



Scientific & Technical

ENZYMES | INNOVATION | PERFORMANCE

alpha-Amylase (medium temperature)

High-activity food-grade liquid α -amylase for efficient starch liquefaction, viscosity reduction and improved process performance



Designed for reliable performance across **baking, brewing, cereal processing** and **plant-based beverage** applications.



Biofuel



Fruit
Processing



Brewing



Grain
Digestion



Improved
Yields



Bulk
Supply



Rapid starch
liquefaction



Improved process
efficiency



Reliable medium-
temperature activity



Available in
bulk quantities



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Product overview & specification

α-AMYLASE / 02

CUSTOMER VALUE

Controlled starch liquefaction with a practical medium-temperature operating window

This liquid alpha-amylase is designed for the endolytic hydrolysis of gelatinised starch. By cleaving internal alpha-1,4 glycosidic linkages, it rapidly reduces starch-chain length and viscosity, producing shorter-chain dextrins and oligosaccharides for downstream processing.

Rapid viscosity reduction Endolytic action shortens starch polymers quickly during liquefaction.	Broad process fit Operational across pH 3.5–8.0 and 15–65 °C; optimum ranges provide practical trial starting points.	Downstream flexibility Suitable ahead of saccharification, fermentation or other carbohydrate-processing steps.
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Core product specification

Enzyme class	Hydrolase – alpha-amylase (EC 3.2.1.1)
Production source	Submerged fermentation using a Bacillus production strain
Appearance	Brown liquid
Declared activity	2,300 FAU / g
Total protein	10–14% w/v
Density	1.20–1.25 g/mL
Operational temperature	15–65 °C
Optimum temperature	45–65 °C
Operational pH	3.5–8.0
Optimum pH	4.5–6.5
Shelf life	12 months when sealed and stored under the recommended conditions

Activity note: FAU is the activity designation supplied for this product. For process design, supplier-to-supplier comparisons or formal validation, use the defined product assay method and labelled activity.

Mechanism & operating conditions

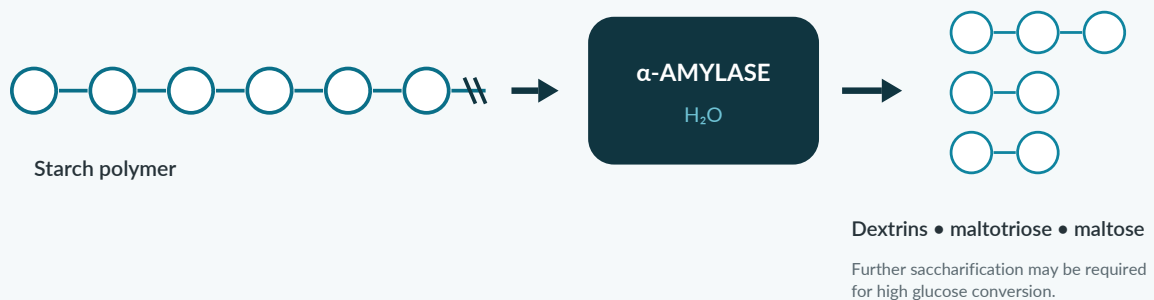
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How the enzyme works

Alpha-amylase binds to starch and related alpha-glucans and hydrolyses internal alpha-1,4 linkages. Because cleavage occurs within the polymer rather than only from the chain ends, the most immediate process effect is rapid molecular-weight and viscosity reduction.

From starch to lower-molecular-weight dextrans

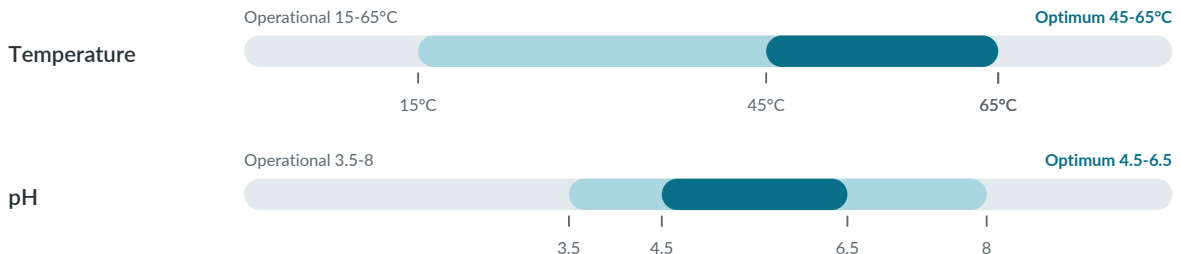
Alpha-amylase acts endolytically, cleaving internal alpha-1,4 glycosidic bonds.



