

Amylases are an absolute must when processing pip fruit to make clear juices.



About a quarter of the normal dosage removes starch

New Amylase AG XXL is the ultimate product for achieving fast, complete starch degradation at low cost in apple and pear processing.

"Amylase AG XXL really is something new. When it was first launched in 2003, it took time for the enzyme to be accepted," says Christian Stutz of Technical Service for Fruit & Vegetables at Novozymes. "Many people simply didn't believe that you only needed a third or a quarter of the normal amylase dosage. They wanted to check it out first."

Now Amylase AG XXL is being used widely around the world. It may cost a little more per kilogram than traditional amylases, but it works out cheaper because considerably lower dosages are needed - a minimum of 50% compared to Amylase 300 L. This results in savings on amylases of 30-50%, so the cost-benefit for the user is obvious!

Laboratory trials

In early 2003, unprocessed pear juice from a juice producer in South Africa was used for laboratory trials. The pH was 3.57 and

turns blue if starch is still present in the form of amylose.)

As can be seen, only a 25-50% dosage of Amylase AG XXL was required compared to Amylase AG 300 L to achieve a negative iodine test. When a similar trial was conducted with apple juice (pH 3.25, Brix 12.1°), the conclusion was the same. These laboratory results have been confirmed many times since under industrial conditions.

The lower dosage makes new Amylase AG XXL a more cost-effective enzyme, and Novozymes believes that most customers will switch from Amylase AG 300 L if they have not already done so. Amylase AG XXL is available in a strength of 460 AGU/ml.

Greater flexibility

The new enzyme also gives flexibility because it works across a range of acidic pH values and at high temperatures.

and thermostability up to 70°C, it is a more heat-stable product than Amylase AG 300 L, the conventional amylase for the treatment of juice. It can be used in juice up to a temperature of 65°C.

It has been observed under industrial conditions that the use of Amylase AG XXL has a very positive effect on downstream processing, particularly on the performance of ultrafiltration.

Clear juice

The main component of Amylase AG XXL is an amyloglucosidase, but it also contains large quantities of fungal acid alpha-amylase.

Fresh apple and pear juices very often contain around 1.5% starch, and the proportion can be as high as 3% at the beginning of the season. This starch must be removed in order to produce clarified juices or concentrates.

Starch-splitting enzymes are usually added together with pectinases during depectinisation of the juice. The fast and complete degradation of starch avoids clarification and filtration problems in downstream processing as well as post-haze (cloudiness).

Amylases are an absolute must when processing pip fruit to make clear juices. For this application, new Amylase AG XXL is becoming the clear leader. ●

DOSAGE COMPARISON TO ACHIEVE A NEGATIVE IODINE TEST		
Temperature (°C)	Dosage of Amylase AG 300 L (g/1,000 l)	Dosage of Amylase AG XXL (g/1,000 l)
20	20	10
50	20	5
60	20	5 (slightly better than at 50°C)

With pear juice from South Africa at a temperature of 50 or 60°C, a quarter of the dosage is needed to achieve a negative iodine test when using Amylase AG XXL compared to Amylase AG 300 L.

the Brix 14.3°. The results of the trials are shown in the table. The aim was to find out how much enzyme was required to achieve a negative iodine test. (This test is used to detect traces of starch in juice. The iodine

is ideal for typical application conditions of 50-60°C and pH 3.5. Amylase AG XXL has excellent stability over a wide pH range of pH 3-6 with an optimum at pH 4. With a temperature optimum at 65°C

FOR MORE INFORMATION
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