

The **Extru-Tech**nician

3 key steps to safety

By Will Henry

Ensuring that you are operating a safe facility and producing safe pet food products starts with your processes. You need to measure and manage your processes against one or more food safety methodologies.

Next, you need to consider the design and layout of your facility, your process flow in relation to the layout and the housekeeping activities that are part of the flow. Then, consider food safety certification as a final step in proving your facility and products are as safe as you claim.

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EXTRU-TECH, INC.

Extru-Tech, Inc., an
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On the cover:

Assuring safety in the petfood industry is critical at all levels: producers, manufacturers and consumers.

1. Measuring and managing processes against food safety methodologies

Before you can measure and manage your processes, you have to understand the science, especially for the lethality (“kill”) step as a critical point to eliminate *Salmonella* or other pathogens.

You can validate the kill step in several ways:

- **In-plant**—you can dose raw material with a strain of *Salmonella* and verify that your actual processing equipment and management system kill the pathogen;
- **Surrogates**—select a microbe similar to *Salmonella* that does not pose a food safety hazard but emulates the survival characteristics of such a pathogen. Dose and verify as you would in-plant;
- **Pilot plant**—validate the kill step off site in a testing lab or plant—for example, Extru-Tech Inc.’s corporate technical center;
- **Lab validation**—have an outside lab validate and verify your kill step using the same equipment and process;
- **Scientific literature**—refer to published data for related products and processes.

You must also be diligent in developing or modifying your process. This includes applying the correct technology; you want leading edge but

not necessarily “bleeding edge.” In other words, it should be proven technology—nothing new unless added, **proven** benefits outweigh the risks of going with something new.

Fortunately, you have many potential sources of information about safety and process improvement:

- Equipment vendors can be an excellent source, though be sure to interrogate them thoroughly;
- Organizations offering certifications and other safety programs may have valuable information. This includes the Safety Quality Food Institute (SQFI), British Retail Consortium (BRC), Global Food Safety Initiative, Pet Food Institute, International Organization for Standardization (ISO), Grocery Manufacturers Association, and Global GAP;
- Auditors, including from organizations such as AIB International;
- Consultants, though be wary. Often their advice may come with strings attached, such as a hidden agenda or an undisclosed alliance with an equipment manufacturer. Some consultants may be experienced only in specific niche products, not your entire line-up if you have products in several formats and categories. And most consultants cannot stand by processing guarantees or sanitary/food safety methodologies (GMPs, SOPs).

Finally, you need to consider how you apply instrumentation. In most cases, a simple, commonsense approach with the forethought of safe production will guide you appropriately. Just be wary of water activity levels and possible zones of incubation for bacteria.

2. Why facility layout, process flow and housekeeping are key to a food safety plan

The setup of your facility and processing line, as well as your sanitary procedures, can play a big part in ensuring safety. With the layout and process flow, one of the key considerations is vertical vs. horizontal.

Advantages and disadvantages for a vertical layout include:

- It's easier to segregate pre-kill and post-kill zones (between floors);
- Airflows (in terms of cross-contamination) can be more easily managed, but it's more difficult to pressurize an entire floor;
- Personnel traffic flow is easier to manage, because you can keep personnel dedicated to individual floors.

