BOLI® Enzymes - Catalyzing Your Success!



For over two decades, BOLI® has been a prestigious enzyme brand in China. With advanced submerged fermentation, extraction, and refining technologies, our world-class facilities are ISO 9001, ISO 14001, and FSSC 22000 certified and operate in strict compliance with GMP standards. Our Halal- and Kosher-certified enzyme products serve a diverse range of industries, including alcohol, starch sugar , baking, protein hydrolysis, juice processing, fuel ethanol, textiles, and animal feed. Our premium enzymes have been exported to over 18 countries worldwide. Supported by a professional technical team and strong collaborations with renowned research institutes and universities across China, we deliver tailored enzyme solutions that meet customer needs.

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Jiangsu Boyang Bioproducts Co., Ltd.

A leading enzyme manufacturer in China



Our Story

For over two decades, BOLI® has been a prestigious enzyme brand in China. our world-class facilities are ISO 9001, ISO 14001, and FSSC 22000 certified and Kosher certified and have been exported to 18+ countries worldwide. renowned research institutes and universities in China, we deliver tailored BOLI® Enzymes – Catalyzing Your Success!

With advanced submerged fermentation, extraction, and refining technologies, and operate in strict compliance with GMP standards. Our products are Halal Supported by a professional technical team and strong collaborations with enzyme solutions that meet customer needs.

1998

Wuxi Boli Bioproducts Co., Ltd. was created. Specialized in the research and development of enzyme technology, technical services and sales of enzymes, we have established good track records and reputation in the industry with our professional expertise.

2005



Jiangsu Boli Bioproducts Co., Ltd. was set up in Jiangyan Economic Development Zone, Taizhou city, Jiangsu province, occupying an area of around 20,000 m^2. Equipped with most advanced enzyme production facilities and technology, the Company is engaged in R & D, production of BOLI® enzymes with an annual capacity of 30,000 tons.

2011



Wuxi Rite Import & Export Co., Ltd. was set up. Ever since then, BOLI® enzyme products have been exported to more than 18 countries in the world, including American, European and South-East Asian countries, and have been appreciated by many prominent overseas customers.

2015



Shanghai Boli Bioproducts Co., Ltd. was established , which has enabled us to enlarge the market share of BOLI® enzymes both at home and abroad.

2017



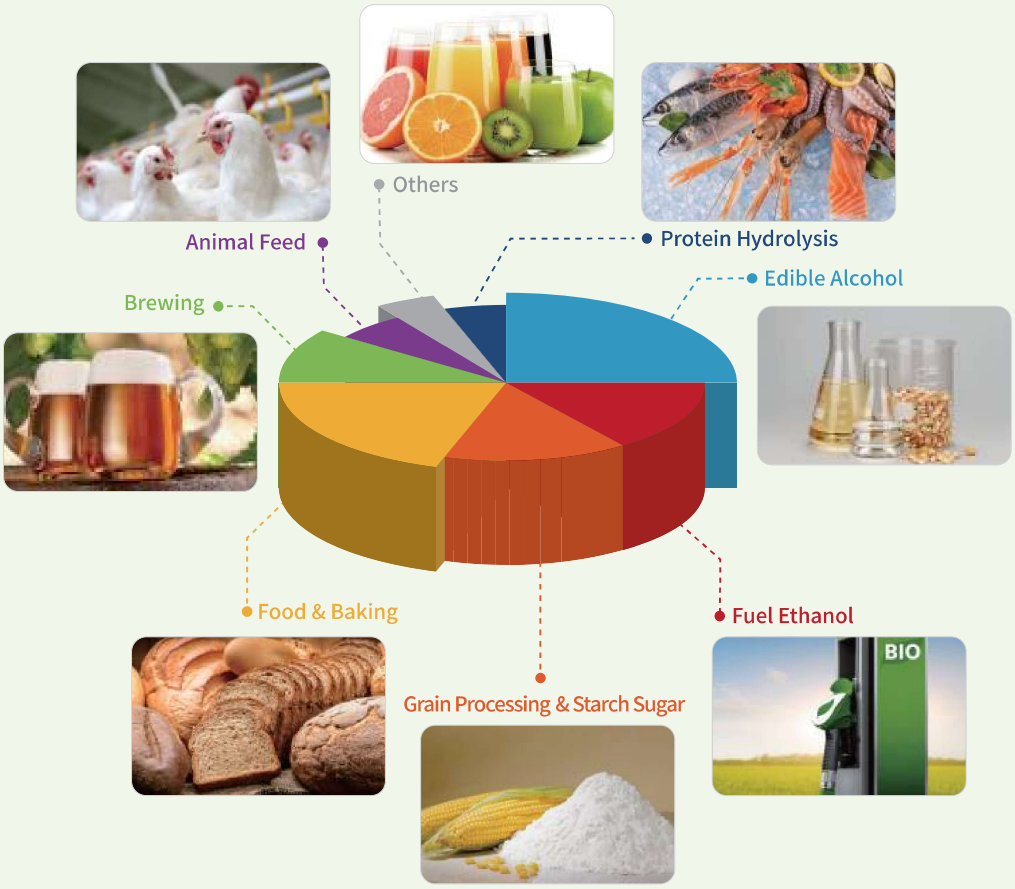
Jiangsu Boli-Jiangnan University Joint R & D center of Industrial Enzymes was established. It is engaged in the screening, molecular modification and construction of the microorganisms that produce enzymes, establish standard assay methods of enzymatic properties.

