

Starch - Separation

# Application Sheet



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## Smooth wheat processing

Wheat is a highly complex raw material that constantly leads to disruptions in production, thus causing productivity losses. To minimise this risk, Novozymes has produced Shearzyme<sup>®</sup> that efficiently facilitates separation of starch, gluten and fibre.

Whether used in the decanter or the dough process, the Shearzyme products ensure smooth and efficient processing.

### Benefits

- Higher gluten yield - due to efficient removal of pentosans and starch
- Increased capacity utilisation - due to rapid viscosity reduction and low fouling frequency of screen evaporator
- Improved starch purity - due to greater extraction yield of high value A-starch and efficient removal of pentosans and proteins
- Energy savings - due to less use of process water and lower evaporator costs

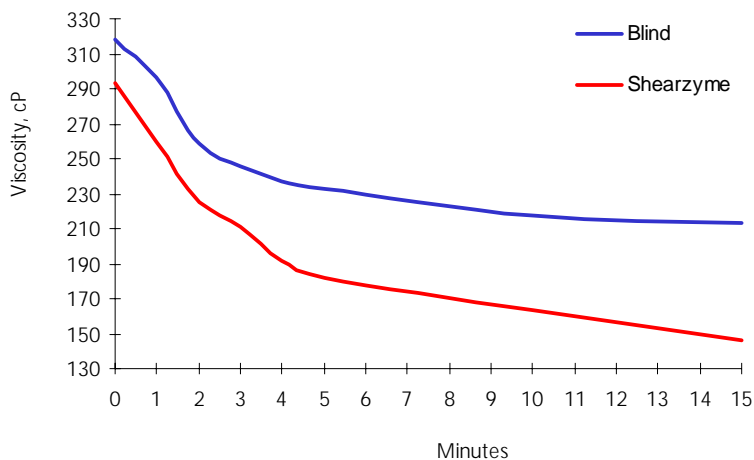
### Products

Shearzyme is available as regular-strength, Shearzyme 500 L and double-strength Shearzyme 2X, which halves your deliveries.

### Performance

#### Increased capacity utilisation and energy savings

Figure 1 show that rapid viscosity reduction is of key importance when squeezed capacity is an issue. Shearzyme is the most efficient means of achieving this. Consequently, the product allows a higher flow rate, thus increasing capacity utilisation and saving money on process water consumption



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Figure 1. Shearzyme shows fast viscosity reduction in the separation stage. Viscosity reduction of wheat flour by different xylanases. Enzyme dosage: 0,24 ml/kg flour, pH = 6, T = 40°C

### Improving starch/gluten yields and purity

The enzyme effect on wheat flour separation is illustrated qualitatively in Figure 2 on a laboratory scale using a centrifugation process. Following mixing of water and flour, the major components of the wheat flour are separated by centrifugation into starch, gluten, sludge and supernatant. Shearzyme enables you to extract higher yields of starch and gluten. The choice of product will depend on your process and the need for rapid viscosity reduction. Please refer to Table 1 for an overview.

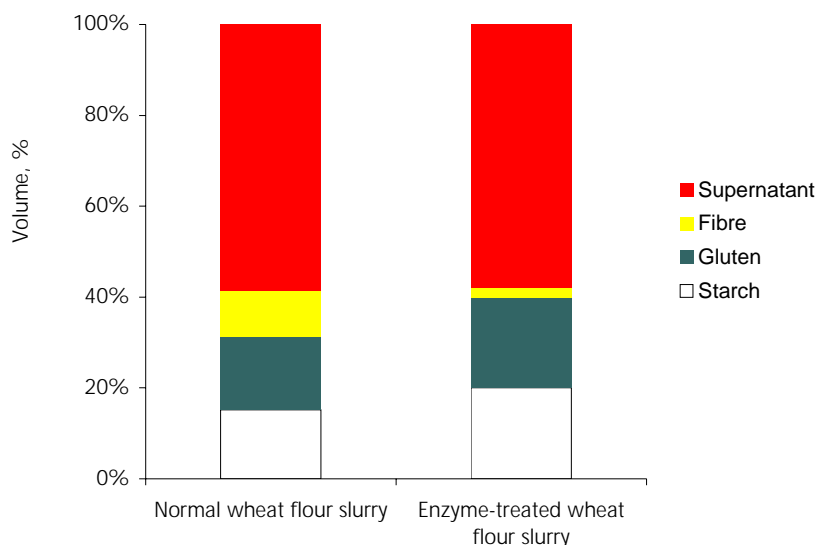


Figure 2. Separation of wheat flour components by centrifugation.

## Usage

### Recommendations for use

Novozymes product	Recommended pH*	Recommended temperature*	Recommended dosage (kg/t flour)	Point of addition
Shearzyme 500 L	6.8-7.2	30-40°C	0.1-0.2	process water used for batter mixing
Shearzyme 2X	6.8-7.2	30-40°C	0.05-0.1	process water used for dough preparation, and other process steps

**Table 1.** Recommended Novozymes products and usage conditions.

\* optimum enzyme performance at pH 4.5-6.0 and 55-75°C.

### Safety, handling and storage

Safety, handling and storage guidelines are provided with all products.

In addition to the above products, we have a number of other enzyme products available on special request. Please contact us for further details or visit our Customer Centre at [www.novozymes.com](http://www.novozymes.com)

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