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Standards Management Officer
Food Standards Australia New Zealand
PO Box 7186
Canberra BC ACT 2610

Dear Sir / Madam

Submission – Application A1068 – Hydrogen Peroxide as a Processing Aid

Thank you for the opportunity to provide a submission on the Call for Submissions for Application A1068.

This submission provides technical advice and comments related to this issue. It was prepared with the advice of officers from other relevant Queensland Government agencies and includes expert input by Queensland Health Forensic and Scientific Services. The submission does not represent a Queensland Government position, which will be a matter for the Queensland Government when notification is made by the FSANZ Board to the Legislative and Governance Forum on Food Regulation.

Option 1 – Develop a draft variation to Standard 1.3.3 – is supported.

We acknowledge FSANZ's conclusion that residual hydrogen peroxide in fermented milk products and lactic acid cheeses is safe at the proposed MPL. However, we wish to raise issues in relation to existing quantitative analytical methods for the presence of hydrogen peroxide in dairy products.

We refer to FSANZ's statement in 2.1.5 of the Technical Report that "there are suitable analytical methods for detecting **and quantifying** the presence of hydrogen peroxide in dairy products".

The Report cites AOAC method 957.08, *Hydrogen Peroxide in Milk*, which is a qualitative method. It has been in force as such for many years, during which time there has been no corresponding quantitative method. This appears to indicate that there is a difficulty in developing a reliable method for quantitative determination of hydrogen peroxide in milk. Furthermore, a reliable method for hydrogen peroxide in solid products such as cheese would be even more difficult to develop.

The use of test strips is also mentioned in the report, and these may provide reasonable quantitative results for fermented milk products, providing the samples disperse homogeneously in water. However, the strips would be likely to give low results for solid products (such as cheese), as the samples would require dilution/dispersal in water (thus increasing the lower limit of detection) and because not all the hydrogen peroxide might extract into the aqueous phase where it would be detected.

The Applicant has also cited ISO 3976 - *Milk fat - Determination of Peroxide Value*. In the absence of specific validation data, there are serious doubts about the validity of the application of this method to non-fat substrates. The method is dependent on dissolving the milk fat in an acidic solvent, reacting the solution with an iodide solution to liberate free iodine, and then titrating the iodine produced to obtain a quantitative result.

In this case, the reaction mixture is very homogeneous, as all of the fat dissolves in the solvent and there is subsequently good contact with the iodide solution. However, if this method was applied to fermented milk and cheese (which contain high levels of protein and carbohydrate) a large amount of curdled, insoluble material would be present. Consequently, it is quite unlikely that all hydrogen peroxide that was present would react with the iodide solution to produce iodine (physical difficulty). Furthermore, there is a possibility that some liberated iodine would react with proteins or other constituents of the sample and thereby produce a low result (chemical difficulty).

Therefore, we consider that there is insufficient evidence in the Technical Report to show that a reliable quantitative method exists for enforcing the proposed standard with respect to the relevant foods.

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Queensland Health