals may cause evolution of chlorine dioxide gas, which is poisonous and explosive.

DIRECTIONS FOR USE

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

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

Storage: Store this product in a cool, dry area away from direct sunlight and heat to avoid deterioration. In case of spill, flood the area with large quantities of water.

Pesticide Wastes: 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: Triple rinse (or equivalent) all containers. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

SANITIZATION OF FOOD CONTACT SURFACES

Use AKTA KLOR 25 in combination with FOAM ADD 10 to generate chlorine dioxide containing foam solution for use as a terminal no-rinse sanitizer for food contact surfaces, food processing equipment and utensils. Prior to application of the sanitizing foam, remove gross food particles and soil by a pre-flush or pre-scrape, and when necessary, a pre-soak treatment. Then thoroughly wash all equipment, surfaces and utensils with a suitable detergent or cleaner, followed by a potable water rinse.

Application of the foam sanitizing solution can be accomplished by manually combing 15 oz. of FOAM ADD 10 with 0.75 ~~2.5~~ oz. of AKTA KLOR 25, gently mixing for ten minutes and then immediately diluting with water to ten gallons. Alternatively, use the *Rio Linda Chemical Portable Foamer* or a centrally located installed system to mix the components, at the use levels noted above. Cover the entire area being treated with the foam sanitizer to a depth of ¼-1". A contact time of at least one minute is required for sanitization. Allow the foam sanitizer to thoroughly drain and dry from all equipment and surfaces prior to recontact of the sanitized surface with food or fee items.

The efficacy of AKTA KLOR 25 was demonstrated to be equivalent to that of ≥ 200 ppm NaOCl when tested against *Salmonella typhi.*

MECHANICAL GENERATION OF CHLORINE DIOXIDE

AKTA KLOR 25 may be used in the mechanical generation of chlorine dioxide for use in controlling microorganisms in water and wastewater systems. AKTA KLOR 25 is fed to chlorine dioxide generation equipment, which produces an aqueous solution of chlorine dioxide by one of the following methods of generation:

(1) The chlorine method, which uses AKTA KLOR 25 and chlorine gas; or
(2) The hypochlorite method, which uses AKTA KLOR 25 and a combination of a hypochlorite solution, and an acid,

Your Vulcan Performance Chemicals representative can guide you in the selection, installation and operation of generation systems. Consult the instructions on the chlorine dioxide generation system before using AKTA KLOR 25.

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FEED REQUIREMENTS

Feed rates of AKTA KLOR 25 will depend on the severity of contamination and the degree of control desired. The exact dosage will depend on the size of the system and residual necessary for effective control. Depending on the generator type, AKTA KLOR 25 may be diluted at the point of use to prepare a 3% to 7.5% active aqueous solution for use in chlorine dioxide generators.

In all cases, generated chlorine dioxide solution should be applied in such a manner to ensure adequate mixing and minimal volatilization. The water stream to be treated may either be passed directly through the chlorine dioxide generator or treated via side stream injection point. The generation system employed should be in good working order and capable of achieving chlorine dioxide solutions free from chlorine contamination.

Generally, for water treatment, the chlorine dioxide solution is applied to achieve residual concentrations of 10 ppm or less. Because of the variability of demand in water and process systems, the dosage of chlorine dioxide required to achieve the target residuals is normally lower for continuous feed systems than for slug or timed feed applications. The minimum acceptable residual for chlorine dioxide, as determined by a verified procedure, is 0.1 ppm for a minimum one minute contact time.

Residual determination procedures should be substantiated methods and should also be specific for chlorine dioxide or used in systems where no chlorine contamination is possible. Do not add AKTA KLOR 25 directly to process water.

APPLICATIONS

POTABLE WATER AND WASTEWATER DISINFECTION: For most municipal and other potable water systems ~~including ice-making~~, a chlorine dioxide residual concentration up to 2.0 ppm is sufficient to provide adequate disinfection. Residual infectant and disinfection byproducts must be monitored as required by the National Primary Drinking Water Regulations (40 CFR Part 141) and state drinking water standards. For wastewater and sewage applications, residual chlorine dioxide concentrations up to 5.0 ppm are generally adequate.

FOOD PROCESSING PLANTS, DAIRIES, BOTTLING PLANTS, AND BREWERIES: For microbial control in typical food processing water systems, such as flume transport, chill water and ~~brine cooling systems~~, hydrocoolers, beverage and brewery pasteurizers and bottle rinsing and other water systems, apply AKTA KLOR 25 through a chlorine dioxide generation system to achieve a chlorine dioxide residual concentration ranging from 0.25 to 5.0 ppm.
Water, containing up to 5 ppm residual chlorine dioxide may be used for washing fruits and vegetables. Treatment of the fruits and vegetables with chlorine dioxide must be followed by a potable water rinse, or by blanching, cooking or canning.

