Baking enzymes
to catalyse your ambition

LYVEN produces enzymes on an industrial scale by **Solid State Fermentation** on natural substrates (e.g. beet pulp, wheat bran…) using selected strains widely accepted in the food industry: *Aspergillus, Bacillus,* and *Trichoderma*…

lyven®

Panlyve range

- Diastasic power
- Extensibility
- Oven spring
- Loaf volume
- Crispiness
- Anti-staling
- Softness…

Baking enzymes

Biscuits and snacks and other specialities

BISCUITS AND SNACKS






	Composition		
Panlyve BI	Bacterial protease from *Bacillus subtilis* for biscuit making	particularly adapted to biscuits and crackers manufacture, possible substitute for metabisulfite or cystein hydrochloride.	30 – 90 ppm for yeasted dough 100 – 300 ppm for non-yeasted dough
Lypaïne 48000	Plant protease in powder form	Favours a regular biscuits sizing.	50 - 100 ppm
Lypaïne 6500 L	Plant protease in stable liquid form.	Favours a regular biscuits sizing.	400 - 700 ppm
Panlyve MBSR	Cysteine optimized Plant protease	Meta Bi-Sulfite Replacer.	300 - 700 ppm
Panlyve AR100 NEW	Optimal combination of amylases and hemicellulases.	For a good water distribution in dough leading to less biscuits break (checking).	50 – 100 g / 100 kg flour
Amylyve UHT	Thermo-stable amylase	Helps to monitor viscosity before extrusion.	50 - 70 ppm in slurry
Cellulyve TS NEW	Thermo-stable hemi-cellulases	Leads to improved crispiness thanks to a better WAI monitoring (WAI = Water Absorption Index)	0.1- 0.5 % in slurry
Panlyve AGH NEW	Optimal combination of amylases and hemicellulases	Favours pretzel dough development.	30 - 70 ppm
Panlyve AR super	Optimal combination of amylases and hemicellulases	Enables to reach long shelf lives.	50-100 g / 100 kg flour
Panlyve W	Optimal combination of proteases and xylanases	Its rapid action on dough viscosity favours the production of even and steady batches of wafers.	30 - 150 ppm
Panlyve W2X NEW	Optimal combination of proteases and xylanases	Its rapid action on dough viscosity favours the production of even and steady batches of wafers.	15 - 75 ppm
Panlyve H3 NEW	Optimal combination of hemi-cellulases	Helps to maintain crispiness for a longer period of time.	80 - 120 ppm
Inverlyve L2400	Invertase.	Enhances crust colour.	10 - 50 ppm

OTHERS SPECIALITIES

	Composition		
Panlyve BR	Ready-to-use formulation	Bromate substitute.	100 – 300 ppm
Panlyve TDR (GMO) or Panlyve LDR (non GMO)	Soft breads	Economically attractive substitute of emulsifier (SSL, DATEM, mono / diglyceride).	Panlyve TDR ou LDR: 3 – 10 ppm
Panlyve TGM	Transglutaminase	Increases wheat flour strength.	40 - 100 ppm
Panlyve AG	Glucoamylase from *Aspergillus niger* with amylase side activities	Converts damaged starch into glucose mainly. This latter is quickly transformed by baker's yeast which speeds up CO_2 production necessary for dough leavening. This effect may be essential in frozen dough processes.	Panlyve AG: 100 – 300 ppm Panlyve AG CONC: 20 – 50 ppm