2017

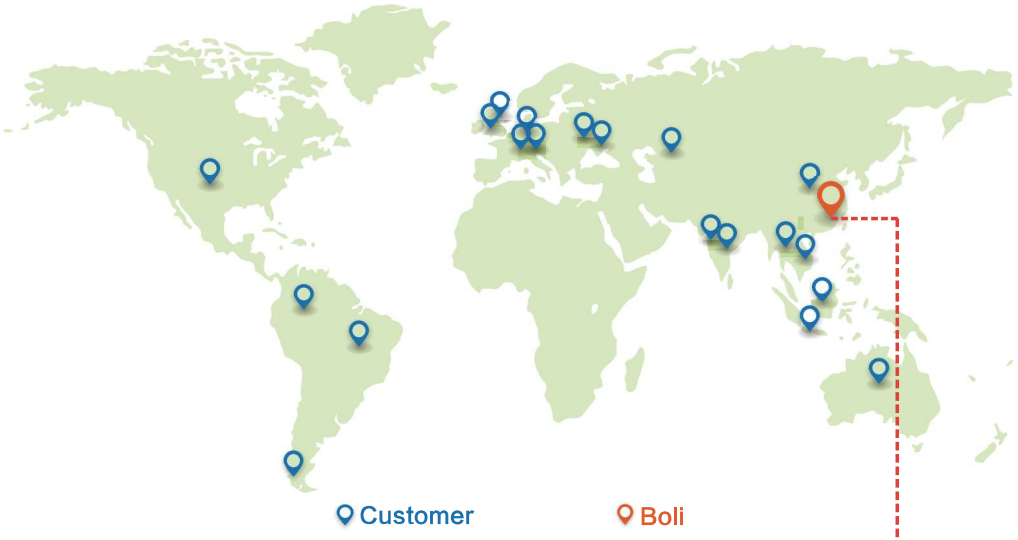


Jiangsu Boyang Bioproducts Co., Ltd. was established. Located in the National Economic & Technological Development Zone, Nantong city, covering an area of around 30,000 m^2, this new food-grade enzyme production site was set up with cutting-edge technology of enzyme production. It was put into operation in September 2020.

Industries We Serve



Our Customers & Location





>Taizhou Plant >Wuxi Office >Shanghai Office >Nantong Plant

Hot Products



Alpha-Amylase



Heat-stable Alpha-Amylase



Glucoamylase



Pullulanase | Acid Protease



Lipase



Xylanase



Cellulase for grain processing



Laccase



Fungal Alpha-Amylase | Maltogenic Amylase | Alkaline Alpha-Amylase



Neutral Protease | Alkaline Protease | Cellulase



Beta-Glucanase | Glucose Oxidase | Beta-Amylase



Aminopeptidase | Phytase | Asparaginase

Our Qualification

- Production License of Food Additives
- ISO 9001/14001 Certificates
- FSSC 22000 Certificate
- Halal Certificate
- Kosher Certificate
- GOTS Certificate



