

Fructosyltransferase

Cat. No. FLGZ-0001

Lot. No. (See product label)

Introduction

Description

Fructosyltransferase is a food-grade liquid enzyme preparation produced by submerged fermentation of *Aspergillus fijiensis*. It transfers fructosyl residues from sucrose to suitable carbohydrate acceptors and is intended for enzymatic production of short-chain fructooligosaccharides.

Applications

Production of fructooligosaccharide syrups from sucrose; manufacture of food ingredients requiring controlled enzymatic transfructosylation.

Synonyms

Inulosucrase; Sucrose 1-Fructosyltransferase; Sucrose:2,1-β-D-Fructan 1-β-D-Fructosyltransferase; Transfructosidase

Product Information

Species

Aspergillus fijiensis

Source

Produced by submerged fermentation of *Aspergillus fijiensis*

Appearance

Light yellow to light brown liquid

Form

Liquid

EC Number

2.4.1.9

CAS No.

9030-16-4

Chemical Name

Sucrose:(2→1)-β-D-fructan 1-β-D-fructosyltransferase

Activity

5,000 U/g

Contaminants

General JECFA criteria for food enzyme preparations: Lead: Not more than 5 mg/kg
Salmonella spp.: Absent in 25 g Total coliforms: Not more than 30 CFU/g
Escherichia coli: Absent in 25 g Antibiotic activity: Absent For fungal enzyme preparations, toxicologically significant mycotoxins associated with the source organism or related species should not be present.

Optimum pH

5.0-5.5

Optimum temperature

55-60 °C

Specificity

Uses sucrose as the fructosyl donor and transfers the fructosyl group to sucrose or short-chain fructooligosaccharide acceptors; hydrolytic activity may occur as a competing side reaction.

Function

Fructosyl transfer; fructooligosaccharide production; food-processing aid

Substrates

Sucrose

Quality

Food-grade liquid enzyme preparation with a standard activity of 5,000 U/g. Reported single-process conversion of sucrose to FOS is 56-62% under the cited application conditions.

Grade

Food Grade

Reaction

Sucrose + [(2→1)-β-D-fructosyl]_n acceptor → D-glucose + [(2→1)-β-D-fructosyl]_{n+1}

Reaction	$\text{Sucrose} + \text{H}_2\text{O} \xrightarrow{\beta\text{-D-fructofuranosyl acceptor}} \beta\text{-D-glucose} + \text{H}_2\text{O} + \beta\text{-D-fructosyl acceptor}$ Sucrose + H₂O → β-D-glucose + H₂O + β-D-fructosyl acceptor product. In FOS processing, sucrose and existing short-chain FOS can act as fructosyl acceptors.
Notes	Nomenclature requires verification at the batch-document level. CAS 9030-16-4 is associated with inulosucrase (EC 2.4.1.9) in IUBMB nomenclature. Food-regulatory records for <i>Aspergillus fijiensis</i> enzyme preparations used in FOS production commonly describe a β-fructofuranosidase/invertase activity classified as EC 3.2.1.26. Confirm the intended enzyme identity, EC number, CAS number, activity method, and unit definition on the lot-specific specification or certificate of analysis.
Protocol	Representative batch protocol: Sucrose concentration: 60% (w/v) Reaction pH: 5.0-5.5 Reaction temperature: 55-60 °C Enzyme dosage: 0.5 L per metric ton of dry-basis sucrose Reaction time: 16 hours Monitor sucrose conversion and FOS profile using a validated carbohydrate-analysis method. Terminate the reaction and remove or inactivate the enzyme using a validated downstream process.
Advantages	Liquid format suitable for metered addition Operates in concentrated sucrose systems Supports production of short-chain FOS, including kestose and nystose Mildly acidic operating range Reported sucrose-to-FOS conversion of 56-62% under the cited process
Usage	Use for food-grade FOS production from sucrose. The stated dosage of 0.5 L per metric ton applies to the cited 5,000 U/g liquid activity grade and a 16-hour process at pH 5.0-5.5 and 55-60 °C. Determine the final dose by process validation and the lot-specific activity result. If converting the dosage between mass and volume, use the measured product density; do not assume a density of 1 kg/L.
Usage and Packaging	
Package	25 kg/drum
Preparation Instructions	For a representative FOS-production process using this 5,000 U/g liquid grade: 1. Prepare a 60% (w/v) sucrose solution and dissolve completely. 2. Adjust the solution to pH 5.0-5.5. 3. Maintain the reaction at 55-60 °C with controlled mixing. 4. Add 0.5 L of enzyme preparation per metric ton of sucrose, calculated on a dry-sucrose basis. 5. Continue transfructosylation for 16 hours. 6. After the required conversion is reached, apply a validated enzyme-inactivation and downstream purification process appropriate to the FOS product.
Storage and Shipping Information	
Storage	Store sealed in a cool, dry, and dark place below 25 °C. Protect from heat and direct light.
Stability	Shelf life: 24 months when stored under the stated conditions.