

Communication 066/2026

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***Bacillus cereus* in food: when it multiplies, the bacterium can produce a toxin**

Following recall of infant formula, the BfR compiles basic information

A manufacturer of infant formula recently recalled certain batches of two of its products as a precautionary measure because they may contain a bacterial toxin. The toxin can cause nausea and vomiting and, in rare cases, severe life-threatening poisoning. Below, the BfR has compiled some general information about the pathogen and the toxin it produces.

According to the information provided, the recall was carried out because one of the ingredients supplied to the infant formula manufacturer may contain the toxin cereulide. This toxin can be produced by certain bacteria of the *Bacillus cereus* group, known as "emetic *Bacillus cereus*". The bacteria can form very stable persistent forms, known as spores. These are prevalent in food and are not a problem at low concentrations. However, if the spores germinate and the bacteria multiply, it is possible that cereulide is formed in the food. This requires suitable conditions in the food, particularly with regard to moisture content, pH value, salt content, available nutrients, competing microorganisms and storage temperature.

Cereulide is not inactivated by heating, so boiling food does not eliminate the toxin. If cereulide is taken up with food, it can cause nausea and vomiting within 0.5 to 6 hours. These symptoms give rise to the term "emetic", which means "causing nausea". The symptoms are usually self-limiting within 24 hours. However, in rare cases of severe poisoning due to high concentrations of cereulide, organ damage can occur, particularly affecting the liver and kidneys. In the past, this has led to fatal illnesses in isolated cases.

The BfR is not aware of any reports to date in which cereulide itself has been detected in infant milk powder. However, emetic *Bacillus cereus* have been found in infant milk powder in the past. Due to the low water content, the pathogen cannot multiply in the undissolved powder and therefore cereulide cannot be formed. However, if this powder is dissolved and stored at room temperature for several hours, the bacteria can multiply and cereulide can

be formed. It is therefore important that powdered infant formula is always prepared immediately before consumption.

Further information on *Bacillus cereus* and foodborne diseases is available on the BfR website:

Topic page *Bacillus cereus*

<https://www.bfr.bund.de/en/food-safety/assessment-of-microbial-risks-in-foods/bacteria/bacillus-cereus/>

Press Release: Infant formula in baby bottles to be prepared as fresh as possible

<https://www.bfr.bund.de/en/press-release/infant-formula-in-baby-bottles-to-be-prepared-as-fresh-as-possible/>

Protection against food-borne diseases caused by bacterial toxins

<https://www.bfr.bund.de/en/publication/protection-against-food-borne-diseases-caused-by-bacterial-toxins/>

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