Manufacturing Process



Edible Alcohol

Product name	Type	Benefits	Effective/ Optimal pH	Effective/Optimal Temperature (°C)	Dosage
Liquefaction					
Alpha-Amylase	HA-450LFG	Quick viscosity reduction allowing for higher concentration of solids Lower viscosities improve heat exchanger efficiency Improved performance at low slurry temperatures Enables cost-effective liquefaction Higher activity allows for lower dosage, reduced inventory, handling and shipping costs	4.8~6.5/ 5.0~5.9	80~100/ 85~92	0.05~0.07kg per ton of cassava
	HA-580LFG				0.025~0.035kg per ton of cassava
	HA-450LP	Quick viscosity reduction allowing for higher concentration of solids Lower viscosities improve heat exchanger efficiency Improved performance at low slurry temperatures Enables cost-effective liquefaction Liquefaction thoroughly, with good iodine test color	4.8~6.5/ 5.0~5.9	80~100/ 85~92	0.14~0.18kg per ton of corn
	HA-580LP				0.07~0.09kg per ton of corn
	HK-540A	Tolerant to lower liquid pH Superior thermostability , suitable for high-temperature jet liquefaction Thorough liquefaction, with excellent iodine test color	4.5~6.5/ 4.8~5.8	Spray: 105~120°C for 5~7 minutes Maintain: 95~97°C for 90~120 minutes	0.08~0.1kg per ton of corn 0.025~0.035kg per ton of cassava
Saccharification					
Glucoamylase	SUPERMEI FD	Increased fermentation rate Increased alcohol yields Efficient starch/dextrin degradation Less residual starch in distiller's grains Improved performance in pre-saccharification processes	3.0~5.5/ 3.5~4.5	30~75/ 62~70	0.35~0.45kg per ton of raw material
	SUPERMEI FW				0.30~0.40kg per ton of raw material
	SUPERMEI 332P	Increased fermentation rate Increased alcohol yields Efficient starch/dextrin degradation Hydrolyzes unconverted starch, improve the utilization rate of raw materials Improved performance in pre-saccharification processes	3.0~5.5/ 3.5~4.5	30~75/ 62~70	0.4~0.55kg per ton of raw material

Edible Alcohol

Product name	Type	Benefits	Effective/ Optimal pH	Effective/Optimal Temperature (°C)	Dosage
Process enhancement					
Acid Protease	AP-530	Enhance yeast growth Improve fermentation Increase alcohol yield Reduce urea/ammonia usage	2.0~6.0/ 2.5~3.5	30~55/ 40~50	0.006~0.05kg per ton of raw material
Fungal Alpha -Amylase	FA-280	Improve utilization of raw materials Lower residual sugars at drop Increase alcohol yield Lower residual starch in DDGS	3.0~6.6/ 4.8~5.4	30~65/ 45~55	0.04~0.08kg per ton of raw material
Viscosity reduction					
Compounded enzyme (Xylanase/ Cellulase/ Beta-Glucanase)	XM-308	Excellent viscosity reduction effect Capable of handling wheat, rye, barley, triticale, oats, corn, etc. Break the cell structure of wheat and promote the release of active ingredients Improve the saccharification and increase the fermentable products Increase the yield of alcohol Helps to reduce consumptions of energy and water, save operating costs	3.0~5.5/ 3.5~5.0	30~70/ 45~65	0.1~0.4kg per ton of raw material



Brewing

Product name	Type	Benefits	Effective/ Optimal pH	Effective/Optimal Temperature (°C)	Dosage
Attenuation Control					
Fungal Alpha-Amylase	FA-280	Achieve precise attenuation control Accelerate fermentation Achieve an ideal maltose-glucose ratio	3.0~5.5/ 3.5~5.0	30~70/ 45~65	0.1~0.2kg per ton of raw material
Glucoamylase	FERZYME PF	Achieve desired attenuation Accelerate fermentation Ideal for light beers	3.0~5.5/ 3.5~4.5	30~65/ 58~60	0.2~0.6kg per ton of raw material
	SUPERMEI FD	Achieve target attenuation Accelerate fermentation Ideal for ultra-light beers Higher activity allows for lower dosage, reduced inventory, handling and shipping costs	3.0~5.5/ 3.5~4.5	30~75/ 62~70	0.08~0.25kg per ton of raw material
Pullulanase	PU-750	Achieve desired attenuation Accelerate fermentation Increase brewhouse capacity	4.0~5.0/ 4.2~4.6	50~65/ 55~60	0.01~0.03kg per ton of raw material
Liquefaction of adjunct					
Alpha-Amylase	HA-450LFG	Incresed adjunct inclusion Decrease viscosity of starch quickly Incresed brewhouse capacity	4.8~6.5/ 5.0~5.9	80~100/ 85~92	0.14~0.18kg per ton of raw material
	HA-580LFG				0.07~0.09kg per ton of raw material
	BAA-400	Maximize the utilization rate of raw materials Enhance beer flavor Promote the beer fermentation process	4.5~7.5/ 5.0~6.5	35~90/ 60~70	0.3~0.6kg per ton of raw material
Fermentation Control					
Neutral Protease	NP-100	Free Amino Nitrogen (FAN) generation supports healthy yeast growth and metabolism Consistent fermentation Enhance beer flavor	5.0~10.0/ 6.0~8.0	30~60/ 45~55	0.1~0.5kg per ton of raw material
	NP-6000	Free Amino Nitrogen (FAN) generation supports healthy yeast growth and metabolism Ensures reliable and predictable fermentation performance High concentration enables a lower dosage level Enhance beer flavor	5.0~10.0/ 6.0~8.0	30~60/ 45~55	0.015~0.08kg per ton of raw material