Operating window

Operating window

Use the optimum band as a starting point; validate under your own substrate and process conditions.



Process notes

- No significant activity is expected on alpha-1,6 branch linkages; complete saccharification therefore normally requires complementary enzyme activity.
- Activity can be reduced by extremes of pH or temperature, strong oxidants, certain heavy metals and high chelator concentrations.
- Optimum dose and residence time are process-dependent and should be established in trials using the customer's actual substrate, solids content and downstream target.

Application opportunities

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COMMERCIAL APPLICATIONS

One enzyme platform across multiple starch-containing processes

The product can be used wherever controlled hydrolysis of gelatinised starch improves processing, lowers viscosity or prepares carbohydrate streams for further conversion.

Baking & bakery Bread and rolls; cakes and sweet bakery; biscuits and crackers. Supports controlled starch breakdown, fermentable carbohydrate availability, dough handling and product consistency.	Brewing & distilling Liquefaction of cereal starch in brewing, low-temperature mashing, distilling, rice-wine and other starch-based alcoholic beverage processes.
Plant-based beverages Oat, rice and other grain drinks. Reduces starch-related viscosity and supports formation of soluble carbohydrates and natural sweetness.	Syrup & starch processing Initial starch liquefaction ahead of glucoamylase, beta-amylase or other saccharifying enzymes in glucose, maltose and carbohydrate syrup manufacture.
Fruit & vegetable processing Hydrolyses residual starch that can contribute to haze, viscosity or filtration difficulties in fruit juice, concentrates and vegetable-derived processes.	Fermentation & valorisation Preparation of soluble dextrans from starch-containing feedstocks prior to fermentation, including starch-rich food side streams and waste valorisation routes.

Additional use cases from the current product scope

Confectionery • sauces and gravies • soups • baby and cereal-based infant foods • breakfast cereals • noodle and rice processing • potato processing • cereal ingredients • viscosity reduction • fermentation-feed preparation.

Process integration

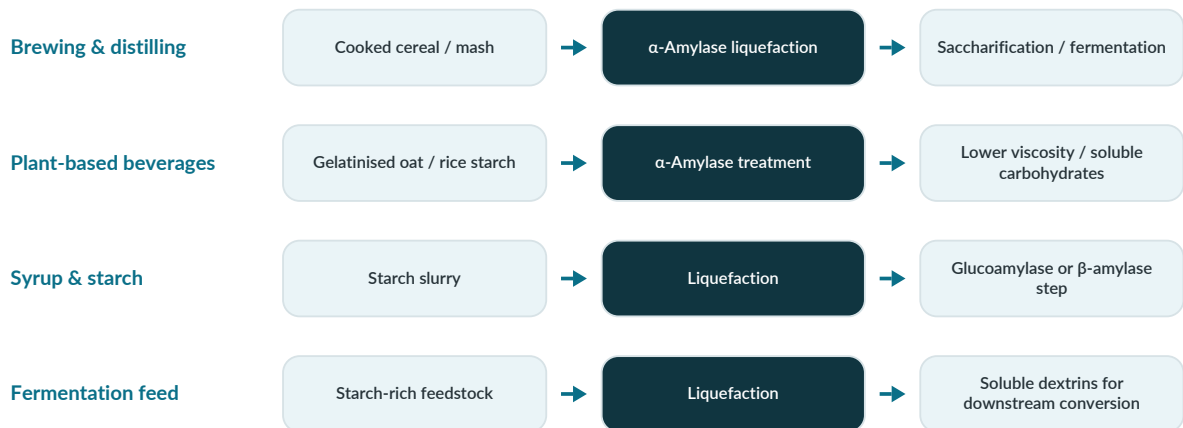
α-AMYLASE / 05

A practical liquefaction step that fits upstream of conversion

In most processes, alpha-amylase is used after starch gelatinisation or cooking and before the downstream step that defines the final carbohydrate profile. The exact sequence depends on the raw material and the customer's product target.

