

## Enzyme Treatment Panzym® F2

### Starch Degradation in Pip Fruit Juices (Cold and Hot Enzymation) to Prevent Filamentous Precipitation

Panzym F2 enzyme is a highly concentrated special enzyme preparation for the safe and economical degradation of starch at 59 – 131 °F (15 – 55 °C) in pip fruit juices. Due to the unique molecule structure of the enzyme protein, there is no filament-like precipitation. Panzym F2 enzyme is produced from a selected strain and is available as a clear, brown liquid with a slight smell, typical of fermented products.

#### Application and Mode of Action

Panzym F2 enzyme is a special amylase for the complete breakdown of starch into glucose at temperatures of 59 – 131 °F (15 - 55 °C). High dosaging, which, when using traditional amyloglucosidase, leads to extensive post precipitation does not occur when using Panzym F2 enzyme.

Panzym F2 enzyme hydrolyzes gelatinized starch and dextrin completely thus assisting the clarification and filtration of juices.

The enzyme requirement can be easily ascertained by conducting the iodine test. 0.034 fl oz (1 ml) of diluted iodine 0.07 oz (2 g) potassium iodide and 0.035 oz (1 g) iodine are poured on top of 0.338 fl oz (10 ml) fruit juice. Blue coloring (high molecule starch), violet coloring (partially hydrolyzed starch) or red coloring (dextrin) indicates that the test is positive.

In order to determine the total amount of starch (gelatinized/non gelatinized), prior heating of the fruit juice samples to 176 °F (80 °C) and subsequent cooling down to 77 °F (25 °C) is necessary.

Gelatinized starch and dextrin age and this retrograding process occur particularly in juices and concentrates that are stored under cool conditions.

Retrograded starch is no longer detectable when carrying out the iodine test and enzymatic starch degradation is no longer possible. Therefore, the addition of Panzym F2 enzyme should be made as early as possible, most advisable in heat - treated juices or dearomatized juices.

#### Dosage

Application	Dosage in fl oz/1,000 gal (ml/hl)
<b>High</b> starch content (early season fruit)	5.12 – 7.68 (4 – 6)
<b>Average</b> (medium) starch content (end-of-season fruit)	2.56 – 5.12 (2 – 4)
<b>Low</b> starch content (stored fruit)	1.28 – 2.56 (1 – 2)

With extremely high starch content, unfavorable temperatures or too short holding times, optimal enzymation can be ensured by increasing the dosage of Panzym F2 enzyme. The product is inactivated at temperatures exceeding 140 °F (60 °C) and by contact with bentonite.

#### Safety and Purity

Panzym F2 enzyme complies with the FAO/WHO (JECFA and FCC) specifications for enzymes in the food industry.

Panzym F2 enzyme is filled aseptically following sterile filtration and is therefore virtually germ-free.

Panzym F2 enzyme is a brownish, liquid enzyme preparation that has the typical odor of fermented products.

Panzym F2 enzyme is characterized as follows:

- Production organism: *Aspergillus niger*
- Specified activity: 200 AAU/g (Amylase)

When used as directed and handled correctly, there are no known unfavorable effects associated with this product.

**Further information on safety can be found in the Material Safety Data Sheet, which is available for download from our website.**

## **Storage**

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The product should be stored with the packaging intact away from sunlight at a temperature of 32 to 50 °F(0 to 10°C).

Unfavorable storage conditions (exposure to direct sunlight, higher storage temperatures) may require a higher dosage.

Once opened, the product should be used up as soon as possible.

## **Delivery Information**

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Panzym F2 enzyme is sold under article no. 95.269 and is available in the following package sizes:

2.2 lb (1 kg)	PE-bottle
12 x 2.2 lb (1 kg)	in cardboard
55.1 lb (25 kg)	PE jerrycan

## **Certified Quality**

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Panzym F2 enzyme is inspected regularly during the production process to ensure consistently high product quality.

Strict controls also take place immediately before and during final packaging.

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### **For more information:**

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