ABOUT RETORT TEMPERATURE DISTRIBUTION CHECKS

Technical Bulletin TP-06

Without question, adequate retort temperature distribution (TD) is essential to producing a safe, commercially sterile product. **For this reason, the SPA Center for Northwest Seafood conducts one of the most detailed and comprehensive programs for annual verification of retort TD.** The annual SPA process facility survey and verification program includes a detailed written description and technical drawing for each retort in the facility, and other associated equipment and SOPs (container loading practices, for example) followed in the thermal process room. This information is critically reviewed and evaluated by an SPA process authority scientist, to determine if there have been any changes that may impact TD. If there is any question that a change may have an affect, TD tests are conducted to verify adequacy of the vent schedule.

The frequency of retort TD testing in Alaskan salmon canneries has been one of many technical questions posed by a number of UK buyers/auditors in the past. As an internationally recognized process authority for low-acid canned foods, SPA has the scientific expertise necessary to provide its members, and their customers, with the best technical, science-based processing recommendations to ensure product safety. In this regard, beginning in the late 1980’s/early 90’s, SPA initiated discussions with the various UK technical managers, on behalf of its members, to help resolve technical issues that surfaced during the audits. Ensuring adequate retort temperature distribution was one of these issues. More recently SPA has worked closely with Mr. Alan Campbell (CCFRA) through his past association with the European Food Safety Inspection Service on this issue and others.

All these discussions resulted in mutual agreement and recognition that remains today, that the historical safety record for US-produced low acid canned foods demonstrates the effectiveness of the measures in place to ensure adequate retort TD, which include:

1. Use of prescribed vent schedules for retorts meeting specifications for retort installation, plumbing, and load configuration, defined in both FDA’s low-acid canned food regulations (21 CFR 113) and in NFPA Bulletin 26-L “Thermal Processes for Low Acid Foods in Metal Containers”. These prescribed vent schedules are based on dozens of TD tests conducted over a number of years throughout the food industry.

2. Conducting TD tests on retorts that do not meet prescribed regulatory specifications, or where loading equipment or container configurations may impact TD. For example, TD testing to establish an appropriate vent schedule is necessary for facilities using a “Busse” style loading system, where perforated divider sheets are used between can layers to prevent container “nesting”.

3. The SPA annual process facility survey and verification program described above, to verify adequacy of the processor’s exiting vent schedule.

As added assurance, each year FDA conducts its own comprehensive LACF inspection of salmon canneries, which cover many of the same critical elements that comprise the SPA annual process facility survey and verification program. Inspectional references instruct FDA inspectors to “Especially note any changes in the retort that could affect temperature distribution and the attainment of commercial sterility”.

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