Where alpha-amylase fits

Typical process positions across customer applications



Trial before scale-up	Measure the right outcome	Build the enzyme system
Establish dose, residence time and mixing using the customer's actual raw material and solids content.	Track viscosity, soluble solids, reducing sugars or downstream fermentation performance as appropriate.	Where full saccharification is required, pair alpha-amylase with a complementary saccharifying enzyme.

Technical support

Scientific and Technical can support application trials, enzyme-selection questions and scale-up planning. Contact us with your substrate, solids loading, pH, temperature, residence time and target outcome so that a sensible trial plan can be defined.

Handling, quality & supply

α-AMYLASE / 06

Storage & handling

- Store sealed at 4–25 °C.
- Avoid direct sunlight and freezing.
- Avoid unnecessary exposure to strong acids, oxidising agents and heavy metals.
- Minimise aerosol formation during handling.

Storage stability: the source sheet states approximately 1–5% activity loss per month at room temperature; refrigeration may improve stability.

Packaging

Standard pack sizes: 0.1 L, 1 L, 10 L and 25 L. Bulk IBC/tote quantities are available on request.

Safety

Enzyme protein can cause sensitisation. Avoid inhalation of mist, vapour or spray and use suitable protective clothing, gloves, eye protection and respiratory protection where the risk assessment requires it.

SAFETY DATA SHEET

Refer to the current product SDS/MSDS for hazard classification, first aid, accidental-release measures, exposure controls and disposal information.

Quality-control specification

Activity assay	At or above labelled activity
Density (liquid)	1.20–1.25 g/mL
Total aerobic count	≤ 50,000 CFU/g
Salmonella	Negative
E. coli	Negative

Quality specifications are those stated in the supplied technical sheet and should be verified against the current product certificate/COA where a batch-specific value is required.

Allergen, nutritional & ordering information

α-AMYLASE / 07

Allergen information

Product	Liquid amylase enzyme preparation
Enzyme allergen warning	Contains enzyme protein. Dust, mist, vapour or spray may cause allergy or asthma symptoms or breathing difficulties if inhaled.
Production source	Produced by submerged fermentation using a Bacillus production strain.
Intentional allergens	No major food-allergen ingredients are intentionally added to this product.
EU/UK major allergen statement	No intentionally added cereals containing gluten, crustaceans, egg, fish, peanut, soybean, milk, tree nuts, celery, mustard, sesame, sulphur dioxide/sulphites at declarable levels, lupin or molluscs.
Use statement	Suitability for the final food, feed, detergent or industrial application should be confirmed by the user against the final formulation, process and local regulations.

Nutritional information

This product is an enzyme preparation and is not intended for direct consumption as a nutritional ingredient. Nutritional values for the complete preparation are not determined; at typical process-use levels, its contribution to the nutrition of the final product is expected to be negligible.

Energy	Not determined / not applicable as supplied processing aid
Fat	Not determined
of which saturates	Not determined
Carbohydrate	Not determined
of which sugars	Not determined
Protein	Total protein 10–14% w/v
Salt	Not determined

Ready to evaluate this enzyme?

Contact Scientific and Technical for samples, technical support, pricing and bulk-supply enquiries.

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Technical Support & Commercial Enquiries

Scientific & Technical supplies high-performance enzyme solutions with responsive technical support, sample evaluation and bulk commercial supply. Contact our team to discuss your process, trial requirements or scale-up needs.



**Technical
Guidance**



**Free Sample
Enquiries**



**Bulk Supply &
Scale-Up**



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Talk to our team about **samples, trials** and **commercial supply**.



*This technical data sheet provides general guidance.
Users should confirm suitability under their own process conditions.*