Brewing

Product name	Type	Benefits	Effective/ Optimal pH	Effective/Optimal Temperature (°C)	Dosage
Prevents chill haze					
Protease (Proline endopeptidase)	PEPMEI A	Breaks down proline-rich proteins to help prevent the formation of chill haze No impact on beer foam Potential natural antioxidant effect	4.0~6.5/ 4.5~6.0	20~50/ 25~45	0.005~0.02kg per ton of cold wort
Viscosity reduction and filtration					
Beta-Glucanase	GC-250	Reduce wort viscosity Improve filtration speed and wort clarity Increase the colloidal stability, remove chill haze Improve the efficiency of filtration, extend the life of the membrane Superior thermostability	3.5~6.5/ 4.5~5.5	30~65/ 50~60	0.1~0.5kg per ton of raw materal
Xylanase	XY-100	Reduce the viscosity of the wort, improve the filtration performance Destroy the cell structure of wheat , promote the release of active ingredients and increase fermentable products	3.5~6.5/ 4.5~5.5	30~65°C/ 50~60°C	0.1~0.5kg per ton of malt
Compounded enzyme (Beta-Glucanase)	GXP-933	Contains β-glucanase, xylanase and protease activities Reduces the viscosity of wort, improves the clarity of wort Improves the filtration performance of wort Increases the amount of α-amino nitrogen and fermentable substances in wort, enhancing the brewing performance of wort	3.5~6.5/ 4.5~5.5	30~65/ 50~60	0.2~0.6kg per ton of malt



Grain Processing & Starch sugar

Product name	Type	Benefits	Effective/ Optimal pH	Effective/Optimal Temperature (°C)	Dosage
Corn starch processing					
Cellulase	PC-100	Reduce the viscosity of corn flour slurry, promote the separation of starch and protein, and lower the moisture content of wet-based fibers and proteins Break the plant cell wall structure, increase the yield of starch and protein powder Improve equipment utilization and production efficiency Reduce energy consumption	3.0~6.5/ 3.5~6.0	30~60/ 40~55	0.02~0.1kg per ton of corn
Gluten processing					
Compounded enzyme (Xylanase)	PG-100	Increase gluten yield, improve gluten quality, and increase starch yield Reduce process water Decrease wastewater discharge Lower energy consumption in production	3.5~7.0/ 4.0~6.0	20~60/ 30~45	0.05~0.1kg per ton of wheat
Corn steep liquor hydrolysis					
Compounded enzyme (Phytase)	CL-305	Replace inorganic phosphorus. One ton of enzymatically hydrolyzed corn steep liquor can replace 15-20 kilograms of phosphoric acid. Improve corn steep liquor utilization and enhance fermentation rate	2.0~6.0/ 4.0~5.0	20~60/ 40~50	0.1~0.15kg per ton of raw material
	CL-3005				
Liquefaction of starch					
Alpha-Amylase	HT-800L	Superior stability with low pH Decrease the starch viscosity quickly Decrease the formation of color substances and non-fermentable sugars Capable of handling high dry substance	5.0~7.0/ 5.2~6.0	Spray: 105~110°C for 5~7 minutes Maintain: 95~97°C for 90~120 minutes	0.2~0.3kg per ton DS
	HT-360L	Superior stability with low pH Decrease the starch viscosity quickly Decrease the formation of color substances and non-fermentable sugars Capable of handling high dry substance with lower dosage	5.0~7.0/ 5.2~6.0	Spray: 105~110°C for 5~7 minutes Maintain: 95~97°C for 90~120 minutes	0.1~0.15kg per ton DS
	HTA-430L	Superior stability with low pH Decrease the starch viscosity quickly Decrease the formation of color substances and non-fermentable sugars Capable of handling high dry substance	5.0~7.0/ 5.4~6.0	Spray: 105~108°C for 5~7 minutes Maintain: 95~97°C for 90~120 minutes	0.18~0.25kg per ton DS
	HK-522L	Adapted for lower liquefaction pH conditions Decrease the starch viscosity quickly Decrease the formation of color substances and non-fermentable sugars Capable of handling high dry substance	4.5~6.5/ 4.8~5.8	Spray: 105~115°C for 5~7minutes Maintain: 95~97°C for 90~120 minutes	0.13~0.23kg per ton DS
	HK-540L				0.08~0.16kg per ton DS

