

Food enzyme Beta-galactosidase

1 General information

Submitter Amano Enzyme Inc.

Commission ID [2015/91](#)

2 Source

Organism [Aspergillus oryzae](#)

GMM No

Strain AE-LA

3 EFSA Applications

- **Enzyme protein** [Beta-galactosidase](#), **cDNA sequence** Not available, **Mass** Not available, **Chemical parameters** /, **Question number** EFSA-Q-2015-00684, **EFSA Status** Finished, **Safety evaluation** [Safety evaluation of the food enzyme b-galactosidase from the non-genetically modified Aspergillus oryzae strain AE-LA](#)

4 Manufacturing

Production Fermentation

5 Industrial activity

Intended food use

- Dairy processing (whey processing)
- Flavouring production



Exposure level Chronic exposure to the food enzyme-TOS was calculated by combining the maximum recommended use level with individual consumption data (EFSA CEP Panel, 2021a). The estimation involved selection of relevant food categories and application of technical conversion factors (EFSA CEP Panel, 2021b). Exposure from all FoodEx categories was subsequently summed up, averaged over the total survey period (days) and normalised for body weight. This was done for all individuals across all surveys, resulting in distributions of individual average exposure. Based on these distributions, the mean and 95th percentile exposures were calculated per survey for the total population and per age class. Surveys with only one day per subject were excluded and high-level exposure/intake was calculated for only those population groups in which the sample size was sufficiently large to allow calculation of the 95th percentile (EFSA, 2011). The highest dietary exposure was estimated to be about 1.651 mg TOS/kg bw per day in infants at the 95th percentile.

Intended use level 6.0 mg TOS/kg RM

Usage details "The applicant intended to use this food enzyme in four food manufacturing processes : Lactose hydrolysis in milk processing; Production of fermented milk products; Whey processing; and Manufacture of enzyme modified dairy ingredients. Two different dairy materials can be treated with this food enzyme: milk or whey. b-Galactosidase hydrolyses lactose to glucose and galactose. The treatment makes milk more suitable for lactoseintolerant individuals and sweeter. Adding b-galactosidase together with microbial cultures during fermentation would result in lactose-reduced yoghurt. Treatment of the cheese whey or whey permeate would result in lactose-reduced and sweeter whey syrups. No separation step is applied to remove the enzyme from the treated milk, milk products or whey. The enzymatically treated milk or whey can be consumed directly, but can also be used as ingredient in a large variety of foods. The enzymatic treatment also decreases the sandiness of lactose crystals in products like ice cream. To produce enzyme-modified dairy ingredients (EMDI), the food enzyme is used in cream and butter milk powder manufactured together with other relevant enzymes. The b-galactosidase hydrolyses lactose to glucose and galactose, whilst other enzymes contribute to the intensified flavour of EMDI products. The food enzyme remains in the EMDI products. Based on data provided on thermostability, it is expected that the bgalactosidase is inactivated by heat during the pasteurisation step. "