

Transforming industries through enzymatic innovation



For Food Industry

Protosol FP20

Solpect L100

Glutolyse 50

Lipsol FD

Cellulase

Lipsol 90L

β -Glucanase Enzyme

Mannanase

Pectinase Enzyme

Xylanase Enzyme



Protocol FP20

Neutral Protease for food processing

Protocol FP20 is a fungal protease/peptidase complex produced by SSF technique of a selected strain of *Aspergillus flavus* which has not been genetically modified, and it contains both endo-protease and exopeptidase activities.

Properties

Activity	:	>20000 HUT u/gm
Appearance	:	Off white colour powder
Grade	:	Food grade
pH	:	5 - 6
Temperature	:	50°C

Operating conditions

Protocol FP20 can be used at different temperatures and pH. Its activity profile at wide range of temperature and pH range is given below:

Fig. 1 : pH Profile

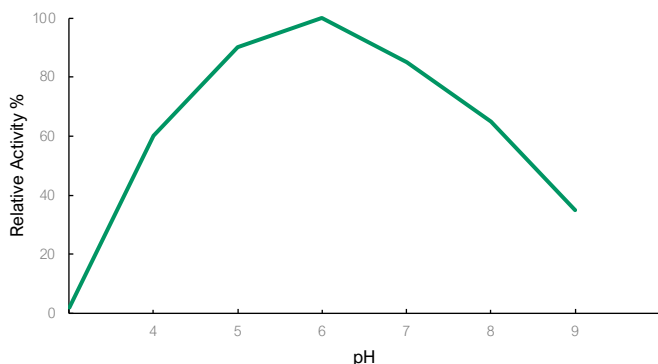
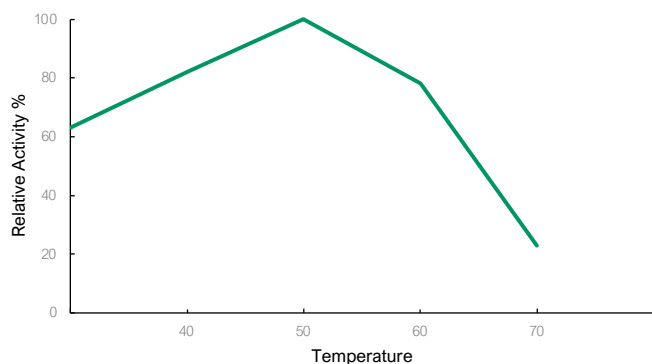


Fig. 2 : Temperature profile



Application

Protocol FP20 is recommended for use in feed supplementation and food processing consisting of gluten, casein, soy and other types of animals and vegetable protein. It can also be used in malt supplementation in brewing industry and for modification of Cheese in dairy industry.

Enzyme Inactivation

Enzyme inactivation can be achieved by processing the reaction product at greater than 80°C for 3 - 7 minutes or by adjusting the pH of the reaction product to less than 3.0 and holding it at greater than 50°C for 30 minutes.

Doses

Protocol FP20 dosage can be adjusted between @ 0.1% to 0.5% depending on kind of raw material being used and desired level of hydrolysis in the end product. Parameters like temperature, pH and time also play a role in dose adjustment. It is recommended to do a trial at laboratory scale before using Protocol FP20 at commercial scale.

Specifications

Protocol FP20 complies with the current recommended purity specifications for food grade enzymes given by the Joint FAO/WHO Expert Committee on Food Additives (JECFA). Storage Stability In sealed containers, under cool, dry conditions. It should be used within 12 month beyond which loss of activity starts which may accelerate in the case of improper storage.

Safety

Contact or Inhalation of enzymes in any form may cause allergic reactions and should be avoided. In case of contact with the skin or eyes, promptly rinse with water for at least 15 minutes. Please refer Material Safety Data Sheet (available on request) for all safety instructions.

Solpect L100

Pectinase for fruit juice industry

Solpect L100 (Pectinases) is a mixture of enzymes, which are widely used in the fruit juice industry where they are widely used to help extract, clarify and modify fruit juices.

Pectins are large polysaccharide molecules, made up (mainly) of chains of several hundred galacturonic acid residues. Enzymes in Solpect include polygalacturonases, pectin methyl esterase and pectin lyases. These pectinase enzymes act in different ways on the pectins, which are found in the primary cell walls and in the middle lamella. Pectins are well known also for their ability to form gels.

