



DELTAZYM® HSAA TF

Product Data Sheet

Date of issue: 15 June 2022

Alpha-amylase for fuel ethanol production

Description: DELTAZYM® HSAA TF is an acid-stable alpha-amylase recovered from a controlled fermentation of a pure microbial culture. It is used as a processing aid to hydrolyse starch in the production of fuel ethanol, or other fuel and industrial-use alcohols.

Properties:

| | |
|-------------------------|----------------|
| Enzyme: amylase | IUBMB: 3.2.1.1 |
| Activity: >120.000 MWU | Form: liquid |
| Density: 1.05-1.15 g/ml | Colour: brown |

Colour and appearance may vary from batch to batch. Colour intensity or turbidity is not an indication of enzyme activity.

Application: DELTAZYM® HSAA TF is a liquefying alpha-amylase producing soluble dextrans and oligosaccharides from starch.

Conditions of use: DELTAZYM® HSAA TF has shown to best perform when used under the following conditions:

| Application | Dosage | Recommendation |
|---|-----------------------------------|---|
| Starch liquefaction for fuel ethanol production | 0.015 - 0.03% w/w dry solid basis | Application at pH 4.0 - 6.4 and 82 - 107 °C Optimum conditions of use: pH 4.8 - 5.4 and 85 - 92 °C |

GM Status: The product and its constituent enzymes are not genetically modified. Enzyme proteins are produced by fermentation of genetically modified microorganisms, which are removed and not present in the final product. Only agricultural raw materials of non-genetically modified (non-GM) origin are used for the fermentation process and in the final formulation.

Composition: DELTAZYM® HSAA TF stabilised with citric acid and glycerol and preserved with potassium sorbate.

Packaging and Storage: DELTAZYM® HSAA TF is available in 25 kg polyethylene drums or IBCs. The product is best stored in the original and unopened packaging under refrigerated conditions (4–8°C) in order to retain maximum activity during storage. Under optimum conditions shelf life is 24 months.

Safety and caution: Enzyme products need to be handled with care. Please consult the separately available Safety Data Sheet for further information.



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Compliance and legal: Our enzyme products are used as processing aids in the food manufacturing process and are thus free from any labelling provisions in the European Union. The product does not fall within the scope of EU regulations (EC) 1829/2003 and (EC) 1830/2003 on genetically modified food and feed.

The product is manufactured to comply with recommended purity specifications given by the Joint FAO/WHO Expert Committee on Food Additives (JECFA), and conforms with the recommended specifications of the Food Chemical Codex for food enzymes.

| | | |
|-------------------------|----------------------------------|---|
| Purity criteria: | Total plate count | < 50 000 CFU per g |
| | Total Coliforms | < 30 CFU per g |
| | Salmonella | absent in 25 g |
| | Escherichia coli | absent in 25 g |
| | Heavy Metals (as Pb) | < 30 mg/kg |
| | Lead | < 5 ppm |
| | Arsenic | < 3 ppm |
| | Cadmium | < 0.5 ppm |
| | Mercury | < 0.5 ppm |
| | Special diet information: | Kosher: |
| | Halal: | certified |
| | Vegan/Vegetarian: | enzyme product or any constituents are not of animal origin |

Certification: WeissBioTech GmbH has a certified quality management system according to ISO 9001:2015 and a certified Food Safety Management System according to FSSC 22000 incl. HACCP, which are reviewed in regular audits.

Made by WeissBioTech GmbH, Germany

To the best of our knowledge, the information contained herein is accurate and complete. However, nothing herein contained shall be construed to imply any warranty or guarantee.

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