



Scientific & Technical

ENZYMES | INNOVATION | PERFORMANCE

β -Glucosidase

Cellobiose hydrolysis

High-activity food-grade enzyme for glucose release, natural aroma development and plant-based processing.

A complementary enzyme for cellulose-derived sugar conversion and suitable plant glycosides.



Food & drink



Plant processing



Biofuels



Paper & pulp



Materials



Bulk supply



High activity

>10,000 U/g



Glucose release

From cellobiose



Operating range

15-60°C



Food grade

ISO 22000*

*As stated on the product page.

Product overview & specification

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CUSTOMER VALUE

Targeted glucose release and natural aroma development

β-Glucosidase hydrolyses cellobiose and other suitable beta-glucosides. It supports conversion of cellulose-derived breakdown products into glucose and can release bound aroma compounds where suitable precursors are present.

Releases glucose	Complements cellulases	Unlocks natural aromas
Converts cellobiose into glucose for downstream conversion.	Supports further hydrolysis of soluble cellulose breakdown products.	Releases aglycones from suitable plant beta-glucosides.

Core product specification

Enzyme class	Hydrolase - β-glucosidase (EC 3.2.1.21)
Alternative name	Cellobiase; beta-D-glucoside glucohydrolase
Declared activity	>10,000 U/g
Grade / certification claim	Food grade; ISO 22000 (product-page declaration)
Operational temperature	15-60°C
Optimum temperature	37-55°C
Operational pH	3.5-8.0
Optimum pH	3.5-5.5
Declared storage period	12 months; confirm detailed storage conditions
Standard pack sizes	0.1 L, 1 L, 10 L and 25 L

Activity definition: one unit is the amount of enzyme producing 1 micromole of reducing sugars per minute from cellobiose under the supplier's standard conditions. The page does not specify assay pH, temperature or substrate concentration; obtain the full method for comparisons.

Mechanism & operating conditions

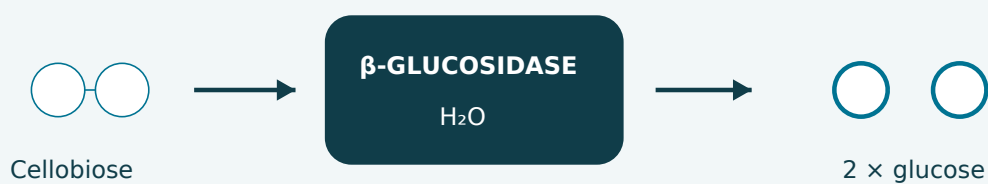
03

How the enzyme works

β-Glucosidase removes terminal, non-reducing beta-D-glucosyl residues from suitable substrates. With cellobiose, hydrolysis of its glycosidic bond yields two glucose molecules. Conversion of an appropriate aroma glycoside releases glucose and its aglycone.

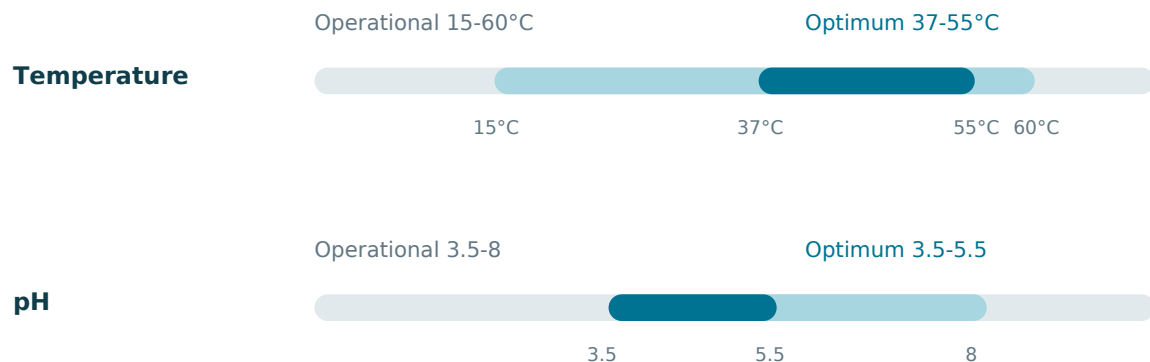
From cellobiose to glucose

Balanced reaction: cellobiose + H₂O → 2 glucose



Operating window

Use the optimum bands as trial starting points; validate against the actual substrate and process.



Process notes

- β-Glucosidase complements cellulose-degrading enzymes; it is not a substitute for the complete cellulase system.
- Aroma release depends on the available glycosides and the enzyme's substrate specificity.
- Operating ranges describe activity, not storage conditions or guaranteed long-term stability.

COMMERCIAL APPLICATIONS

One enzyme across plant-derived processing streams

Applications below reflect the published product scope. Process-specific performance should be established using the customer's raw material and target outcome.

Fruit juices & wines

Release aromatic compounds from suitable glycosidic precursors. Evaluate flavour changes in the actual juice, wine or beverage matrix.

Plant-based beverages

Support processing of appropriate plant beta-glucosides and development of aroma profiles where suitable precursors are present.

Biofuels & fermentation

Convert cellobiose in cellulose hydrolysates to glucose, alongside complementary cellulase activities and downstream fermentation.

Food ingredients

Convert selected plant glycosides to their aglycones for specialised ingredient development. Confirm substrate specificity and final-product suitability.