In the juice industry an increasing juice yield from fruit is an objective at the first stage. Solpect L100 (Pectinase enzymes) help considerably boost juice yield and processing capacity by a breakdown of cell walls in the liquefaction and maceration and provide an increased percentage of juice yield compared to conventional methods. The amount of free-run juice is increased before further separation starts. Solpect L100 is useful in the pulp washing process to reduce viscosity in order to avoid the pulp to gelatinize during concentration.

Properties

Consistency	:	Slightly viscous liquid, brown, opaque
Smell	:	Characteristic
Potency	:	>100000 AJDU /gm
Enzyme activities	:	Polygalacturonases, Pectin esterases, Pectate lyases
Production strain	:	Aspergillus niger

Operating Conditions

The optimum enzyme usage levels will vary with different substrates, degree of ripeness and operating conditions such as pH, temperature and reaction time.



Packing

Solpect L100 is supplied in drums each containing 25 kg. Customized packaging is possible.

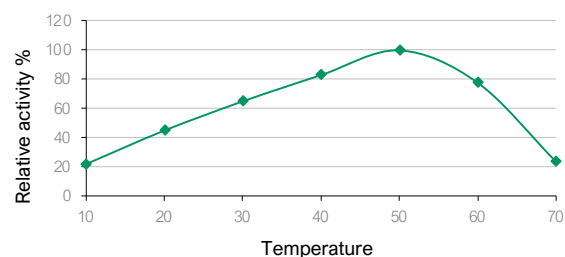
Specifications

Solpect L100 complies with the current recommended purity specifications for food grade enzymes given by the Joint FAO/WHO Expert Committee on Food Additives (JECFA).

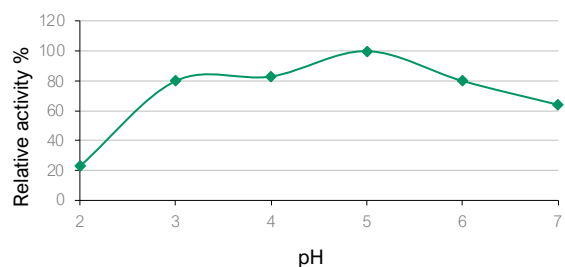
Solpect L100 is recommended to be used with following conditions:

	Temp.	pH	Time (min)	Dose (g/t)
Operation	35°C - 65°C	4.0 - 5.5	60 - 120	100 - 200
Enzyme inactivation	80°C		10	

Temperature Profile



pH Profile



Storage

In sealed containers, under cool, dry conditions. It should be used within 12 months beyond which loss of activity starts which may accelerate in the case of improper storage.

Safety

The Solpect L100 dissolves in water and is not dangerous when applied according to the instructions. When handling the liquid Solpect L100 the common safety measures have to be observed in order to avoid direct contact and the inhalation of enzyme. In case of inadvertent spillages or direct skin or eye contact immediately rinse with water. More information is available with the MSDS available on request.

Glutolyse 50

Neutral Protease for food processing

Glutolyse 50 is an endo-peptidase preparation derived from non- GMO strain of *Bacillus subtilis* designed specially for Gluten modification. It is a food grade product with broad substrate specificity able to efficiently hydrolyze most of the soluble proteins. It performs very well on both animal and vegetable proteins at neutral pH.

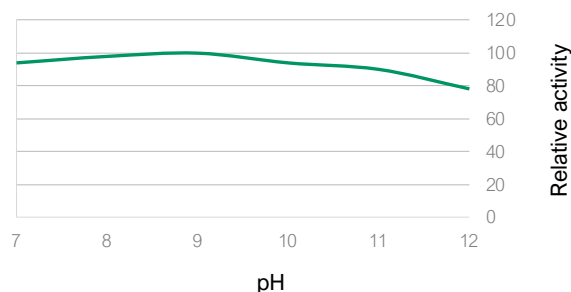
Properties

Appearance	:	Amber to brown liquid
Grade	:	Food grade
pH	:	6.0 to 7.0

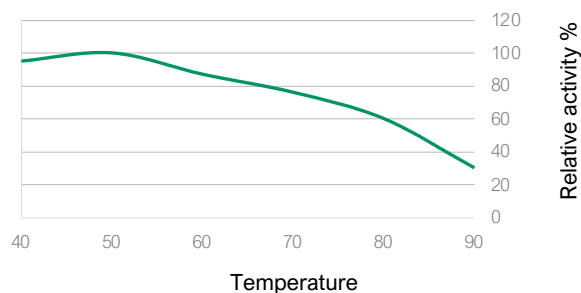
Operating conditions

Glutolyse50 can be used at different temperatures and pH. Its activity profile at wide range of temperature and pH range is given below:

Glutolyse 50 pH Profile at 50°C



Glutolyse 50 Temperature Profile at pH 5



Application

Glutolyse50 is recommended for use in modification / hydrolysis of gluten, casein, soy and other types of animals and vegetable protein. It can also be used in malt supplementation in brewing industry and for modification of Cheese in dairy industry.

