

The Bio-Intelligence of Acid Cellulose

ACID CELLULASE

AcidCellZyme: High-Performance Acid Cellulase

Enzymes are the true biochemical tools that enable nature to convert complex materials into usable forms. Among these, cellulolytic enzymes play a critical role in breaking down one of the most abundant natural polymers on Earth—cellulose. Cellulose is the structural backbone of plant cell walls and a major component of agricultural biomass, food fibers, and textile materials. However, due to its rigid crystalline structure, cellulose cannot be easily degraded without enzymatic support.

Acid cellulase enzymes bring this natural catalytic intelligence into industrial and nutritional applications by efficiently hydrolyzing cellulose into smaller soluble sugars under acidic conditions. This makes acid cellulases essential for processes where low pH stability, fiber modification, and gentle bioconversion are required. AcidCellZyme represents a clean-label, efficient, and environmentally responsible solution—supporting industries from food and feed to textiles, fermentation, and bio-processing innovation.



PERFORMANCE & MECHANISM

Functional stability and molecular action



Functional Capability

AcidCellZyme is a high-performance acid cellulase enzyme preparation designed to hydrolyze cellulose and plant-based fibers effectively at low pH ranges. Produced through controlled microbial fermentation, it provides strong cellulolytic activity with excellent stability in acidic processing environments.

Specific Action

At a functional level, AcidCellZyme breaks down insoluble cellulose into glucose, cellobiose, and soluble oligosaccharides

WHY ACIDCELLZYME?

Acid cellulase stands out because of its ability to function efficiently in low-pH environments while delivering broad fiber-degrading benefits across multiple industries.



Efficient fiber hydrolysis

AcidCellZyme optimizes fiber hydrolysis to maximize processing yields and product quality.



Improved processing yield

AcidCellZyme optimizes extraction efficiency to ensure maximum product yield and quality.



Stable activity in acidic formulations

Maximize output through robust enzyme stability within low-pH industrial environments.



ENHANCED JUICE EXTRACTION & CLARIFICATION

High Efficiency Extraction & Clarification

Fruit Juice & Vegetable Processing

Optimizes extraction by breaking down pectin-cellulose complexes. It improves juice recovery, enhances clarity by reducing turbidity, and ensures a free-flowing consistency.

Increased Extraction
Efficiency



- ➔ Improved juice yield
- ➔ Reduced viscosity
- ➔ Better filtration and clarity

INDUSTRIAL APPLICATIONS

AcidCellZyme acts a versatile biocaltyst that transforms industrial efficiency by complex .plant fibers

Textile & Bio Polishing Applications

- Bio- stoning of denim
- Fabric softening
- Removal of microfibrils

Improved Fermentation &Distillery Efficiency

- Higher alcohol yield
- Faster fermentation
- Better substrate conversion

A green seedling with two leaves grows from dark brown soil. Overlaid on the soil is a diagram of nutrient cycles represented by hexagons and circles. The hexagons are labeled with chemical symbols: Zn, Ca, Mo, K, S, Cu, Cl, B, and Mn. A central circle is labeled 'P'.

Feed Digestibility & Nutrient Release

- Improved nutrient absorption
- Better feed conversion ratio
- Reduced anti-nutritional fiber load

A collection of natural fiber processing materials. In the foreground, there are two large rolls of burlap or hemp fabric. Behind them are various plant materials, including a hemp flower, some dried grasses, and several cinnamon sticks. The background is a soft, out-of-focus grey.

Clean-Label & Sustainable Processing Aid

- Natural enzymatic fiber conversion
- Reduced chemical dependency
- Environmentally responsible processing

HOW ACIDCELLZYME UNLOCKS FUNCTIONAL



Complex Plant Biomass #1

Cellulose is the rigid structural backbone of plant cell walls. Its crystalline structure makes it resistant to natural breakdown trapping nutrients and increasing viscosity



Enzymatic Hydrolysis #2

AcidCellZyme targets the β -1,4-glucosidic bonds. It works under acidic conditions to systematically (pH 3.0–5.0) cut these long chains into smaller pieces



Functional Value Release #3

The complex fiber is converted into fermentable sugars and soluble (Glucose) fragments. This reduces viscosity, improves clarity, and releases trapped nutrients

PRODUCT NAME	ACID CELLULASE
Source of Organism	Trichoderma reesei
Exp.Date	2 Years from manufacturing
Carrier Material	Maltodextrin
Application	For Food/ Nutraceutical/ Pharma

TEST	LIMITS
Description	Off white to light brown coloured powder
Moisture	NMT 7 %
Heavy Metal Arsenic Lead	NMT 30 ppm NMT 5 ppm NMT 5 ppm
Activity Cellulase	NLT 10000 / 20000 / 50000 / 100000 / 150000/ 200000 / 225000 CU /g
Microbial Limit – Total Viable Count Yeast & Mold Count E.coli Salmonella Staphylococcus aureus	NMT 10000 cfu/g NMT 100 cfu/g Should be Absent Should be Absent Should be Absent

OTHER INFORMATION	
GMO Status Irradiation TSE/BSE status Source Gluten free status Country of Origin	GMO free Non Irradiated TSE/BSE free Veg Source Gluten free India

HANDLING, STORAGE & PACKAGING

Store in a cool, dry place away from direct sunlight and moisture. Avoid inhalation of enzyme dust and use appropriate protective measures during handling. Standard Packaging: 25 kg drum Custom packaging options available upon request.

WHY CHOOSE ENZYME BIOSCIENCE

Enzyme Bioscience integrates strong R&D expertise, advanced fermentation capabilities, and robust quality systems to deliver high-performance enzyme solutions like AcidCellZyme. Our commitment to consistency, documentation, and customer support makes us a trusted enzyme innovation partner.

QUALITY, SAFETY & COMPLIANCE

Manufactured under controlled GMP conditions with strict monitoring of enzyme activity, microbial limits, and heavy metal compliance to ensure consistent performance, safety, and reliability.

REGULATORY DISCLAIMER

Acid cellulase is intended for B2B use only. Final application suitability, formulation claims, and regulatory compliance remain the responsibility of the customer as per applicable local regulations.