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Panlyve range

Flour improvers - antistaling formulations

Flour improvers








	Composition		
Panlyve AMY	**Fungal amylases** from *Aspergillus orysae* without any side activity	Converts damaged starch into maltose mainly. The latter is consumed by baker's yeast to produce CO_2 necessary for dough leavening.	Various concentrations available, allowing incorporations ranging from 5000 to 50000 SKB/100 kg flour.
Panlyve HCB	**Fungal hemicellulases from** *Aspergillus niger*	Converts insoluble pentosans into soluble pentosans which favour gas retention of dough and improve gluten elasticity. The consequence is higher loaf volumes and improved crumb structure. *All HBC products (HBC 5, 10 or 20) may be combined with Panlyve AMY to formulate a wide range of bread improvers.*	Panlyve HCB 5: 60 – 200 ppm Panlyve HCB 10: 30 – 100 ppm Panlyve HCB 20: 15 – 50 ppm
Panlyve XT	**Fungal hemicellulase** from *Trichoderma longibrachiatum*	Quickly converts insoluble pentosans into soluble pentosans in all kinds of cereals (wheat, rye,...). It is recommended for short bread making, multicereal bread (rye, oat…) or biscuits making processes. Expected effects are dough's viscosity lowering and improved water distribution in dough, which reduces risks of checking in biscuits.	50 – 150 ppm
Panlyve AXN	**Bacterial hemicellulases** from *Bacillus subtilis*	Should be used in combination with Panlyve AMY and ascorbic acid (3 – 6 g/100 kg flour), and Panlyve HCB to obtain strong over spring.	20 – 40 ppm
Panlyve GO	**Glucose oxydase** from *Aspergillus niger*	Active during mixing whereby oxygen is incorporated into the dough. SH groups of gluten proteins are oxidized into S-S bridges. Gluten network is then reinforced. Combined with most hemicellulases Panlyve GO enables to substitute usual redox mediators like ascorbic acid and bromate.	Panlyve GO: 50 - 150 ppm Panlyve GO 10000: 10 - 20 ppm
Panlyve NPB	Ready-to-use combination of apha-amylase and proteases from *Aspergillus oryzae*	Impacts dough rheology as shown by Chopin alveograph traces modifications: P/L is lowered without any significant W reduction. Dough expansion is improved both during proofing and baking steps. To be applied successfully in pizza dough and pancakes.	5 – 50 ppm
Panlyve NP conc	**Proteases** concentrated neutral protease from *Aspergillus oryzae*	Increases dough extensibility; particularly relevant for typical french baguette manufacture.	1 - 10 ppm

ANTI-STALING FORMULATIONS

	Composition		
Panlyve AR6	**Thermo-stable amylase based formulation.**	Especially free of any proteolytic activity. Improves the softness and shel-life of many baked goods.	20 – 50 ppm
Panlyve AR Soft and AR Soft Plus	**Optimal combination of amylases**	Bread softness fresh keeping.	Typically 18 – 21 days of shelf life when dosed at 120 – 150 ppm At lower dosage (20 – 40 ppm), bread softness may be maintained for 4 – 6 days. Panlyve AR Soft Plus may be applied at 50% dosage of Panlyve AR Soft.
Panlyve AR 100 NEW	**Optimal combination of amylases and hemicellulases** (GMO free)	Enables to reach long shelf lives via increased water binding capacity of dough	50 – 100 g / 100 kg flour.

Panlyve range

Diastasic power
Extensibility
Oven spring
Loaf volume
Crispiness
Anti-staling
Softness…

Baking enzymes from Lyven

Flour correction, process improvement,ww antistaling formulations…

Enzymes are useful tools at each transformation step from cereals to the final consumer

- **Diastasic power**
  amylase supplementation may be needed according to the quality of the crop.
- **Extensibility**
  mild gluten protein hydrolysis will increase elasticity which is essential for baguettes and pizza manufacture.
- **Oven spring**
  hemicellulases degrade non starch polysaccharides into fibres which optimize gas retention in dough.
- **Crispiness**
  combine action of several hemicellulases, prevents water absorption of baked goods.
- **Antistaling**
  optimized combination of amylases enable to prevent starch retrogradation responsible for staling.
- **Softness**
  combined action of several enzymes (lipases, amylases, hemicellulases,) stabilizes the starch-gluten network for an improved softness.

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