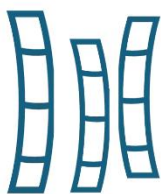


Invertase

High activity enzyme to hydrolyse sucrose for sugar production



HIGH ACTIVITY SUGAR PROCESSING



CANDY PRODUCTION



BULK OPTION

Invertase Technical Datasheet

1. Product Overview

Our invertase enzyme delivers fast, efficient conversion of sucrose into glucose and fructose, giving manufacturers precise control over sweetness, texture, and stability. Designed for high activity and consistent performance, it improves flavour balance, prevents crystallisation, and extends shelf life in confectionery, beverages, baked goods, and syrups. The enzyme works effectively under a wide range of pH and temperature conditions, integrates seamlessly into existing processes, and reduces the need for added sugars or costly reformulation. With reliable supply, strong batch-to-batch consistency, and technical support to optimise dosing and yields, our invertase helps you achieve better product quality, higher process efficiency, and lower overall production costs.

2. Product Characteristics

Parameter	Specification
Enzyme Class	Hydrolase (EC 3.2.1.26)
Source	<i>Saccharase</i>
Appearance	Off-white / yellow powder
Activity	300,000 SU / g
Units	Where 1 unit is the amount of enzyme required to hydrolyse sucrose into glucose and fructose per 5 minutes under standard conditions.
Temperature Range	30–60 °C (operational)
Optimal Temperature	45–55 °C
pH Range	4.0 – 6.6
Optimal pH	4.5 – 5.5
Typical dosage	350 g to process 1 MT sugar syrup at 50 deg. C within 6 hours
Low dosage	150 g to process 1 MT sugar syrup at 50 deg. C within 20 hours
Shelf Life	12 months (sealed, recommended storage conditions)
Certifications	ISO 9001, ISO 22000, FSSC 22000, Kosher

3. Enzymatic Properties

3.1 Mechanism of Action

Invertase catalyses the hydrolysis of the α -1,2-glycosidic bond in sucrose by binding the substrate within its active site and using a water molecule to cleave the linkage between glucose and fructose. The reaction proceeds through acid–base catalysis, in which key amino acid residues facilitate bond cleavage and the formation of the two monosaccharide products. The resulting equimolar mixture of glucose and fructose, known as invert sugar, possesses greater sweetness, higher solubility and

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improved moisture retention than sucrose. As a highly specific enzyme, invertase acts almost exclusively on sucrose under mild processing conditions without generating unwanted by-products, making it an efficient biocatalyst for food, beverage, fermentation and industrial sugar-processing applications.

3.2 Kinetics

Invertase exhibits typical Michaelis–Menten kinetics, with the reaction rate increasing in proportion to enzyme concentration and sucrose availability until the enzyme becomes saturated. Hydrolysis proceeds rapidly during the initial stages when sucrose concentrations are high, before gradually slowing as substrate levels decrease and the reaction products, glucose and fructose, accumulate. Enzyme activity is strongly influenced by temperature, pH and substrate concentration, with most microbial invertases exhibiting optimal activity between 45–60°C and pH 4.5–5.5, although this varies depending on the production organism. Under optimal conditions, complete or near-complete inversion of sucrose can often be achieved within several hours, producing an equilibrium mixture of glucose and fructose with minimal by-product formation.

3.3 Inhibitors

- Heavy metals (Hg^{2+} , Cu^{2+})
- Oxidants
- High chelator concentrations (EDTA)
- High temperatures, low and high pH's

4. Key Applications

Food Applications:

- Invert sugar production
- Soft-centred chocolates and confectionery
- Fondants, fillings and syrups
- Bakery products and sweet baked goods
- Jams, preserves and fruit preparations
- Ice cream and frozen desserts
- Soft drinks, fruit juices and beverages
- Honey substitutes and specialty sweeteners
- Brewing and distilling
- Winemaking and cider production

Industrial Applications:

- Bioethanol and industrial fermentation
- Pharmaceutical syrups and formulations

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- Nutraceutical and dietary supplement manufacture
- Biotechnology and microbial culture media preparation
- Sugar refining and sweetener production
- Cosmetic formulations containing natural sugars
- Animal feed and fermentation processes
- Production of glucose–fructose syrups

5. Handling & Storage

5.1 Storage Conditions

- Store at 4–25 °C in sealed containers
- Avoid direct sunlight and freezing
- Keep away from acids, oxidizing agents, and heavy metals

5.2 Stability on Storage

- Activity loss ~1–5% per month at room temperature
- Refrigeration improves stability

5.3 Safety Information

- Non-toxic and biodegradable
- May cause allergic reactions via inhalation or skin contact
- Use protective clothing, gloves, goggles
- Avoid aerosol formation

Refer to product MSDS for complete safety details.

6. Packaging Options

- 0.1 kg, 1 kg, 10 kg, 25 kg

7. Quality Control Specifications

Test	Specification
Activity assay	≥ labelled activity
Moisture (powder)	≤ 8%
Microbial load	Total plate count ≤ 50,000 CFU / g
Pathogens	<i>Salmonella</i> negative, <i>E. coli</i> negative

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9. Shelf Life

Powder: 12 months – when stored in original container, sealed, in cool conditions.

10. Disclaimer

This technical data sheet provides general information. Application testing is recommended to determine optimal use conditions.

NOTE THIS DOCUMENT SUPERCEDES ALL OTHER EDITIONS