Lactrol®

PRODUCT GUIDELINES

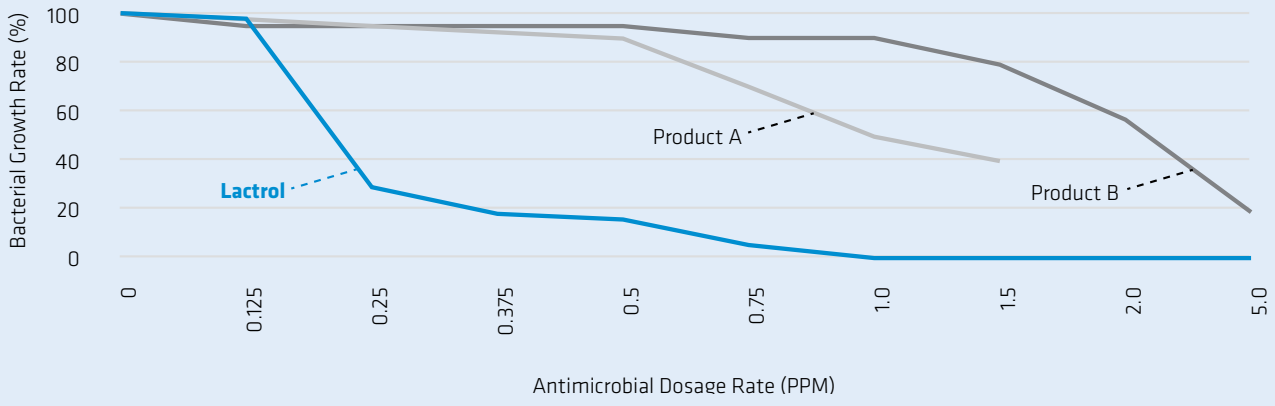
Lactrol® is a proven and trusted antimicrobial formulated specifically for the fuel ethanol industry. This top-quality product has a long history of use, and is one of the most widely used antimicrobials across the fuel ethanol industry. *Lactrol* contains a highly concentrated (100 percent activity strength) antibiotic, Virginiamycin, which inhibits bacterial protein synthesis. In addition to containing a powerful antimicrobial agent, *Lactrol* remains stable and effective throughout fermentation, making it a very high-quality antimicrobial.

Demonstration of Performance

A comprehensive bacterial analysis was completed using mash collected from an operating fuel ethanol facility. Minimum Inhibitory Concentration (MIC) testing was conducted for various levels of *Lactrol* and two competitive antimicrobial products.

- The data represents whole-mash incubation, which likely includes multiple bacterial strains. The readings were analyzed after 24 hours of incubation.
- Performance was measured by the bacteria's ability to grow in the presence of the antimicrobial. The scale below represents a percentage of bacterial growth. 100 percent growth indicates that the antimicrobial products are not effective, while 0 percent growth indicates total control by the antimicrobial.
- *Lactrol* showed superior control over bacterial growth in comparison to competitive products. Even at low dose rates, *Lactrol* greatly impacts bacterial growth.

Bacterial Growth MIC by Antimicrobial Product



What is *Lactrol*?

Lactrol is a dry-formulation antimicrobial that is specific for use in ethanol production. *Lactrol* is soluble in ethanol and dispersible in water. *Lactrol* is 100 percent active, and consists of two factors that work together to provide superior protection against bacterial populations common to the ethanol industry. *Lactrol* is effective for both regular maintenance and emergency conditions to treat Gram-positive bacteria.

How does *Lactrol* work?

Virginiamycin, the active ingredient in *Lactrol*, stops normal protein synthesis in Gram-positive bacteria (such as Lactobacillus sp.) often present during ethanol fermentation. Virginiamycin has a natural distribution of two molecules (M&S factors) that inhibit protein synthesis at two different ribosomal subunit locations in the bacterial cell, which disrupts bacterial cell function and can lead to cell death.

Dosage and Direction for Use

Lactrol is typically added to the yeast propagator and/or fermenter prior to or during fermentation for Gram-positive bacterial control. Normal recommended dosage rates are between 0.25 ppm and 2.0 ppm, dependent upon the level of bacteria present. The concentration is calculated using the ratio of 1 ppm equals 1 pound in 108,000 gallons of mash.

Regulatory

Lactrol is Generally Recognized As Safe (GRAS) and therefore suitable for use under the Food Safety Modernization Act (FSMA).

GRAS GENERALLY RECOGNIZED AS SAFE

Packaging

Lactrol is available in 50-pound (22.7-kg) drums and ½- or 1-pound (227 or 454 g) water-soluble bags.

Shelf Life

The product has a shelf life of three years and must be stored dry and at room temperature.

Activity

408.6–499.4 g activity/lb (100% activity)

Appearance

Brown uniform mixture

Kosher Status

Certified Kosher Pareve

Solubility

Soluble in water

Safety and Handling

Hazard Statements

- May cause allergy or asthma symptoms or breathing difficulties if inhaled
- May cause an allergic skin reaction

Precautionary Statements – Prevention

- Refer to safety data sheet and product label

Precautionary Statements – Response

- Refer to safety data sheet and product label

Call your Phibro representative today to see if *Lactrol*® is right for you.

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Cleaning Products • Yeast

A Division of Phibro Animal Health Corporation • 300 Frank W. Burr Blvd., Ste 21, Teaneck, NJ 07666-6712
EthanolPerformanceGroup.com • 1-800-223-0434 • 201-329-7300 • Fax 201-329-7034