Technical Data Sheet

LALTEC™ ALDC

Diacetyl is an off-flavor produced during fermentation, and can also reappear after dry-hopping (hop creep). Removing unwanted diacetyl steals tank time by requiring a diacetyl rest and extended maturation period. LalTec™ ALDC helps you stay in control by preventing diacetyl formation from the start, so you can deliver clean-tasting beer consistently, reduce buttery off-flavors and shorten or avoid a diacetyl rest.

LalTec™ ALDC is an advanced, food-grade alpha-acetolactate decarboxylase enzyme produced by *K. phaffii*. It catalyzes the decarboxylation of the diacetyl precursor α-acetolactate into acetoin (a flavorless compound), helping prevent the formation of diacetyl during fermentation.

LalTec™ ALDC is produced by Lallemand, ensuring consistent quality control and a pure product.

PRINCIPLE

Diacetyl is the rancid buttery flavor commonly associated with lagers due to their colder fermentation temperatures.

During active fermentation, yeast excretes α-acetolactate as part of valine synthesis, an essential amino acid required for yeast growth. This α-acetolactate is then non-enzymatically oxidized into diacetyl, which the yeast subsequently reabsorbs. The rate of diacetyl removal is strongly influenced by yeast strain, yeast health, temperature, and contact time with the yeast.

The addition of LalTec™ ALDC enables the direct decarboxylation of α-acetolactate into acetoin, a flavorless compound. By preventing the formation of diacetyl, no diacetyl rest is

BENEFITS

Prevents the formation of diacetyl for consistently cleaner beers

Prevents diacetyl formation due to hop creep (pH dependent)

Reduces maturation time by eliminating the need for a diacetyl rest

Energy savings from reduced cooling during shorter maturation

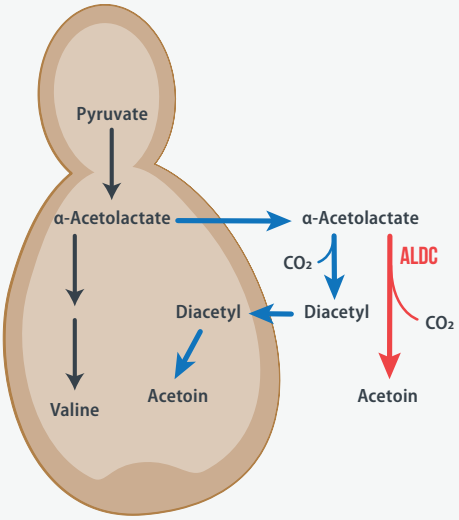
Faster tank turnaround

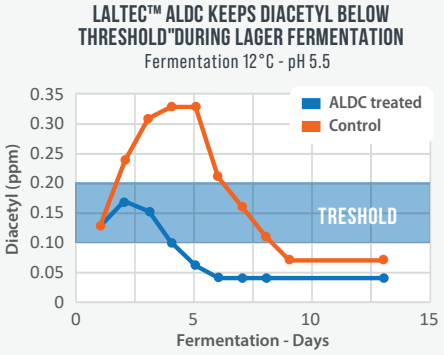
APPLICATION

LalTec™ ALDC should be added to cool wort at the start of fermentation. Measure the required volume into a clean container and dose into the fermentation vessel, ideally during wort transfer, to ensure thorough dispersal. Early addition is essential, so the enzyme is present from the onset of fermentation.

To reduce hop-creep related diacetyl formation, an additional dose of enzyme is required during dry-hopping.

NOTE: LalTec™ ALDC prevents diacetyl formation, but it does not remove diacetyl already present in the beer.





QUICK FACTS

TREATMENT RATES

1.0-1.5 g/hL (10-15 ppm)
at start of fermentation

PHYSICAL FORM

Pale yellow liquid (colour may vary naturally from batch to batch)

DENSITY 1.12

PH 4.3 - 4.7

ACTIVITY

> 2000 units/g

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TREATMENT RATES

TYPICAL DOSAGE:

1.0-1.5 g/hL (10-15 ppm) at start of fermentation

Higher dose rates may be required to prevent diacetyl formation during dry-hopping and will depend on process conditions.

CONFORMITY TO STANDARDS

LalTec™ ALDC complies with the current recommended specifications for food grade enzymes given by the Joint FAO/WHO Expert Committee on Food Additives (JECFA).

The product meets the requirements for use as a processing aid in the food industry and is in compliance with the requirements of the Regulation (EC) No 178/2002 (EU General Food Law).

LalTec™ ALDC is manufactured by fermentation of a microorganism that is improved using modern biotechnology. The production microorganism is not present in the final product.

Considering EU regulations (EC) 1829/2003 and (EC) 1830/2003 on genetically modified food and feed, beer production using LalTec™ ALDC does not make the beer subject to GMO labeling.

Legislation varies from country to country. Local regulations should be consulted.

MICROBIOLOGICAL ANALYSIS

COMPOSITION:

Enzyme protein, glycerol, sodium chloride, zinc chloride, sodium benzoate, potassium sorbate

TOTAL VIABLE COUNT	< 3000 CFU/g
YEAST & MOULD	< 100 CFU/g
COLIFORMS	< 30 CFU/g
E.COLI	absent in 25g
SALMONELLA	absent in 25g
ANTIBIOTIC ACTIVITY	absent

HEAVY METAL ANALYSIS

ARSENIC	< 3 mg/kg
LEAD	< 5 mg/kg
MERCURY	< 0.5 mg/kg
CADMIUM	< 0.5 mg/kg

PACKAGING & STORAGE

LalTec™ ALDC should be stored cool, dry (max 10°C/50°F, do not freeze), and sheltered from direct sunlight. Activity will be maintained for at least 12 months after manufacturing date. Once opened, the container must be handled hygienically, resealed and stored refrigerated.

Available in 1000kg, 25kg, 5kg, 1kg HDPE containers.

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BREWERS CORNER

For more information on our yeasts including:

- Technical Documents
- Best Practices Documents
- Recipes
- Pitch Rate Calculator and other brewing tools

Scan this QR code to visit the Brewers Corner on our website.

CONTACT US

If you have questions, do not hesitate to contact us at **brewing@lallemand.com**. We have a team of technical representatives happy to help and guide you in your fermentation journey.

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