

**A Petition to Amend the Australia New Zealand Food Standards Code with a Glucose Oxidase Enzyme Preparation produced by *Trichoderma reesei***

***EXECUTIVE SUMMARY***

The present application seeks to schedule 18 - Processing Aids of the Australia New Zealand Food Standards Code (the Code) to approve a Glucose Oxidase enzyme preparation from *Trichoderma reesei* produced by AB Enzymes GmbH for use as a processing aid in the manufacturing of cereal based products (baking) and egg processing.

**Proposed change to Standard 1.3.3 - Processing Aids**

The table schedule 18—9(3), Permitted processing aids various purposes, is proposed to be amended to include a genetically modified strain of *Trichoderma reesei* as permitted source for glucose oxidase (EC 1.1.3.4).

This application is submitted under a general assessment procedure.

**Description of Enzyme Preparation**

The food enzyme is a biological isolate of variable composition, containing the enzyme protein, as well as organic and inorganic material derived from the microorganism and fermentation process.

The main activity of the food enzyme is glucose oxidase (EC 1.1.3.4).

Composition	
Constituent	%
Glucose oxidase	32.8%
Sunflower oil	0.4
Wheat flour	remainder

### Use of the Enzyme and Benefits

The glucose oxidase from *T. reesei* object of this dossier is specifically intended to be used in baking (e.g. bread, biscuits, tortillas, cakes, steamed bread and croissants) and other cereal-based processes (e.g. pastas, noodles and snacks), and in egg processing. In these processes, the glucose oxidase is used as a processing aid in food manufacturing and is not added directly to final foodstuffs.

The benefits of the use of industrial glucose oxidase in those processes are described. The beneficial effects are of value to the food chain because they lead to better and/or more consistent product quality. Moreover, the applications lead to more effective production processes, resulting in better production economy and environmental benefits such as the use of less raw materials and the production of less waste.

Glucose oxidase has been used e.g. in baking and other cereal based processes for over 20 years and their use in the bakery industry is continuously increasing. Some of these applications have been specifically approved for a number of years in Denmark and France (baking, egg processing), which together with the extensive use for decades in a number of EU countries justifies the technological need of glucose oxidase in these food processes.

## Safety Evaluation

The food enzyme object of the present dossier was subjected to several toxicological studies to confirm its safety for consumers. The mutagenicity studies showed that the food enzyme does not have the potential to damage the genetic material of living organisms, including mammals. The oral toxicity study showed that the food enzyme does not exhibit signs of toxicity, up to doses that are several thousand times higher than those which are consumed via food.

The product complies with the recommended purity specifications (microbiological and chemical requirements) of the FAO/WHO's Joint Expert Committee on Food Additives (JECFA) and the Food Chemicals Codex (FCC) for food-grade enzymes.

The product is free of production strain and recombinant DNA.

The safety of the glucose oxidase preparation was confirmed or is under consideration by external expert groups, as follows:

- **France:** The enzyme preparation was safety assessed according to the Guidelines for the evaluation of food enzymes. This resulted in the authorisation of the enzyme product by the French authorities in 2017.
- **Denmark:** The enzyme preparation was safety assessed according to the Guidelines for the evaluation of food enzymes. This resulted in the authorisation of the enzyme product by the authorities in 2017.
- **USA:** The enzyme preparation was safety assessed according to the Guidelines for the evaluation of food enzymes under GRAS. A GRAS no objection letter determined that the xylanase enzyme preparation is GRAS for its intended use GRAS #707
- **Mexico:** The enzyme preparation was safety assessed according to the Guidelines for the evaluation of food additives. This resulted in the authorisation of the enzyme product by the authorities in 2019.

- **Canada:** The enzyme preparation was safety assessed according to the Guidelines for the evaluation of food additives. Approved and listed for use in bread, flour, whole wheat flour, liquid egg white, pasta and unstandardized bakery products<sup>1</sup>
- **EFSA/ EU Commission:** A dossier was submitted in 2016 in compliance with Regulation (EC) 1332/2008 and is currently being reviewed by EFSA.

## Conclusion

Based on the safety evaluation, AB Enzymes GmbH respectfully request the inclusion of glucose oxidase from *Penicillium amagasakiense* expressed in *T. reesei* in the table – 18-9(3) of schedule 18 - Permitted processing aids various purposes.

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<sup>1</sup> <https://www.canada.ca/en/health-canada/services/food-nutrition/food-safety/food-additives/lists-permitted/5-enzymes.html>