8820 Old Hwy 99 SE, Tumwater, Washington 98501, USA 360-943-6063 800-562-6184 FAX 360-352-4813 www.ch2o.com **Product Bulletin**

BIO-TROL 20 BIO-GUARD TREATMENT Industrial Antimicrobial

APPLICATION

Cooling towers provide a near-ideal environment for microbial proliferation. Warm water temperatures, nutrients, and constant exposure to the surrounding air encourage growth and virtually assure ongoing contamination by microorganisms. The U.S. Public Health Service Center for Disease Control & Prevention (CDC) has identified some of these organisms to cause human illness or death. OSHA Technical Manual Section III - Chapter 7 states that biocide control of such organisms is needed.

Unchecked microbial growth may also cause a rapid loss of heattransfer efficiency by fouling piping, nozzles, process heat exchangers, and drift eliminators. Growth under deposits or slime masses can yield accelerated localized corrosion of system metal components. These problems, due to growth and development of algae, bacteria, and fungi greatly reduce efficiency in a system and significantly increase operating costs.

Microbial organisms in nature vary considerably as a hazard to human health and in susceptibility to any particular bactericide. CH2O's BIO-GUARD series offers a wide variety of biocide products, which have been shown effective against microorganisms found in cooling tower waters.

WATERBORNE PATHOGENS

Legionella bacteria and other pathogens may be present in water systems. Application of a microbicide does not guarantee the absence of such pathogens, nor is it possible or reasonable to eliminate all risk of infection. Users should develop a comprehensive water management plan in accordance with ANSI/ASHRAE Standard 188, OSHA guidelines (OSHA Technical Manual Section III: Chapter 7), and other guidelines applicable to the specific facility/system. CH2O, Inc. recommends that testing for legionella bacteria be incorporated in the facility's water management plan.

DIRECTIONS FOR USE

BIO-TROL 20 aids in controlling microbial growth in industrial and/or commercial recirculating cooling water systems, heat transfer systems, service water and auxiliary systems, air washer systems, industrial fresh water systems, solutions/emulsions, and industrial wastewater systems. Review label for specific directions and restrictions for each of these systems.

BIO TROL 20 is noncorrosive and does not contain heavy metals.

DIRECTIONS FOR USE...continued

BIO-TROL 20 is effective over a wide pH and temperature range. It is noncorrosive, non-foaming, and does not contain heavy metals

FEEDING TECHNIQUE

BIO-TROL 20 should be added to the water treatment system at a point of uniform mixing such as the basin area. For cooling systems greater than 4000 gallons, do not apply by open pouring of liquid; a metering pump delivery system is required for this use and application method.

SAFETY & HANDLING PROCEDURE

When handling BIO-TROL 20, it is important to avoid contact with the liquid and inhalation of the vapors. Wear long-sleeved shirt and pants or coveralls, goggles or face shield and chemical resistant gloves when handling. Review label and SDS for further details on safety and handling guidance.

DOSE & CONTROL (cooling water systems)

Dirty systems must be cleaned prior to treatment.

Initial Slug Dose: Add 350 - 1312.5 ppm of BIO-TROL 20, based on total water volume. Repeat until control is obtained. Thereafter, add either intermittently or continuously each day.

Intermittently: 131.25 - 525 ppm of BIO-TROL 20 Continuously: 70 - 245 ppm of BIO-TROL 20

Contact your CH2O water treatment specialist or an independent laboratory for further information on analytical testing. Daily testing is recommended to maintain proper control. Failure to monitor and maintain treatment levels can cause damage and/or health issues. In addition to monitoring and maintaining treatment levels, it is the customer's responsibility to ensure the product is fit for its intended application.

ACTIVE INGREDIENT

retrakis (nydroxymetnyi) pnospnonium suirate	2070
PHYSICAL PROPERTIES	

pH of 1% Solution......3-4 Pounds per Gallon......8.9-9.4 Physical Appearance......Clear, colorless liquid Odor......Mild Flash Point>212°F

Seller Warranty

CH₂O brand test reagent refills are available through your sales representative at no charge. Customers are required to confirm product compatibility via a control test for their specific application. CH₂O recommends that you perform regular/daily testing to control chemical levels and cycles of concentration within established limits. Additional tests may be performed at your request. Test reports reflect conditions at the point when the analysis was performed. Results will change over time and with varying operating conditions.

Seller warrants that this product conforms to its chemical description and is reasonably fit for the purpose referred to in the product data sheet. Buyer is responsible to ensure that products product dosages are appropriate for Buyer's particular application. Seller makes no other warranty or representation of any kind, express or implied, concerning the product, including NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS OF THE GOODS FOR ANY OTHER PARTICULAR PURPOSE. No such warranties shall be implied by law and no agent of seller is authorized to alter this warranty in any way except in writing with a specific reference to this warranty. The exclusive remedy against seller shall be a claim for damages not to exceed the purchase price of the product, without regard to whether such a claim is based upon breach of warranty or tort. Jurisdiction for any issues arising from or relating to this product shall be in the courts of the State of Washington and the venue shall be Thurston County. Any controversy or claim arising out of or relating to this contract, or breach thereof, shall be settled by arbitration in accordance with the rules and procedures as stated in RCW 7.06 and shall be binding upon both parties without right to appeal, and judgment upon the award rendered by the Arbitrator(s) may be entered in any court having

Applies to all products sold by CH₂O, Inc., and is hereby communicated to all of its customers as a condition of sale. Use of CH₂O products is subject to the Standard Terms and Conditions as