Grain Processing & Starch sugar

Product name	Type	Benefits	Effective/ Optimal pH	Effective/Optimal Temperature (°C)	Dosage
Production of glucose					
Glucoamylase	HGA-101PT	Greater conversion rate from starch to glucose Maximized utilization of raw materials Suitable for the production of glucose with DX>96.5% Capable to work with higher concentration substrate	3.5~5.0/ 4.2~4.5	55~65/ 58~62	0.4~0.5kg per ton DS
	HGA-105PT				0.27~0.33kg per ton DS
	HGA-105HT	Rapid glucose conversion Higher saccharification temperature reduces energy consumption	3.5~5.0/ 4.2~4.5	55~70/ 62~67	0.20~0.30kg per ton DS
	HGA-101PC	Greater conversion rate from starch to glucose Maximized utilization of raw materials Suitable for the production of glucose with DX>97% Capable to work with higher concentration substrate	3.5~5.0/ 4.2~4.5	55~65/ 58~62	0.32~0.42kg per ton DS
	HGA-105PC				0.25~0.30kg per ton DS
Production of maltose					
Pullulanase	PU-750	Quick debranching of oligosaccharides Ideal for syrups with medium to high maltose content Increase yield	4.0~5.0/ 4.2~4.6	50~65/ 55~62	0.02~0.1kg per ton of corn
Fungal Alpha-Amylase	FAA-280	Ideal for syrups with low to medium maltose content High themostability Stable across a wide pH range Low dextrose (DX) formation	4.0~6.6/ 4.8~5.4	35~65/ 45~55	0.1~0.5kg per ton DS
Beta-Amylase	FBBA-70	Ideal for syrups with low to high maltose content High themostability Stable across a wide pH range Low dextrose (DX) formation	4.2~6.5/ 4.5~5.5	45~70/ 50~60	0.5~0.65kg per ton DS
Filtration					
Lysophospho-lipase	LPL-100	Improves the filtration efficency of syrups containing lysophospholipids Delivers superior filtrate clarity	4.0~7.0/ 4.2~6.0	30~70/ 45~65	25~50g per ton syrup



Baking

Product name	Type	Benefits	Effective/ Optimal pH	Effective/Optimal Temperature (℃)	Dosage
Freshness					
Medium-temp Alpha-Amylase	BAA-0040	Natural anti-staling effect Maintains the crumb softness of baked goods throughout their shelf-life	4.5~7.5/ 5.0~6.5	35~90/ 60~70	2.5~5g per 100kg flour (25~50 ppm)
	BAA-0200	Organic anti-staling effect Maintains the crumb softness of baked goods throughout their shelf-life Higher activity allows for lower dosage,reduced inventory, handling, and shipping costs	4.5~7.5/ 5.0~6.5	35~90/ 60~70	0.5~1g per 100kg flour (5~10ppm)
Maltogenic Amylase	MAA-1500	Improves softness in baked products Enhances bread elasticity and moisture Delivers superior taste Inhibits starch retrogradation (staling) Extends shelf life	4.0~7.0/ 4.5~6.0	30~85/ 55~70	2~10g per 100kg flour (20~100ppm)
Flour correction					
Fungal Alpha-Amylase	FAA-5000	Speed up dough fermentation Improve the internal texture and volume of bread Enhance the taste and crust color Delay the flour retrogradation (crystallization)	4.0~6.5/ 4.8~5.4	35~65/ 45~55	0.24~2.5g per 100kg flour (2.4~25ppm)
	FAA-5200				0.12~1.25g per 100kg flour (1.2~12.5ppm)
Appealing appearance					
Neutral protease	NP-2000	Enhance color and shininess of the finished products Enable an even crumb structure and crisp texture of biscuits/crackers Enhance the flavors and aroma of baked products Suitable for gluten-free products	5.0~10.0/ 6.0~8.0	30~60/ 45~55	2.5~12.5g per 100kg flour (25~125ppm)
	NP-8000				0.6~3.0g per 100kg flour (6~30ppm)
Glucoamylase	PUREMEI NDS	Increase glucose content in flours to enhance fermentation Promote Maillard reaction for superior crust color and flavor development Maximize loaf volume	3.0~5.0/ 3.5~4.5	50~65/ 55~60	5~10g per 100kg flour (50~100ppm)
	GA-8000FG	Increase glucose content in flours to enhance fermentation Promote Maillard reaction for superior crust color and flavor development Maximize loaf volume High concentration allows for lower dosage, reduced inventory, handling and shipping costs	3.0~5.0/ 3.5~4.5	58~75/ 62~70	1.25~2.5g per 100kg flour (12.5~25ppm)

