Investigation of Canned Food Spoilage Incidents

SPOILAGE: THE PROCESS OF DECAYING

The primary reasoning behind spoilage diagnosis is to distinguish between post process contamination and insufficient thermal processing.

Spoilage diagnosis can **only be completed** with both inspectional and analytical evidence.

- **Complementary:**
  - Laboratory evidence may assist the CSI in determining the cause of spoilage.
  - Investigative evidence can provide assistance to the laboratory in determining the type of tests to perform.

- **Analytical evidence includes identification of:**

- Gross container defects
- Container seam/seal defects
- Product appearance
- Product chemical characteristics
  - pH, Water activity
- Product microbiological test results
  - Identification of organism(s) and their growth characteristics
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Normal and abnormal container appearances may help to diagnose type of spoilage.

- An abnormal container is a container with any signs of swelling or product leakage or any evidence that the contents of the unopened container may be spoiled
- Defective containers are severe dents near seams, gross seam defects, severe rust, etc.
- Need to separate to determine % in lot

Reference Material for examinations:

- FSIS Canning Reference Manual
  - FDA, Bacteriological Analytical Manual Chapter – Examination of Container Integrity (Glossary and References
  - Examination of Containers
    - Canned Foods
    - Glass
    - Flexible and Semi-rigid Containers
  - FSIS Microbiological Laboratory Guidebook

Microbiology Laboratory Guidebook--Chapter 10 (usda.gov)

Sample Submission to the FSIS Lab

- CSIs are to follow the specific instructions provided by the Western lab from the initial call
- If the affected product is reprocessed or retained pending disposition by a PA, they still submit samples to the lab.
- If the establishment decides to destroy the product, no further action is required by the CSI, except verifying the establishment properly documents and disposes of the product.
- CSIs are to complete and submit the following original forms with the product samples
- FSIS Form 10,000-2, Laboratory Report;
- FSIS Form 10,000-3, Canned Foods--Abnormal Containers; and
- FSIS Form 7500-1 Canned Food Sample Reporting Form.
- CSIs send one copy of each form, and any additional information requested to:
- The DO
- The PDS canning team
- CSIs retain one copy of each form in the government office file
- Number of containers in the lot
- Total number of containers examined
- Product information, e.g., product name container type and code(s) lot breakdown
- Processing information, e.g., type of retort, process schedule, deviation noted, etc.
- Storage temperature
- Location where abnormals were found, e.g., incubator, warehouse, in distribution
- The type and number of each type of container abnormality found
- Correlate with samples (lab must confirm inspectors observations). **Swollen cans can change over time.**
- Possible explanation for abnormal containers
- Location of each type of defect noted
- Use side seam as a marker or mark 12 o'clock position on container
- Location in lot where sampled container was taken
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Affected Lot Disposition -

- Under-processing: below public health cook
  - Reprocess or destroy
- Process less than commercially sterile - above minimum health
  - Incubate and sort, determine pH
- Post-processing contamination; non-health hazard
  - Sort out swells/defects
  - Dud detection (sort out cans with little or no vacuum)

Link to the FSIS Directive 7530.2 Rev. 1 :

https://www.fsis.usda.gov/sites/default/files/media_file/2020-07/7530.2.pdf