

Application A1068 HYDROGEN PEROXIDE AS A PROCESSING AID

General Procedure

Summary

The NSW Food Authority agrees that there appears to be no issues relating to public health from the use of hydrogen peroxide as described in the application. For this reason, the application is supported.

It is, however, our view that the applicant can better demonstrate the technological function for the addition of hydrogen peroxide as a processing aid to fermented dairy ingredients and products.

The applicant is encouraged to provide any experimental data to support the claimed starter culture reductions and stabilising of pH.

Specific Issues

The Authority supports the progression of the application in its current form based on there being no issues relating to public health, although has concerns that :

- The proposed technological function has not been demonstrated and only partially explained.
- The proposed use is broader than existing permissions granted overseas, without adequate explanation for extending the use to these other products.

Technological function

The function has been described by the applicant as the addition of sub-lethal concentrations of hydrogen peroxide to the dairy material to inhibit the growth of the starter population, which curtails lactic acid production and stabilises the pH. In the letter dated 23 May 2012 this has been clarified by the applicant as resulting in a 2-log reduction in numbers of viable starter culture, but no experiential evidence has been provided to support this.

The applicant also details that after approximately 12 hours, the population of starter bacteria will have recovered to a point where the amount of lactic acid being produced begins to lower the pH again. Again, no experimental evidence has been provided to demonstrate this.

The applicant admits in the letter of 23 May 2012 that due to limitation of the recovery methodology, they cannot determine the actual mechanism for the mode of activation of the hydrogen peroxide on the starter culture viability – whether it be sub lethal damage or cell inactivation. If the starter culture does recover within 12 hours, then it is unclear how this is consistent with the intended technological function to maintain a stable pH in the manufacture of these products at a set, finished value. It appears from the application that the intention is to use hydrogen peroxide as a stage in the manufacturing of fermented dairy products for use as an ingredient in other products. And the applicant did provide some detail around the use for sweet whey to be used as an ingredient in dairy products – however, the requested permission appears far broader in application than this.

The applicant has admitted that the proposed use differs somewhat from other hydrogen peroxide food applications, so available reports do not precisely describe the Fonterra use in great details. If the proposed use in this application is novel, then it is even more important that it be adequately demonstrated and thoroughly explained.

NSW has some concerns that the following issues have not been addressed satisfactorily in the application:

- It is not clear what effect the addition of sub-lethal doses of hydrogen peroxide has on the starter culture viability and functionality in the final product
- Under Standard 2.5.3 of the Food Standards Code, fermented milks must have a minimum of 10^6 cfu/g, and it is unclear what effect the use of hydrogen peroxide will have on levels of active culture in the finished product.

The provision of some trial or experimental data by the applicant would go some way to alleviating these concerns.

Extension of permissions granted overseas

The submission report states that approval of A1068 would make Australian requirements consistent with both the USA and Canada, however the permissions sought in this application seem to extend beyond those granted overseas.

In 21 CFR Ch.1 184.1366 of the US Code of Federal Regulations, the only permitted uses of hydrogen peroxide in dairy products are in milk intended for cheesemaking and whey, during the preparation of modified whey. In addition, as a condition of use, the regulation requires that residual hydrogen peroxide be removed from the whey during processing by appropriate chemical and physical means.

In the Canadian Food and Drug Regulations, the only allowable use in dairy products is for 'Liquid whey destined for the manufacture of dried whey products', with an allowable level of use of 100ppm to 'decolourize and stabilise pH'. While this use is consistent with that proposed by the applicant, NSW does not believe that in itself is enough to adequately demonstrate the technological function.

Application A1068 seeks permission to use in fermented dairy ingredients and products manufactured using lactic acid producing bacteria, which appears broader than the permission granted in both the USA and Canada, and would not provide the consistency stated in the submission report.

Conclusion

While there appears to be no issues relating to public health from the use of hydrogen peroxide as a processing aid, for the approval process to be thorough and transparent NSW believes that the applicant needs to provide additional detailed information on the intended use and the mechanism for the technological function.

Fonterra should be asked to provide evidence that this use is justified and provide more explanation of the mechanism for the technological function. If this use is considered novel, then the principles of its use should be adequately explained.

ENDS

The views expressed in this submission may or may not accord with those of other NSW Government agencies. The NSW Food Authority has a policy which encourages the full range of NSW agency views to be submitted during the standards development stages before final assessment. Other relevant NSW Government agencies are aware of and agree with this policy.