Baking

Product name	Type	Benefits	Effective/ Optimal pH	Effective/Optimal Temperature (℃)	Dosage
Dough conditioning					
Xylanase	NXY-0250	Promote dough expansion Strengthens gluten structure and ensures optimal water redistribution Enhances dough fermentation stability Adapts to flours of varying quality Increases finished product volume	5.5~7.5/ 6~6.5	35~65/ 45~50	1~5g per 100kg flour (10~50ppm)
	NXY-250	Offers the same benefits as NXY-0250 High concentration allows for lower dosage, reduced inventory, handling and shipping costs			0.1~0.5g per 100kg flour (1~5ppm)
Gluten strengthening					
Glucose oxidase	GLU-0100	Enhance gluten strength Improve dough handling properties and reduces stickiness Increase bread volume and optimizes loaf shape Reduce dependency on chemical oxidants	4.0~6.5/ 5.0~6.0	20~50/ 20~35	1~6g per 100kg flour (10~60ppm)
	GLU-0200				0.5~3g per 100kg flour (5~30ppm)
Dough strengthening					
Lipase	LP-2000	Achieve uniform crumb structure Enhance the surface smoothness and brightness of noodles Reduce the dosage of chemical additives	3~12	15~60/ 35~55	0.5~5g per 100kg flour (5~50ppm)
	LPU-0250	Achieve uniform crumb structure Maximize the volume Enhance the flavor	3.0~8.0	15~60/ 35~55	0.5~3g per 100kg flour (5~30ppm)

Heat-treated food

Product name	Type	Benefits	Effective/ Optimal pH	Effective/Optimal Temperature (℃)	Dosage
Asparaginase	Acrylost 1200FG	Reduce the formation of potential carcinogen acrylamide in heat-processed foods Optimize the food processing process, maintaining the original flavor Convenient to use	5.0~10.5/ 6.5~10.0	50~95/ 65~90	10~300g per 100kg raw material (100~3000ppm)



Protein Hydrolysis

Product name	Type	Benefits	Effective/ Optimal pH	Effective/Optimal Temperature (°C)	Dosage
Hydrolysis of animal and plant proteins					
Neutral Protease	NP-100	Effectively hydrolyze animal and plant proteins Enhance nutrient absorption rate and improve food texture	5.0~10.0/ 6.0~8.0	30~60/ 45~55	0.5~1.5kg per ton of raw meteral
	NP-8000	Effectively hydrolyze animal and plant proteins High concentration powder allows for lower dosage, reduced inventory, handling and shipping costs			0.063~0.19kg per ton of raw meteral
Acid Protease	AP-530	Increase the digestion and absorption rate of proteins Improve the nutritional value and taste of food	2.0~6.0/ 2.5~4.0	30~50/ 40~50	0.2~0.4kg/ ton of raw meteral
	AP-6000	Increase the digestion and absorption rate of proteins High concentration powder allows for lower dosage, reduced inventory, handling and shipping costs			0.05~0.1kg/ ton of raw meteral
Alkaline Protease	DJP-100	Strong protein hydrolysis ability Enhance protein solubility Improve the nutritional value of food	6~12/ 10~11	30~60/ 45~55	2~15kg/ ton of raw meteral
	DJP-6000	Strong protein hydrolysis ability High concentration powder allows for lower dosage, reduced inventory, handling and shipping costs			0.34~2.5kg per ton of raw meteral
Alkaline Protease	JP-300	Strong protein hydrolysis ability Enhance protein solubility Improve the nutritional value of food	7.5~12.0/ 9.5~11.5	30~65/ 45~60	0.7~5kg per ton of raw meteral
	JP-6000	Strong protein hydrolysis ability High concentration powder allows for lower dosage, reduced inventory, handling and shipping costs			0.35~2.5kg per ton of raw meteral
Aminopeptidase	LAP-25	Remove the bitterness of protein hydrolysates and enhance the flavor Combine with other proteases to increase protein hydrolysis degree	6.5~10.0/ 7.0~9.5	35~65/ 40~60	2~5kg per ton of protein



