



THE USE AND RE-USE OF DRY BREADING MIXTURES IN RETAIL AND FOODSERVICE ESTABLISHMENTS

The Food and Drug Administration's Center for Food Safety and Applied Nutrition (CFSAN) Retail Food Protection Team (RFPT) has received several inquiries regarding the use and re-use of dry breading mixtures in retail and foodservice operations. These dry mixtures typically contain flour, spices, and cornmeal and are used to coat raw animal foods, such as poultry and fish, immediately prior to being deep-fried or broiled. The mixtures are often used and stored in large bins, pans, or similar containers, which allow raw products to be dipped or dropped into the mixture to ensure a complete coating.

Many food protection agencies consider dry breading mixtures used in this manner to be potentially hazardous foods (PHF), thereby requiring temperature control per the Food Code definition. This is because raw animal products come in contact with, and may become part of, the mixture during food preparation. Because of the PHF classification, many regulators have required foodservice and retail operations to sift the flour mixture every 4 hours to remove doughballs and refrigerate these mixtures in between uses and overnight. Industry has questioned the need to refrigerate these mixtures and has provided evidence from in-house studies demonstrating that these dry breading mixtures are not capable of supporting the growth of infectious or toxigenic microorganisms.

CONSIDERATIONS

The following information was considered in the evaluation of the handling and storage of dry breading mixtures:

- The Food Code definitions for PHF and ready-to-eat (RTE) food were used as the basis for these recommendations.
- CFSAN microbiologists conducted in-house studies (not published) on flour mixtures inoculated with *Salmonella enteritidis*, *Listeria monocytogenes*, or *Staphylococcus aureus* and held at either 71°F, or 80°F, for 7 days. The results showed no growth of the pathogen during this time period and agreed with similar data supplied by Industry.
- Industry water activity data shared with FDA showed that various breading mixtures and doughballs collected from the sifting process, sampled over a 7 day period, before, during and after use in food preparation, consistently had a water activity in the range of 0.55 to 0.72. This is well below the cut off point for growth and toxin formation of *Staphylococcus aureus* (0.86). These results demonstrate the importance of sifting the flour in order to maintain a water activity of 0.85 or less.
- Breading mixtures that are used to coat raw animal foods are not considered RTE food.
- Breaded raw animal foods are expected to be fully cooked according to Food Code time/temperature parameters.

RECOMMENDATIONS

Containers of dry breading mixtures (containing flour, cornmeal, spices, etc.) into which raw animal foods such as poultry and fish are repeatedly dipped, may be used for a total period of up to 7 days and stored at room temperature, provided that:

- containers are stored covered in a clean dry area overnight and/or when not in use (see 2001 Food Code sections 3-305.11 and 3-305.12);
- the breading mixture is sifted at a minimum of every 4 hours to remove excess moisture and doughballs; and
- containers are completely emptied and cleaned and the breading mixtures discarded at intervals of no greater than 7 days.

If this procedure is used, the person in charge must have a system in place to indicate the date the breading must be discarded.

These recommendations do not apply to the use, handling, and storage of batters and other coatings, that may contain milk, eggs, or other ingredients considered to be PHF.

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