

# Ring test

## Ethylene oxide in locust bean gum

### P2201-RT



## Summary

The entire report is available to participants only.

Designed, realised and evaluated by

**PROOF-ACS GmbH**  
**Bremen, Germany**

April 2022,

A blue cursive signature of Dr. Birgit Schindler.

Dr. Birgit Schindler

The proficiency test evaluates the performances of laboratories with respect to their ability to quantify ethylene oxide resp. 2-chloroethanol in locust bean gum.

22 laboratories across nine countries (Austria, Belgium, France, Germany, Italy, Poland, Serbia, Spain, Vietnam) took part in the test. 21 labs kept the deadline for reporting of the results and are considered for evaluation.

Organic locust bean gum (powder) is used as raw material. The powder is homogenised and tested for incurred residues. The raw material is free from incurred residues of 2-chloroethanol resp. ethylene oxide.

The locust bean gum is spiked with 2-chloroethanol, solved in acetone, in order to prepare the test material.

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  $\leq |2|$ .
- the trueness of the results. The trueness is expressed as the coverage of the spiked level in %. The coverage should be at least between 70 and 120 % of the spiked level.

## Results

Parameter	Spiked level [mg/kg]	Assigned value [mg/kg]	Total number of results	Comparability criterion: no. of participants, with z-score $\leq  2 $	Trueness criterion: no. of participants with results within 70-120 % recovery of the spiked level
2-Chloroethanol	0.29	-	-	-	-
Ethylene oxide	-	-	-	-	-
Ethylene oxide (sum)	0.16**	0.127	21	21	15

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

\*\* 2-Chloroethanol was spiked to the test material. The spiked level of ethylene oxide (sum) is calculated based on the spiked level of 2-chloroethanol.

**To summarise:**

- **21 laboratories reported results.**
- **All but one laboratories applied the correct conversion factor to calculated the result related to ethylene oxide (sum) based on the analytical result related to 2-chloroethanol.**
- **All 21 laboratories reported comparable results and pass the comparability criterion.**
- **In general, the labs tend to underestimate the true value of ethylene oxide in locust bean gum.**
- **15 out of 21 laboratories reported results within 78 to 104 % of the spiked level and pass the trueness criterion.**