PROCESS VERIFICATION – HEAT PENETRATION TESTING

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The Seafood Products Association (SPA) and its predecessor organizations (GMA/FPA, National Food Processors Association (NFPA) and the National Canners Association (NCA) have served as the preeminent process authority for canned salmon since 1933, preceding even the first implementation of Low Acid Canned Food (LACF) regulations in the United States, as well as other international guidelines and recommendations on the processing of LACF products.

Recently, we have been advised that regularly scheduled heat penetration tests on canned salmon for the purpose of process validation has been requested by some commercial vendors of the product. While the SPA agrees with the necessity to ensure process systems are delivering adequate temperature distribution for each and every batch of low acid canned food, there is no scientific, regulatory, or food safety justification to conduct recurring heat penetration tests on single ingredient (Salmon), non-formulated products. In fact, on-site heat penetration tests typically require some modification of load and retort configuration to accommodate test cans and access for temperature data logging equipment, which introduces unnecessary risk for the commercial batches produced in conjunction with the tests. Further risk is the potential for data misinterpretation and data mismanagement which may result in some firms reducing their process based on faster heat penetration rates exhibited by validation runs.

The preferred approach to redundant heat penetration testing is conservative test design when initially establishing a thermal process. SPA heat penetration studies are carried out by simulating the most adverse conditions that could conceivably occur during production, and conducting an adequate number of test runs and replicates to cover variations that may occur during the production process. This approach is consistent with that described in Guidelines for the Safe Production of Heat Preserved Foods, by the UK Department of Health.

While we recognize the need for occasional verification of formulated, multi-ingredient foods due to ingredient variability and formulation accuracy, verification testing of a single ingredient conduction heating product such as canned salmon is not necessary since the physiochemical properties of the product are not subject to variability that would affect the rate of heating.