Enzyme Inactivation

Enzyme inactivation can be achieved by processing the reaction product at greater than 80°C for 3 - 7 minutes or by adjusting the pH of the reaction product to less than 3.0 and holding it at greater than 50°C for 30 minutes.

Doses

Glutolyse50 dosage can be adjusted between @ 0.1% to 0.5% depending on the kind of raw material being used and desired level of hydrolysis in the end product. Parameters like temperature, pH and time also play a role in dose adjustment. It is recommended to do a trial at laboratory scale before using Glutolyse50 at commercial scale.

Specifications

Glutolyse50 complies with the current recommended purity specifications for food grade enzymes given by the Joint FAO/WHO Expert Committee on Food Additives (JECFA).

Storage

In sealed containers, under cool, dry conditions. It should be used within 12 months beyond which loss of activity starts which may accelerate in the case of improper storage.

Safety

Contact or Inhalation of enzymes in any form may cause allergic reactions and should be avoided. In case of contact with the skin or eyes, promptly rinse with water for at least 15 minutes. Please refer Material Safety Data Sheet (available on request) for all safety instructions.

Lipsol FD

Fungal lipase for food industry

Lipsol-FD (fungal lipase) is a food grade lipase for flour improvement produced by the controlled fermentation of an environmentally friendly non-GMO fungal specie.

Properties

Lipsol-FD (fungal lipase) is supplied as off-white powder.

Appearance	:	Off white to creamy powder
Optimum pH	:	5.0 - 6.0
Optimal temperature	:	45 - 55°C

Lipsol-FD is available in 10 kg cases consisting of 8x1.25kg HDPE bags in corrugated boxes.

Main feature

- Enhances the stability of dough, increases loaf volume, improves crumb structure and makes it whiter, gives better oven spring
- Hydrolyses fat in dough to yield natural emulsifier to substitute chemical emulsifiers.
- It displays broader substrate specificity i.e. it can release fat breakdown products from many different components of wheat fat.

Storage

Lipsol-FD should be stored in a cool dry location. The packs should be kept closed when not in use. Exposure to high humidity and temperature is not recommended.

Handling

Lipsol-FD is formulated in a way that gives the highest degree of safety during handling. The product is non-flammable, and safe when used according to direction. Use normal handling precautions against direct contact. In case of accidental spillage or contact to skin or eyes, rinse with plenty of water.

Safety

MSDS is available on request



Cellulase

Fungal Cellulase for Food Industry

Cellulase is a food grade acid cellulase derived from a special non-GMP strain of *Trichoderma Reesei* capable of converting cellulose to glucose. The cellulase complex consists of both exoglucanases and endo-glucanases which directly attack soluble cellulose derivatives and native cellulose.

Benefits and Application

Cellulase find applications in the following fields:

- **PHARMACEUTICALS:** Aids in digestion of cellulosic materials.
- **ANIMAL FEEDS:** Added to the diet of swine and poultry, Cellulase may result in increased weight gains and feed efficiencies.
- **BREWING:** Increases the body of the malt beverages by solubilizing more of the malt and cereal adjuncts.
- **FRUIT JUICES:** Aids in extraction and clarification of juice from citrus fruits.
- **ESSENTIAL OILS AND SPICES:** Increases yields of essential oils and other plant extracts.
- **WASTES:** Digests paper and other waste as a component of septic tank and drain compounds.

Properties

Appearance	:	Viscous liquid
Solubility	:	Soluble in water
Optimum pH	:	4.5-6
Operating Temp	:	50-55°C
Activity substrate	:	CMC

Doses

Application dose depends on the specific application and substrate. It is recommended that the dose should be tried on small samples and optimised accordingly.