Juice Processing

Product name	Type	Benefits	Effective/ Optimal pH	Effective/Optimal Temperature (°C)	Dosage
Improve yield and clarification					
Cellulase	CE-150	Soften plant tissue Improve taste and simplify process Increase juice yield and improve clarification of the finished products	3.5~6.0/ 4.5~5.0	30~60/ 45~52	0.05~0.5kg per ton of fruit pulps
	CE-2000				0.037~0.37kg per ton of fruit pulps
Pectinase	PE-300	Improve juice yield Decrease pectin viscosity Shorten the processing time Juice easy to be clarified and filtered Improve quality of the finished products	3.0~5.0/ 3.5~4.0	25~65/ 50~60	0.05~0.33kg per ton of fruit pulps
	PE-3000				
Laccase	QL-050	Increase the transparency of fruits Improve the flavor, color and stability	3.5~7.0/ 4.0~5.0	20~60/ 45~55	0.05~0.2kg per ton of fruit pulps
Alpha-Amylase	BAA-400	Capable to solve the stability problem of making drinks from raw materials with starch content	6.0~7.0/ 6.0~6.5	30~90/ 60~70	0.05~0.25 kg per ton of fruit pulps
Glucoamylase	ASF-D	Degrades starch completely Clarifies/stabilizes juices	3.0~5.5/ 3.5/4.5	30~75/ 62~70	0.01~0.04 kg per ton of fruit pulps
	GA-8000FG	Degrades starch completely Clarifies/stabilizes juices Without chemical preservatives, high activity powder			0.005~0.02 kg per ton of fruit pulps



Animal Feed

Product name	Type	Benefits	Effective/ Optimal pH	Effective/Optimal Temperature (°C)	Dosage
Cellulase	CE-0200S	Promote the release of nutrients in feed Promote the secretion of animal endogenous enzymes Maximize the utilization rate of cellulose in feed	3.5~6.0/ 4.5~5.0	30~60/ 45~52	10~50g per ton of TMR diet
Acid Protease	AP-6000S	Accelerate the degradation of proteins in the intestinal tract Supplement endogenous enzymes that are deficient in young animals Maximize the utilization of feed nutrients	2.0~6.0/ 2.5~3.5	30~55/ 40~50	2~8g per ton of TMR diet
Alpha-Amylase	BAA-0200S	Improve digestive function Regulate immunity Maximize the utilization rate of dietary energy	6.0~7.0/ 6.0~6.5	30~90/ 60~70	2~5g per ton of TMR diet
Glucoamylase	GA-8000S	Hydrolyze the starch in the feed into glucose to improve energy utilization Used in the diets of young animals such as piglets and chicks to address starch digestion disorders	3.0~5.5/ 3.5/4.5	30~75/ 62~70	0.5~1.5g per ton of TMR diet
Xylanase	XY-1000DS	Break through the physical barrier of the cell wall, increase feed conversion rate Reduce diarrhea rate, enhance intestinal mucosal barrier function Reduce feed cost and minimize environmental pollution	5.5~7.5/ 6~6.5	35~65/ 45~50	1~5g per ton of TMR diet
Phytase	PY-3000S	Reduce dicalcium phosphate dependency, lowering feed costs Hydrolyze phytic acid, releasing bound proteins, amino acids, and trace elements, improving feed energy utilization	2.5~7.0/ 3.5~5.5	20~60/ 45~55	0.5~1.5g per ton of TMR diet



Fuel Ethanol

Product name	Type	Benefits	Effective/ Optimal pH	Effective/Optimal Temperature (°C)	Dosage
Liquefaction					
Alpha-Amylase	HA-450L	Quick viscosity reduction allowing for higher concentration of solids Lower viscosities improve heat exchanger efficiency Improved performance at low slurry temperatures Enables cost-effective liquefaction Higher activity allows for lower dosage, reduced inventory, handling and shipping costs	4.8~6.5/ 5.0~5.9	80~100/ 85~92	0.05~0.07kg per ton of cassava
	HA-580L				0.025~0.035kg per ton of cassava
	HA-450LP	Quick viscosity reduction allowing for higher concentration of solids Lower viscosities improve heat exchanger efficiency Improved performance at low slurry temperatures Enables cost-effective liquefaction Liquefaction thoroughly, with good iodine test color	4.8~6.5/ 5.0~5.9	80~100/ 85~92	0.14~0.18kg per ton of corn
	HA-580LP				0.07~0.09kg per ton of corn
	HK-540A	Tolerant to lower liquefaction pH conditions Superior thermostability for high-temperature jet liquefaction Deliver thorough liquefaction and an excellent iodine test colour	4.5~6.5/ 4.8~5.8	Spray: 105~120°C for 5~7 minutes Maintain: 95~97°C for 90~120 minutes	0.08~0.1kg per ton of corn 0.025~0.035kg per ton of cassava
Saccharification					
Glucoamylase	ETHMEI FD	Increased fermentation rate Increased alcohol yields Efficient starch/dextrin degradation Less residual starch in distiller's grains Improved performance in pre-saccharification processes	3.0~5.5/ 3.5~4.5	30~75/ 62~70	0.35~0.45kg per ton of raw material
	ETHMEI FW				0.30~0.40kg per ton of raw material
Process enhancement					
Acid Protease	AP-150	Enhance yeast growth Improve fermentation Increase alcohol yields Reduce urea/ammonia usage	2.0~6.0/ 2.5~3.5	30~55/ 40~50	0.006~0.05kg per ton of raw material
Fungal Alpha-Amylase	FAA-400	Maximize utilization of raw materials Lower residual sugars at drop Increased alcohol production Lower residual starch in DDGS	3.0~6.6/ 4.8~5.4	30~65/ 45~55	0.04~0.08kg per ton of raw material