POULTRY PROCESSING WATER: Use AKTA KLOR 25 to generate chlorine dioxide for use as an antimicrobial agent in water used in poultry processing in an amount not to exceed 3 ppm residual chlorine dioxide as determined by an appropriate method.

AQUEOUS DISINFECTION SYSTEMS FOR CIP CLEANING: If the concentration of chlorine dioxide generated from AKTA KLOR 25 exceeds 5.0 ppm, a potable water rinse should follow treatment. Care should be taken to ensure the biological and chemical quality of the potable water.

GENERAL INDUSTRIAL PROCESS WATER TREATMENT (OILFIELD INJECTION WATER, WHITE WATER PAPER MILL SYSTEMS, AND RECIRCULATING COOLING TOWERS): For control of microbial slime, these systems will require a chlorine dioxide residual concentration ranging between 0.25 and 5.0 ppm. The AKTA KLOR 25 dosage needed to achieve these levels will vary widely depending on the exact application.

CHLORINE DIOXIDE GENERATION BY ACTIVATION-IN-PLACE

AKTA KLOR 25 may be used in combination with MicroBiox Activator to generate small quantities of chlorine dioxide solutions of known concentration for use in controlling microorganisms in cooling towers and wastewater systems.

ACTIVATION

Akta Klor 25 must be activated prior to use. Follow mixing instructions exactly. Properly measured quantities of Akta Klor 25 solution and MicroBiox Activator must be used in their entirety to produce the desired chlorine dioxide concentration. Hazardous gas may evolve if less than the required quantity of water is used.

To prepare a STOCK solution containing 3,000 mg/L chlorine dioxide, fill a clean container with a measured quantity of water. Meter Akta Klor 25 into the water at a rate of 14.8 ml per liter of water. Add 13.8 g of MicroBiox Activator per liter of water and mix thoroughly until all solids are fully dissolved. Avoid breathing vapors, mix in a well-ventilated area.

MicroBiox Activator is prepackaged in quantities to activate a specific quantity of diluted AktaKlor 25 solution. See table below for standard volumes.

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DILUTION/ACTIVATION TABLE		
Water	**AktaKlor 25**	**MicroBiox Activator**
1 L	14.8 ml	13.8 g
1 gal (3.785 L)	56. ml	52.2 g
5 gal (18.925 L)	280. ml	261.1 g
10 gal (37.85 L)	560.2 ml	522.3 g
25 gal (94.625 L)	1400.4 ml	1305.8 g
30 gal (113.55 L)	1680.5 ml	1567. g
50 gal (189.25 L)	2801 ml	2611.6 g

The chlorine dioxide STOCK solution produced using this table contains 3,000 mg/L chlorine dioxide, and must be diluted prior to use following the feed rate calculations below.

APPLICATIONS

RECIRCULATING COOLING TOWERS: For control of microbial slime and algae, these systems will require a chlorine dioxide residual concentration ranging between 0.05 and 5.0 ppm. The dosage needed to achieve these levels will vary widely depending on the exact application and the degree of contamination in the cooling tower. To determine the feed rate of the chlorine dioxide STOCK solution use the following formula:

For continuous feed applications:

STOCK solution feed rate (gal/min) =

$$\frac{\text{chlorine dioxide target dose (ppm) x cooling tower recirculation rate (gal/min)}}{\text{STOCK solution chlorine dioxide concentration (ppm)}}$$

For slug dose feed applications:

STOCK solution feed rate (gal) =

$$\frac{\text{chlorine dioxide target dose (ppm) x cooling tower system volume (gal)}}{\text{STOCK solution chlorine dioxide concentration (ppm)}}$$

WASTEWATER DISINFECTION: For wastewater and sewage applications, residual chlorine dioxide concentrations up to 5.0 ppm are generally adequate. The dosage needed to achieve these levels will vary widely depending on the exact application. To determine the feed rate of the chlorine dioxide STOCK solution use the following formula:

For continuous feed applications:

$$\text{STOCK solution feed rate (gal/min)} = \frac{\text{chlorine dioxide target dose (ppm) x water flow rate (gal/min)}}{\text{STOCK solution chlorine dioxide concentration (ppm)}}$$

For slug dose applications:

$$\text{STOCK solution feed rate (gal)} = \frac{\text{chlorine dioxide target dose (ppm) x volume of water to be treated (gal)}}{\text{STOCK solution chlorine dioxide concentration (ppm)}}$$

Please consult your Vulcan Performance Chemicals representative for assistance in determining the correct dosage level.