

# Enzyme Products With Tested Quality



## Applications of enzyme preparations

Approximately 20% of Germans suffer from lactose intolerance. Those affected exhibit defective production of the endogenous enzyme lactase. In addition to a change of eating habits, people affected rely on one of the numerous freely available preparations that artificially supply lactase. The market for such lactase products is correspondingly large and the formulations on offer are diverse.

The way these enzyme preparations available on the market work is based on the use of either “acidic lactase” e.g. from *Aspergillus oryzae*, or of “neutral lactase” from *Kluyveromyces lactis*. Accordingly, optimum enzyme activity can be observed at approximately pH 2.5 or pH 6.5, respectively.

## Measurement methods for enzyme activity

According to the pH to be used, separate standard methods are applied when determining the enzyme activity of both lactase species. Both measurement methods are based on an indirect determination of enzyme activity according to the Food Chemical Codex. The enzyme preparation to be examined is incubated with o-nitrophenyl- $\beta$ -D-galactopyranoside (ONPG) under precisely defined pH and temperature conditions and the amount of o-nitrophenol released is photometrically determined.

Customary lactase preparations are available nowadays as tablets, chewable tablets, powders or capsules in doses of approximately 1,000 to 18,000 FCC units. The standard methods provided explicitly refer to pure water-soluble preparations only. However, soluble and

particularly insoluble auxiliary materials such as carboxymethyl cellulose, silicon dioxide and magnesium stearate, for example, are frequently components of the galenic formulations. The application and adaptation of these methods on the different preparations therefore requires experience and consideration of the galenic background. BioTeSys solves this issue by adjusting the sample preparation specifically to the product.

## Product-specific testing

As a specialist in the fields of food and nutrition, the BioTeSys contract laboratory offers suppliers of enzyme-containing products the opportunity to test the products with regard to the expected enzyme activities, and to follow the entire manufacturing and development process of the preparations, since the enzymes used react sensitively to external influences such as pressure or temperature, for example. The independent examination by the accredited contract laboratory ensures the quality of the enzyme activity declared for the preparations and provides the necessary safety for marketing and application to both manufacturer and consumer.

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