

Fuel Ethanol Products



Lallemand Biofuels & Distilled Spirits is the industry leader in supplying fermentation products and value-added services to the ethanol industry. We specialize in the research, development, production and marketing of yeast, yeast nutrients and antimicrobial agents.

A vital part of the ethanol production process, fermentation products from Lallemand Biofuels & Distilled Spirits have been designed and selected to create value by tailoring objective solutions to ethanol plant needs.

LIQUID YEAST

TransFerm® YP3

An advanced and improved (relative to TransFerm Yield+) strain of *Saccharomyces cerevisiae* that expresses glucoamylase (GA) enzyme and reduces glycerol production. Fuel ethanol production facilities using TransFerm YP3 often experience ethanol yield improvements of around 4% over standard dry yeast, a reduction in glycerol of over 50% and a reduction of separately purchased GA enzyme by 35% when compared to conventional industry yeasts.

TransFerm® RB3

Designed to be robust, TransFerm RB3 is an advanced and improved (relative to TransFerm Yield+) strain of *Saccharomyces cerevisiae* that expresses glucoamylase (GA) enzyme and reduces glycerol production. Fuel ethanol production facilities using TransFerm RB3 often experience ethanol yield improvements of around 4% over standard dry yeast, a reduction in glycerol of over 45% and a reduction of separately purchased GA enzyme by 35% when compared to conventional industry yeasts.

Liquiferm®

Highly active fresh cream yeast with added stabilizers for three-month refrigerated shelf life. Shorter lag time allows for direct pitching of fermentors. Can also be added to a conditioning vessel.

CELLULOSIC YEAST

C5 FUEL™

An advanced strain of *Saccharomyces cerevisiae* able to ferment xylose with a high ethanol yield in the presence of inhibitory compounds. It is used in the production of fuel ethanol from cellulosic substrates.

XyloFerm®

A robust prototrophic yeast strain for producing ethanol from C6 and xylose streams. XyloFerm® offers minimal by-product formation with a high tolerance for inhibitors common with cellulosic substrates.

DRY YEAST

Bio-Ferm® XP

Bio-Ferm® XP is a premium yeast that is optimally suited for the batch production of fuel, beverage, and industrial alcohol. Bio-Ferm® XP demonstrates exceptional fermentation characteristics in terms of its ability to tolerate high temperatures, high solids (osmotic stress) and ethanol toxicity.

C6 FUEL™

C6 FUEL™ contains a specially selected strain of *Saccharomyces cerevisiae* distillers' yeast well-suited for use in higher solids fermentations. It's more tolerant to temperature, alcohol and higher sugar concentration than most "normal" strains of ADY improving productivity and efficiency to produce more alcohol in less time.

THERMOSACC® Dry

Active dry yeast for use in high gravity fermentations with higher temperatures. Specifically selected to tolerate higher sugar and alcohol concentrations.

Superstart™

Highly concentrated active dry yeast selected for rapid start of fermentation and strong stress tolerance. Designed for continuous fermentation systems.

46 EDV

Active dry yeast specifically selected for beet and cane substrates. High yield capability and low production of higher alcohols.

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ANTIMICROBIALS

Lactoside V™

Powdered blend containing Virginiamycin. Very effective at controlling gram positive bacteria. Used for contamination control in fermentation

Bactenix® V300

A standard activity antimicrobial containing Erythromycin. It is effective against a wide range of gram positive bacteria that commonly infect fuel ethanol fermentations as well as certain species of *Pediococcus* that are not efficaciously controlled by Virginiamycin and Penicillin.

Bactenix® V60

A standard activity antimicrobial containing Penicillin. It is effective against a wide range of gram positive bacteria that commonly infect fuel ethanol fermentations.

Lactoside 247™

Powdered blend of multiple antibiotics designed to inhibit bacterial growth and eliminate infections. Very effective at controlling gram positive bacteria.

Bactinex® V50

A powdered antimicrobial consisting of Potassium Pen G, Streptomycin and Virginiamycin. It is effective against a wide range of gram positive bacteria that commonly infect fuel ethanol fermentations.

YEAST NUTRITION

AYF 1000™

Powdered combination of nitrogen (organic and inorganic), enzymes and trace minerals designed for yeast growth and reproduction. Aids in extending the yeast budding period.

AYF 1177™

Liquid combination of natural plant extracts and trace minerals designed to provide yeast with proper nutrition balance. Improves both fermentation yield and efficiency through the provision of optimal physiological conditions for the yeast.

Nutri-Plex™ Plus

A proprietary yeast nutrient complex that promotes and sustains yeast cell propagation and viability, promoting an active and efficient ethanol fermentation.

Nutri-Plex™ Pro

A yeast nutritional supplement primarily made from proprietary enzymes, unsaturated fatty acid and sterols with essential minerals. Designed to reduce the stress levels on the yeast cell during fermentation.

Nutri-Plex™ Omni

A yeast nutritional supplement primarily made from a proprietary blend of enzymes, basic form of nitrogen through ammonium salt, unsaturated fatty acid and sterols with essential minerals added. Designed for everyday fermentation use in fuel ethanol fermentations using corn, milo, or other whole grain mash.

As the market leader in fermentation products, Lallemand Biofuels & Distilled Spirits is dedicated to helping customers optimize the fermentation process in order to maximize yield and raise efficiencies. Visit www.lbds.com for more information.



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