

The cost-efficient and resource-saving
preparation of enzymatic starch



SAVE THE STARCH

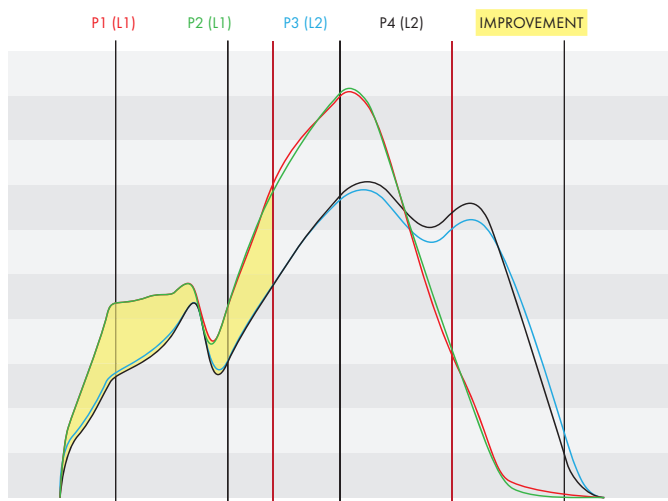
The savings of raw materials and the reduction of energy consumption in additive preparation within the paper and cardboard industry are more important than ever due to high starch prices and extensive energy costs.

STARCH SAVER – YOUR ADDED VALUE

- no loss of starch and no loss of water
- low energy levels
- integrated heat recovery
- continuous and stable operation mode without a sudden pressure rise
- starch production of variable capacities based on demand
- highly accurate slurry, dilution to constant concentration, conversion and dosing
- tailored adjustment for viscosity, molecular weight distribution and concentration
- skid design with many advantages upon customer request
- proven technology - more than 150 references in enzymatic starch preparation

POSSIBILITIES OF INFLUENCE ON MOLAR MASS DISTRIBUTION

The molar mass distribution can be directly influenced via four controllable variables - temperature, dwell time in the converter, enzyme mixing proportion and agitator motor in the converter.



M [g/mol]	< 25,000	25,000 – 1,000,000	> 1,000,000	Mw [kDa]
P1 (L1)	38.1	57.6	4.2	204
P2 (L1)	38.0	58.0	4.0	198
P3 (L2)	28.3	48.9	22.9	863
P4 (L2)	27.5	50.2	22.3	799

THE INNOVATION: CAVITATION

With a completely new starch preparation process using cavitation, which is now in the pilot phase at a customer in Austria, further significant savings can be expected.

The technology focuses on saving starch. This is achieved by boosting the strength-increasing properties of the starch by optimizing the molar mass distribution during the cooking. By using several Venturi nozzles, cavitation impacts are generated in a targeted manner, which exposes the starch grains to a shearing force during the "swelling phase", which reduces the cooking time.

The cell walls are broken down during swelling and the starch can dissolve earlier. In addition, the turbulences caused by the increased speed create an improved enzyme mixing.

Shorter cooking time + improved mixing
 =
 reduction of the short-chain glucose content
 of the cooked starch
 =
 more favourable molecular weight distribution



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