Textile Printing & Dyeing

Product name	Type	Benefits	Effective/ Optimal pH	Effective/Optimal Temperature (°C)	Dosage
Desizing					
Medium-temp desizing amylase	TB-2	Suitable for desizing of textiles that are not resistant to high temperatures Mild operating conditions, no damage to the fabric	4.5~7.5/ 5.0~6.5	35~90/ 60~70	0.1~0.5% (owf)
	TB-4		4.5~7.5/ 5.0~6.5	35~90/ 60~70	0.05~0.25%(owf)
High-temp desizing amylase	TH-2	Enable simultaneous desizing and colour-fixing in a single bath Shorten the process flow and improves productivity Enhance the capillary effect of fabrics Improve the working environment for operators	5.0~7.0/ 5.4~6.4	70~100/ 83~90	0.45~9g per L of solution
	TH-18		5.0~7.0/ 5.4~6.4	70~100/ 83~90	0.05~1g per L of solution
Deoxidation					
Catalase	CA-580	Reduce water consumption Shorten processing time Less electricity consumption Safe dyeing Save production cost	3.0~9.0/ 4.0~8.5	10~60/ 20~50	0.01~0.5ml per L of solution
	CA-600				0.007~0.34ml per L of solution
Bio-polishing					
Acid cellulase	AC-150	Enhance superior pilling resistance and a uniform surface Impart a uniquely soft and smooth hand Boost lustrous and vibrant colors	3.5~6.0/ 4.5~5.0	30~60/ 45~52	0.1~0.5% (owf)
	AC-3000				0.05~0.25%(owf)
Enzymatic washing					
Neutral cellulase	LTC-PW	Lustrous fabric finish Superior pilling resistance Effective biopolishing for cellulosics Fast indigo removal for biostoning In-dye bath application saves time & energy Room temperature operation reduces energy costs	3.5~7.5/ 5.5~6.5	20~50/ 25~35	0.1~0.2% (owf)
	LTC-GDS				0.05~0.1% (owf)

Alpha-Amylase With Wide pH Range

Benefits

Effectively reduce the viscosity of starch paste

Suitable for wide pH range applications in food, papermaking and detergent etc.

The washing liquid is stable and can exert enzyme activity in a wide temperature range

Effect of pH

The effective pH range is 3.0 ~ 10.5, and the optimal pH is 5.0 ~ 9.0, enables it to hydrolyze starch across a wide pH range, which is a significant advantage of this product.

Effect of temperature

The effective temperature is 30 ~ 90℃, and the optimum temperature is 60 ~ 80℃.
The reaction speed is accelerated at 70 ~ 90℃ with the temperature increase, whilst the deactivation is also accelerated.

Cultured Grain Products

Natural,organic food-grade material

specially designed for bakers, meat products, brewing, beverages, candy, icecream etc——who look for alternatives to chemical preservatives.

Features

Produced from fermention of Propionibacterium acidipropionici followed by the downstream processes incl. filtration, neutralization, concentration and drying.
Due to its ideal properties of anti-spoilage and pathogen-inhibiting, Cultured Grain Products is more welcome in food industries.

Appearance

Free flowing powdery , with off-white to light-cream color and a typical slight microbial fermentation odor.

Properties

Anti-spoilage and pathogen-inhibiting, an ideal alternative to chemical preservatives.

Provide calcium that is needed by the human body, thus enhancing the nutrients of food.

Products Available

CWP-50 : Cultured Wheat Product CDP-50 : Cultured Corn Product

Usage Guidelines

Adding CWP-50/CCP-50 at a dosage level of 0.17~0.35% can result in extended bread shelf-life to around 13 ~14 days.
The exact dosage rate shall be determined through tests and small trials depending on the actual situation.

Packaging

20kg kraft paper bag, 500kg FIBC