



## Product information

As of 02/2026



# Cereulide in Food

A relevant health risk that requires increased attention in production and analysis.

Cereulide is a heat-stable toxin produced by certain members of the *Bacillus cereus* group ("emetic *B. cereus*"). *B. cereus* can enter food via dust or soil particles. These bacteria can be particularly resistant through the formation of heat-resistant spores and establish themselves long-term in the production environment by forming biofilms.

When conditions are favourable again, e.g. because of improper storage, the spores can germinate, multiply and potentially produce cereulide.

### Particularly at-risk foods

Carbohydrate-rich, heat-treated foods especially:




- Rice, pasta, pudding
- Milk and dairy products

### Favourable conditions for *B. cereus* include:

- Temperatures between 10 °C and 40 ° (cold-tolerant strains already at 4–6 °C)
- Neutral pH value (pH > 5)
- Medium to high aw value
- Low salt concentration
- Sufficient nutrient availability



### Your Plus:

-  Accredited LC-MS/MS method based on ISO 18465:2017
-  Very low limit of quantification: 0.1 µg/kg (0.05 µg/kg for infant formula)
-  Accredited for food and feed
-  Standard turnaround time: 5 working days
-  Express analysis available on request
-  Personal and expert support
-  Microbiological detection of *B. cereus*



In such cases – depending on the specific issue – direct detection of cereulide in food may also be advisable to clarify a potential health risk.

**Particular attention should be paid to infant formula.** Emetic *B. cereus* may be present in milk powder products. In dry conditions, due to the low moisture, growth is not possible. However, if the powder is reconstituted and stored at room temperature for several hours, bacterial growth and cereulide formation may occur.

### Health Implications

Cereulide is not inactivated by heating – even boiling does not eliminate the toxin. After ingestion, symptoms such as nausea and vomiting may occur within 0.5 to 6 hours (“emetic” = causing vomiting).

Symptoms usually subside within 24 hours. In rare cases involving high toxin intake, however, organ damage (liver, kidneys) and even fatal outcomes may occur.

### Risk Assessment

As part of a rapid risk assessment, the **European Food Safety Authority (EFSA)** has published an **acute reference dose (ARfD) of 0.014 µg/kg body weight for infants.**

Accordingly, cereulide concentrations above

- 0.054 µg/L in reconstituted liquid infant formula, or
  - 0.1 µg/L in follow-on formula
- may exceed the derived ARfD value.

**AGROLAB has successfully implemented a highly sensitive LC-MS/MS method for the determination of the cereulide toxin. This means accredited analysis for your quality control – delivering greater safety and efficiency.**

### Relevance for Food Business Operators

For food business operators, the following are therefore particularly critical in order to minimise health risks and ensure reliable compliance with legal requirements:

- Raw material controls
- Risk-based process design (e.g. biofilm prevention)
- Correct consumer information (e.g. preparation instructions)
- Monitoring of cereulide in the final product, where necessary

### Personal and Expert Support

A responsible, highly qualified customer advisor at the laboratory site will support you confidentially and competently with all questions regarding your order and your product.

We are also at your side in the case of complex issues or specific requirements and will work with you to develop a suitable solution. Our regional field representatives will also be pleased to advise you on our service portfolio.

All information without guarantee. This document has been prepared by AGROLAB GROUP with the utmost care. However, we assume no liability.



### Contact:

For questions or further information, please contact your responsible regional sales representative. You can find your contact person via the contact finder at [www.agrolab.com](http://www.agrolab.com). They will be pleased to advise you and prepare a quotation tailored to your specific needs.



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