Storage

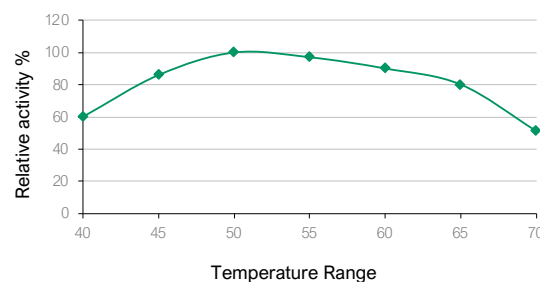
In sealed containers, under cool, dry conditions. It should be used within 12 month beyond which loss of activity starts which may accelerate in the case of improper storage.

Safety

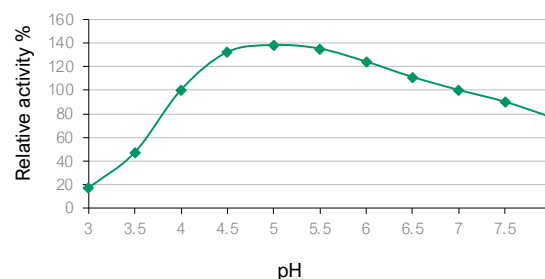
Contact or Inhalation of enzymes in any form may cause allergic reactions and should be avoided. In case of contact with the skin or eyes, promptly rinse with water for at least 15 minutes. Please refer Material Safety Data Sheet (available on request) for all safety instructions.

Activity profile at different temperature and pH

Cellulase Temperature Profile



Cellulase pH Profile



Lipsol 90L (Fungal Lipase)

Fungal lipase for oil and food application

Lipase is an enzyme of considerable commercial and industrial importance. The major applications of lipase are in the fat and oleo-chemical, food and dairy, textile, detergent, cosmetics, tea processing, pulp and paper, and leather industries.

Lipsol 90L (fungal lipase) is a food grade lipase produced from Non-GMO fungal specie *Candida cylindracea* which finds application in hydrolysis of oils, food processing and feed supplementation.

Properties

Lipsol 90L	:	Brownish clear liquid
Optimum pH	:	7.0 Optimal
Temperature	:	37°C
Activity	:	900 FIP u/gm

Storage

Lipsol 90L should be stored in a cool and dry place. The packs should be kept closed when not in use. If stored below 25°C claimed activity shall be maintained for 12 months from the date of manufacture.

Handling

Lipsol 90L is formulated in a way that gives the highest degree of safety during handling. The product is non-flammable, and safe when used according to direction. Use normal handling precautions against direct contact. In case of accidental spillage or contact to skin or eyes, rinse with plenty of water.

Safety

MSDS sheet is available on request.



β -Glucanase Enzyme

Food grade. Efficient Hydrolysis of β -Glucans for enhanced product

β -Glucanases are a class of enzymes that hydrolyze β -1,3 and β -1,4 linkages in β -glucans—polysaccharides found in cereals, fungi, and cell walls of yeast and plants. These enzymes are essential in various industries for improving viscosity control, nutrient availability, and processing efficiency.

Applications

- Viscosity reduction in wort
- Filtration enhancement and yield improvement

Properties

Form	:	Liquid / Powder
Activity	:	$\geq 8,000$ BgU/g (customizable based on application)
Source	:	Aspergillus spp.
Optimal pH Range	:	4.5 – 6.5
Optimal Temperature	:	45°C – 60°C
Stability	:	Stable in feed, brewing, and pulp process conditions
Compatibility	:	Compatible with cellulase, xylanase, amylase

Packing

Available in 50 Kg drums.

Storage

- Store in a cool, dry place below 25°C
- Shelf Life: 12 months (in sealed condition)

Benefits

Increased
lautering speed and
process efficiency

Improved
filtration clarity and throughput

Higher
extract recovery

Reduced
 β -glucan-related haze and improved
beer stability

Mannanase

Food grade. Eco-efficient Mannan breakdown for food, and industrial excellence

Mannanase is a hydrolytic enzyme that specifically breaks down mannans, a group of complex polysaccharides found abundantly in plant cell walls, especially in legumes, palm kernel, guar gum, and copra meal. Classified primarily as endo- β -1,4-mannanase, it cleaves the internal β -1,4-mannosidic linkages in the backbone of mannans, glucomannans, and galactomannans.

This enzyme plays a vital role in various industries by improving process efficiency, enhancing nutrient availability, and reducing anti-nutritional factors in feed and food matrices. Its use contributes to clean-label, sustainable processing solutions.

Application

Food processing: Improves viscosity control and texture modification in products containing guar gum or locust bean gum.

