

Ring test

Ethylene oxide in ice cream powder

P2223-RT



Summary

The entire report is available to participants only.

The ring test was designed, realised, evaluated and authorised on behalf of PROOF-ACS GmbH by

Dr. Birgit Schindler
Managing Director PROOF-ACS GmbH
Project coordinator

The report was approved by

A handwritten signature in blue ink that reads 'Schindler'.

Dr. Birgit Schindler
29 September 2022

Participants with any comments or concerns related to this ring test are invited to contact:

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PROOF-ACS GmbH does not have any analytical laboratory facilities of its own. Homogeneity testing and stability testing are subcontracted to laboratories, accredited according to DIN EN ISO 17025. The subcontracted laboratory may also participate in the ring tests. If so, the laboratory is treated in exactly the same way as other participants and the same rules of confidentiality apply.

The proficiency test evaluates the performances of laboratories with respect to their ability to quantify ethylene oxide resp. 2-chloroethanol in two different types of ice cream powder.

Test material 1 consists of dextrose, powder skimmed milk, emulsifier E471, thickener E410, E407, E412, and citric acid. Test material 2 consists of powder glucose syrup, dextrose, thickener E410, E466, E407, E440, and emulsifier E471.

The ice cream powders were contaminated with ethylene oxide/2-chloroethanol probably from contaminated locust bean gum and/or guar gum. Both materials are unspiked.

10 laboratories across six countries (France, Germany, Italy, Netherlands, Switzerland, and Vietnam) took part in the test. All 10 labs kept the deadline for reporting of the results and are considered for evaluation.

The performance of laboratories in the test is evaluated according to the comparability of the results. The evaluation of the comparability is based on the z-score model. The z-score should be at least $\leq |2|$.

Results

Test material No.	Parameter	Assigned value [mg/kg]	Total number of results	Comparability criterion: no. of participants, with z-score $\leq 2 $
Test material 1	Ethylene oxide*	0.460	10	9
Test material 2	Ethylene oxide*	0.714	10	7

* Sum of ethylene oxide and 2-chloroethanol expressed as ethylene oxide acc. to regulation (EC) 396/2005.

To summarise:

- **10 laboratories reported results.**
- **All laboratories which reported individual result related to 2-chloroethanol applied the correct conversion factor to calculated the result related to ethylene oxide (sum).**
- **The z-score is applied for evaluation of the comparability of the results.**
- **7 out of 10 labs reported comparable results related to both test materials and pass the comparability criterion related to both test materials.**