

## **Characterization of Food Contaminants through Micro-XRF**

Rebecca Novetsky, Bruker AXS Inc.

Every year numerous food recalls are announced due to potential foreign objects found in food items. Foreign objects include but are not limited to metal shavings, wood or plastic pieces, or insects. Injuries and deaths are reported due to the effects of contamination, which may arise due to manufacturing issues, product infestation, or tampered product. Contamination can cost companies hundreds of thousands of dollars in lawsuits and lost merchandise.

The Food and Drug Administration (FDA) publishes strict guidelines to prevent potential hazards to consumers. It is necessary for food companies to test for foreign objects and locate the sources of the contamination. Seven millimeters (0.3 inches) is defined by the FDA's Health Hazard Evaluation Board as the maximum size allowable for foreign objects in food. Regulatory action can be taken against products with metal pieces between 7mm and 25mm.

This poster describes a procedure for analysis of food samples to check for and classify foreign objects at small scales using Micro X-Ray Fluorescence (Micro-XRF). While food companies already have some form of implemented screening, Micro-XRF allows for additional analysis of the contaminants. Micro-XRF provides two additional features above current screening practices, material characterization and dimensional measurement. This information can be used to trace the source of the contaminant and to maintain FDA compliance.