Coffee extraction: Used during instant coffee production to hydrolyze galactomannans from coffee beans.

Oil extraction & processing: Used in oil extraction from guar, coconut, and palm kernel sources by breaking down mannans in the cell wall matrix.

Properties

Appearance	:	Light brown liquid / off-white powder
Enzyme Activity	:	25000 U/g (customizable)
pH Range	:	4.5 – 7.5 (optimum ~6.0)
Temperature Range	:	30°C – 60°C (optimum ~50°C)
Solubility	:	Completely soluble in water (liquid)
Shelf Life	:	12 months at 25°C (sealed, dry state)

Packing

50 kg HDPE drum

Storage

- Store in a cool, dry place away from direct sunlight.
- Keep container tightly closed when not in use.
- Use personal protective equipment (PPE) during handling.

Regulatory & Quality

- Non-GMO production strain
- Compliant with ISO 9001, FSSAI, and GMP standards
- Halal and Kosher certification available (on request)
- Safety Data Sheet (SDS) available upon request

Benefits

Used

in bakery, sauces, and dairy analogs

Enhances

solubility and mouthfeel of hydrocolloids

Improves

yield and quality of soluble coffee

Enhances

filtration and clarity of coffee extract

Improves

oil yield

Reduces

processing time and chemical use

Enhances

protein recovery in meal fractions

Pectinase Enzyme

Industrial grade. Efficient Pectin breakdown for Juice, Wine & Beyond.

Pectinases are a group of enzymes that catalyse the degradation of pectic substances, particularly pectin, a structural polysaccharide found in the middle lamella and primary cell walls of plants.

Pectinases include polygalacturonase, pectin lyase, and pectin esterase, and are essential in industries requiring the clarification, extraction, and processing of plant-based materials.

Applications

Fruit & Juice Processing Industry:

- Clarification of fruit juices
- Enhanced juice extraction and filtration
- Reduction of viscosity for better flow and handling

Wine Industry:

- Juice extraction from grapes
- Must clarification
- Enhancement of wine aroma and color

Coffee and Tea Industry:

- Mucilage removal from coffee beans (wet processing)
- Enhancement of tea leaf processing and extract clarity

Oil extraction:

- Aids in oil release from fruits (olive, avocado, etc.) by degrading pectin barriers
- Improves oil clarity and yield in both cold-press and enzymatic methods

Properties

Form	:	Liquid / Powder
Activity	:	≥10,000 PGU/g (customizable)
Source	:	Aspergillus sp.
Optimal pH Range	:	4.0 – 6.5
Optimal Temperature	:	40°C – 55°C
Stability	:	Stable under fruit, textile, and wine processing conditions
Compatibility	:	Compatible with cellulase, amylase, hemicellulase

Packing

Available in 50 Kg drums.

Storage

- Store in a cool, dry place below 25°C
- Shelf Life: 12 months (in sealed condition)

Benefits

Improves

juice & oil yield and clarity during maceration

Faster

filtration and processing speed

Enhanced

flavor, color, and shelf-life

Reduction

in processing costs and waste generation

Reduced

haze formation and faster sedimentation

Enhanced

fermentation control and wine stability

Improved

process efficiency and bean quality

Cleaner

fermentation process in coffee production

Decreases

the use of harsh chemicals

Xylanase Enzyme

Food grade. Eco-efficient Hemicellulose degradation for bakery.

Xylanase is a class of hydrolytic enzymes that catalyze the degradation of xylan, a major hemicellulosic component of plant cell walls, into xylose and xylo-oligosaccharides. Xylanases enhance process efficiency and product quality in a wide range of industries by enabling better fiber modification, improved digestibility, and cleaner processing.

Application

- Dough conditioning
- Improving bread volume and texture
- Enhancing crumb softness and shelf-life

Properties

Form	:	Liquid / Powder
Activity	:	≥30,000 U/g (customizable)
Source	:	Aspergillus sp.
Optimal pH Range	:	5.0 – 7.0
Optimal Temperature	:	45°C – 60°C
Stability	:	Stable under baking, feed & pulp conditions
Compatibility	:	Compatible with cellulase, amylase, protease

Packing

Available in 50 Kg drums.

Storage

- Store in a cool, dry place below 25°C
- Shelf Life: 12 months (in sealed condition)

Benefits

Improved
dough handling and
extensibility

Uniform
crumb structure and
higher loaf volume

Prolonged
freshness and softness
in bakery products





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