

Let's talk sugar with Novozymes



Spirizyme® portfolio with trehalase

- The most DP2 reduction in the industry – **up to 70%**
- The most sugar conversion possible – **up to 1% ethanol yield***

Introducing the Spirizyme® T portfolio: The GA of “Choice”

Because your plant's operations and performance goals are unique, the ability to choose the product that best fits your needs is fundamental to your success. When it comes to glucoamylase performance, a variety of process conditions can impact results, including plant design, fermentation times and hydro heater use.

The new Spirizyme® T portfolio with trehalase was designed with these variables in mind. While the Spirizyme® portfolio has always been formulated with a reduction in residual sugar and starch, the Spirizyme® T portfolio provides the most total sugar conversion in the market, and offers options for plants with specific operational or performance goals in mind, such as shorter fermentation times or maximizing total yield.

**against baseline GA without trehalase*

Rethink Tomorrow

The DP2 “Sweet Spot”

Trehalase is able to convert formerly un-fermentable sugar to fermentable sugar, providing the potential for generating higher revenues.

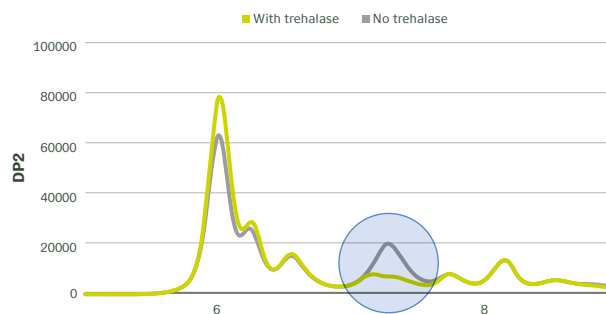


Fig. 1. On average, 70% of the DP2 peak is trehalose, which is very difficult to break down without the use of trehalase.

The Spirizyme portfolio with trehalase significantly reduces DP2 in all plant trials

- Up to 70% DP2 reduction observed in plant trials.
- Spirizyme Ultra T and Excel T typically reduce DP2 by 65%
- Spirizyme Achieve T reduces DP2 by 71%
- On average, 30% more DP2 reduction than other products containing trehalase.

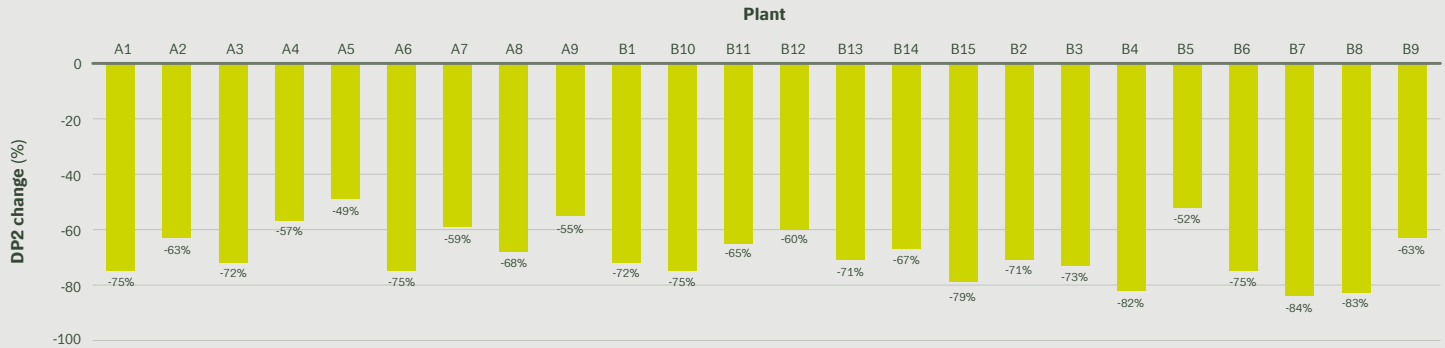


Fig. 2. Significant DP2 reduction in all plant trials.

Proven technology coupled with the most advanced technical services

The Spirizyme® T product portfolio is based on proven technology and can be easily integrated in your production process.

Novozymes' technical field scientists are well equipped to understand your process conditions in order to support your choice of enzyme, as well as optimize product dosing for best results. In addition, only Novozymes customers have access to our Advanced Laboratory Services and Bioenergy University, which can complement your choice of enzyme by providing insights and relevant plant training.

Don't leave your sugar behind. The Novozymes' Spirizyme® T product portfolio allows you the opportunity to minimize total sugar while providing a choice for the product that best meets your needs.

Learn more

Learn more about the Spirizyme® portfolio with trehalase by contacting your Novozymes account representative, or at novozymes.com

About Novozymes

Novozymes is the world leader in biological solutions. Together with customers, partners and the global community, we improve industrial performance while preserving the planet's resources and helping to build better lives. As the world's largest provider of enzyme and microbial technologies, our bioinnovation enables higher agricultural yields, low-temperature washing, energy-efficient production, renewable fuel and many other benefits that we rely on today and in the future. We call it Rethink Tomorrow.

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