Thermal Processors Get Schooled

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Thermal processing is unique among food manufacturing techniques, as the heat applied to food products in such processes acts as a key component in flavor and product development in addition to performing an important food safety function. Training and guidance on proper thermal processing techniques are available to food processors looking to ensure their processes are safe and effective.

As discussed in “Benefits of Remote Monitoring in Meat Processing” on page 28 of this magazine, thermal processing applications can present great risks if not properly attended to. Not only do well-monitored and uniform cooking times and temperatures mean delivering a consistent product to customers, but a failure to adequately cook products, especially meat, can mean a proliferation of bacteria which can negatively impact public health and lead to the initiation of a recall.

The Grocery Manufacturer’s Association (GMA) provides training for regulators and industry professionals that outlines not only appropriate thermal processing protocol, but also addresses what the association calls “the importance of a process authority and the role they serve in the food safety system is essential to preventing foodborne illnesses.” Workshops and webinars are available year-round, and the GMA identifies specific classes of interest to thermal processing professionals as:

- Thermal Processing Professional Training Program

- Industry Guidance on Acidified Foods Workshop
- Essentials of Thermobacteriology Workshop
- Thermal Process Development Workshop
- Management and Evaluation of Thermal Deviations Workshop

The USDA's Food Safety Inspection Service (FSIS) also provides guidance to thermal processors. The agency has published guidance for food processors on appropriate thermal processing techniques in a paper titled "Principles of Thermal Processing." The document deals specifically with what the agency calls the "development and application of thermal processes to low-acid and acidified foods packaged in hermetically sealed containers" — in other words, canning. The FSIS document walks readers through a five-step process, identifying and carrying out the following objectives:

1. Define commercial sterility;
2. Identify who can establish a thermal process;
3. Identify the components in establishing a thermal process;
4. Identify factors that impact the thermal process; and
5. Recognize a process deviation.

The Institute for Food Safety and Health (IFSH) at the Illinois Institute of Technology offers courses for food manufacturers and students interested in careers in food safety and processing. One of IFSH's flagship courses, FST 521: Food Process Engineering, covers topics like "heat transfer in food" and "thermal process calculations." Led by a team of esteemed instructors with real-world experience in food safety research and thermal processing, IFSH's programs offer students the opportunity to learn from the best.

In addition to this more traditional educational coursework, processors can choose to brush up their thermal processing skills by enrolling in continuing education or plant certification through food processing equipment vendors offering such services. JBT Food Tech, for example, administers a Thermal Processing Academy in Belgium, which, according to the company, "will help participants to understand the critical parameters that control the safe and quality-friendly thermal processing of foods." Through "a combination of classroom training and hands-on sessions," the academy aims to educate a variety of food industry workers, including:

- Line operators
- Line supervisors
- Plant engineers
- Food technologists
- Product developers
- Quality assurance staff

The International Food Protection Training Institute (IFPTI) at the Global Food Protection Initiative (GFPI) also offers food processing, food safety and regulatory compliance courses around the country. In addition to its own course offerings, the

IFPTI has catalogued a comprehensive list of all food safety and processing courses offered by universities and institutions around the world. These courses offer the ability for food processors to go through training side-by-side with the regulators charged with inspecting their facilities.

However processors choose to undergo continuing education, it is important to keep abreast of emerging technologies and new science that can offer more efficient ways to achieve more consistent results. Enhancing thermal processing protocol will mean not only a tastier, more consistent product, but also a safer product.

Links:
[1] http://e-ditionsbyfry.com/Olive/ODE/RFM/Default.aspx?href=RFM%2F2012%2F11%2F01&pageno=22&view=document