Paper, pulp & agriculture

Evaluate as part of an enzyme system for plant-derived or cellulose-containing streams where soluble beta-glucosides are available.

Advanced materials

Investigate controlled conversion of cellobiose or suitable beta-glucosides. Where selectivity matters, request a side-activity and purity assessment.

Select the enzyme for the substrate

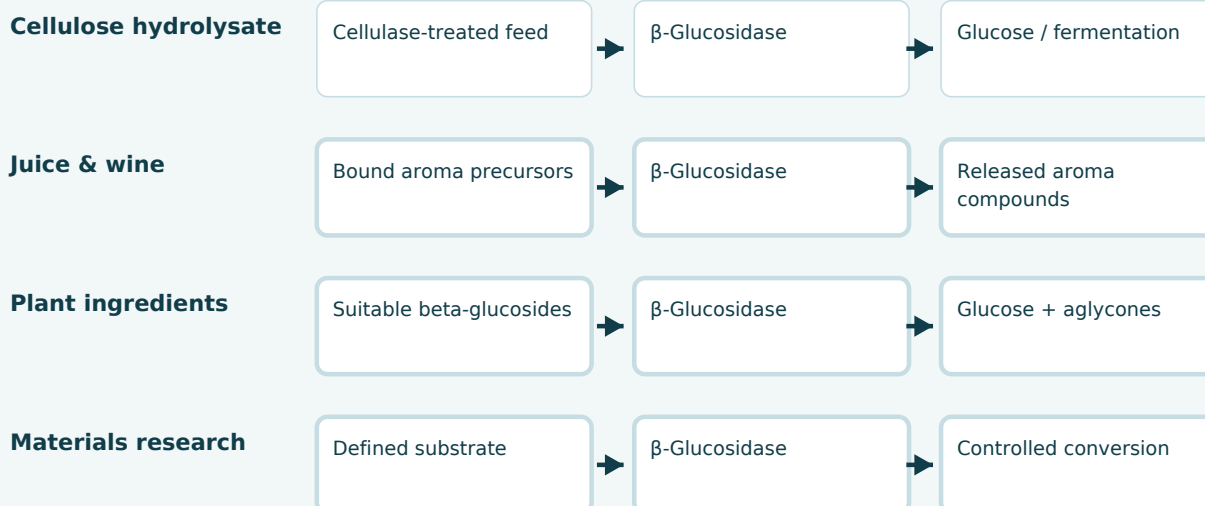
Define the relevant glycoside, required conversion and acceptable side reactions before choosing a process dose.

A targeted hydrolysis step before downstream conversion

Position β-glucosidase where cellobiose or suitable beta-glucosides are accessible. Pretreatment, complementary enzymes and downstream processing depend on the feedstock and intended product.

Where β-glucosidase fits

Illustrative process positions for application trials



Trial before scale-up

Vary enzyme dose and residence time using the actual substrate, pH and temperature.

Measure conversion

Track cellobiose, glucose or the relevant glycoside and aglycone using a suitable assay.

Build the enzyme system

Assess complementary activities, side reactions and downstream compatibility.

Technical support

Contact us with substrate identity, solids loading, pH, temperature, residence time and the target outcome. No universal dose is specified on the product page; use application trials to establish a suitable addition rate.

Storage & handling

- Keep containers tightly closed and protect from contamination.
- Minimise mist, aerosol and dried-residue formation.
- The product page states a 12-month storage period and refers to a PDF for conditions.
- Obtain the product-specific storage temperature and shelf-life basis before setting storage limits.

Safety

Enzyme protein can cause sensitisation. Avoid inhalation of mist, aerosol or dust. Use suitable gloves, eye protection and protective clothing; select respiratory protection where the exposure assessment requires it.

SAFETY DATA SHEET

Refer to the current product SDS for hazard classification, first aid, spill response, exposure controls and disposal.

Packaging

Standard pack sizes: 0.1 L, 1 L, 10 L and 25 L. Contact Scientific and Technical for bulk-supply options and availability.

Quality information

Declared enzyme activity	>10,000 U/g
Grade / certification claim	Food grade; ISO 22000 stated on product page
Batch-specific activity	Request the current certificate of analysis
Microbiological specification	Not stated on the product page; request the specification
Density / total protein / appearance	Not stated on the product page
Production organism / formulation	Request product-specific supplier information

Additional quality specifications, certification scope and batch-specific results should be checked against the current supplier documentation and certificate of analysis.

Allergen information

Product	β-Glucosidase enzyme preparation
Occupational enzyme allergy	Airborne enzyme protein may cause allergic or asthma-like respiratory symptoms. Minimise inhalation exposure.
Food-allergen declaration	Not published on the product page; request a product-specific declaration.
Production source / carriers	Not published on the product page; request confirmation where relevant to use.
Application suitability	Confirm compatibility with the finished product, process and applicable requirements.

Nutritional information

No nutritional analysis or total protein value is provided on the product page. Enzyme activity in U/g is not a measure of protein mass or nutritional composition. Obtain formulation data where required for finished-product calculations.

Ready to evaluate this enzyme?

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

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Document information & sources

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Product specifications: Scientific and Technical, β-Glucosidase product page.

Enzyme nomenclature and reaction: IUBMB, EC 3.2.1.21.

Application and trial guidance are general recommendations, not batch performance guarantees.

scientificandtechnical.com/products/beta-glucosidase

iubmb.qmul.ac.uk/enzyme/EC3/2/1/21.html



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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.*

