



## PRODUCT LINE CARD

Archangel specializes in both antibiotic and non-antibiotic antimicrobial technology for fermentation, propagation, upstream and downstream ethanol processes. Archangel personnel have over 25 years of experience in the ethanol/beverage industry with numerous antimicrobial and process patents.

### ANTIBIOTIC BASED

(FUEL ETHANOL FERMENTATION)

#### ENOCK V

(VIRGINIAMYCIN)

- Virginiamycin based antimicrobial formulation designed to control contaminating bacteria by interfering with protein synthesis at the ribosomal level.

#### ENOCK V-MAXX

(VIRGINIAMYCIN)

- Maximum strength Virginiamycin formulation intended for use in propagation and fermentation applications.

#### ENOCK P

(PENICILLIN)

- Single component antimicrobial that controls contaminating bacteria by inhibiting cell wall synthesis.

#### ENOCK ZX

- Powerful macrolide fermentation antibiotic effective against both gram-positive and gram-negative bacteria via bacterial protein synthesis inhibition.

#### ENOCK E

(ERYTHROMYCIN)

- Single component antimicrobial containing Erythromycin. Erythromycin is effective against a wide range of gram-positive bacteria that commonly infect fuel ethanol fermentations as well as specific classes of bacteria not well controlled by Virginiamycin.

#### ENOCK 365

(PROPRIETARY AND CUSTOMIZABLE BLEND)

- Combination of antibiotics that inhibit a broad range of both gram-negative and gram-positive fermentation contaminants. ENOCK 365 can be customized to a specific plant requirement depending on the category of competing bacterial flora.

Antibiotic Packaging: 0.5 lb or 1 lb. water soluble packaging in 25kg fiber drums.



### NON-ANTIBIOTIC BASED AND FRONT END ANTIMICROBIALS

#### DEFENDER

(PROPRIETARY)

- Gram-negative/gram-positive antimicrobial solution designed for utilization in beverage and fuel ethanol fermentations. The Defender byproducts are natural — amino acids, urea, and ethanol.

#### ENOCK ENHANCE

(3000 PPM CHLORINE DIOXIDE SOLUTION)

- Designed for use in final CIP rinse and front end applications, primarily heat/beer mash exchangers, scrubbers, fermentation fill lines, etc. Superior to iodine in disinfection.

#### ENOCK SSC

(15% SODIUM CHLORITE)

- Antimicrobial solution designed for application at start of fermentation, utilizing the fermentation process to create low levels of chlorine dioxide for antimicrobial control.

### PROPAGATION AID

#### ENOCK YVE-013

- Proprietary technology that stimulates yeast growth and reduces gram-negative bacteria in the propagation sequence of both beverage and fuel ethanol processes.

Hydrite Chemical is the licensee for Defender and YVE-013.

### LABORATORY SERVICES

Archangel provides value-added laboratory services to aid in the speciation and location of bacteria to achieve economical microbiological control.



The Chemistry of Good®