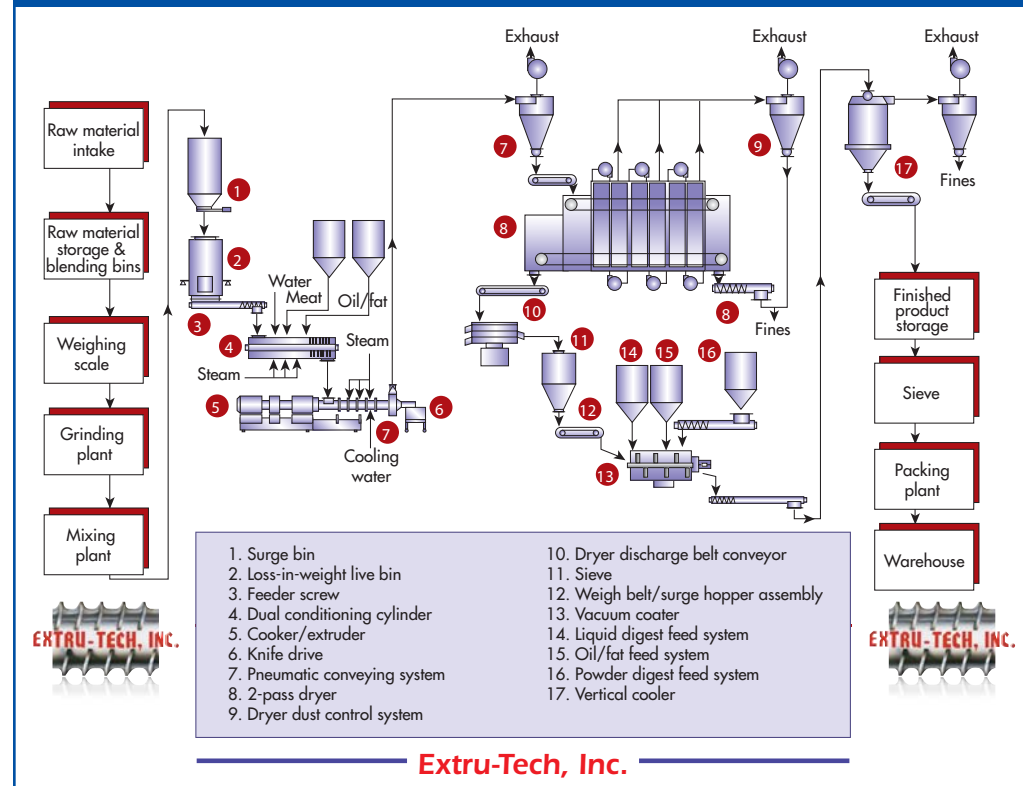
With a horizontal layout:

- You can segregate pre-kill and post-kill zones with isolation walls;
- Airflows can be easily managed if through-roof access points can be used;
- It's easier to pressurize areas because of isolation walls;
- But personnel traffic is a bit more difficult to manage due to the isolation walls.

Another consideration is airflow management in and around your processing line. The individual components you need to take into account include:

- The preconditioner, both venting rejected material;
- Conveyance of air during

Figure 1. The extrusion process

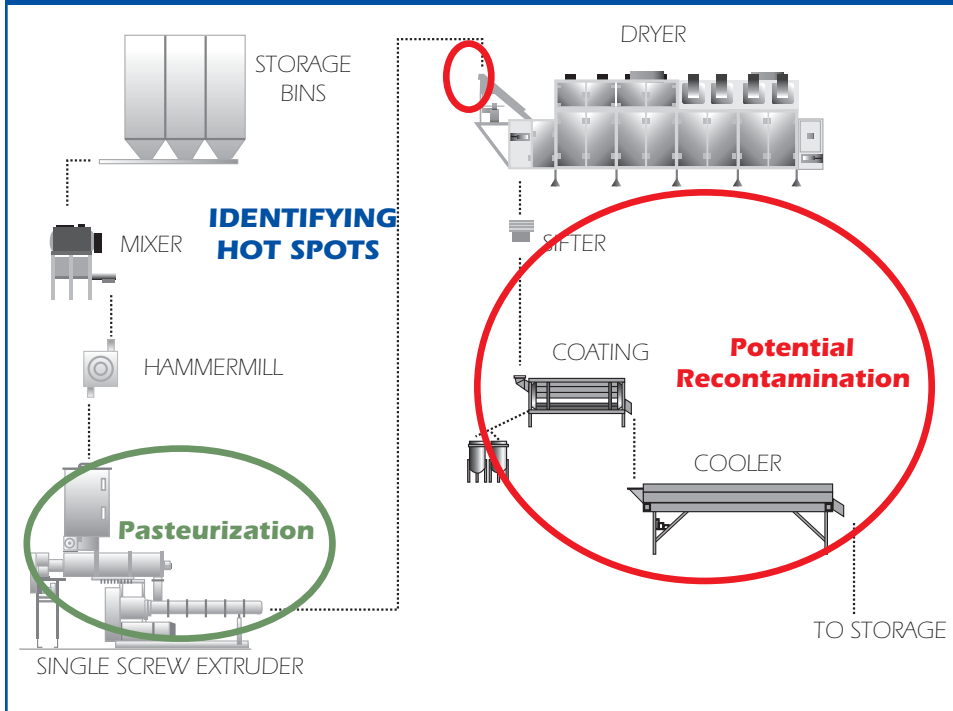


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delivery of raw material to extruder, pickup from the downspout and from the extruder to the dryer, as

well as pickup from the dryer to the next phase, whether it's the cooler, packaging or another step;

Figure 2. Preventing recontamination

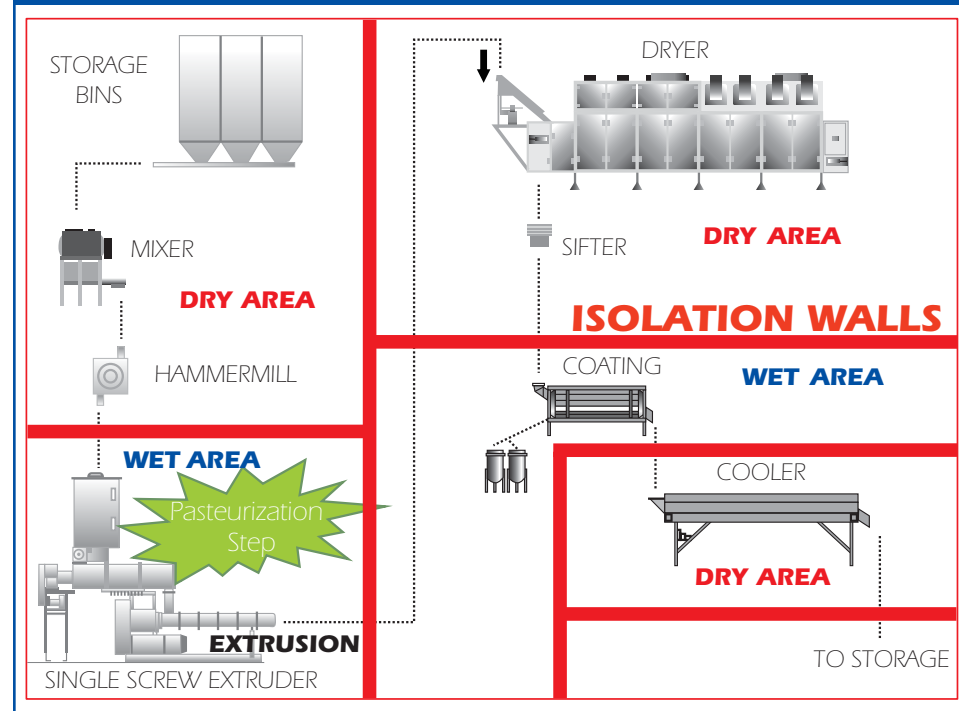


In setting up your layout and process flow and developing your housekeeping activities, pay particular attention to the transitions between kill zones, where recontamination is always a concern.

- The dryer in terms of fresh air and make-up air;
- The cooler, again considering fresh air and also possibly make-up air

from the dryer, though this may not be wise because of the risk of re-contamination.

Figure 3. Using isolation walls



With a vertical layout, you can segregate pre-kill and post-kill zones with isolation walls.

In setting up your layout and process flow and developing your housekeeping activities, don't forget to include breezeways and other access points. You must include management of all these points in your plan to ensure safety.

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3. Consider food safety certification

As a final step, you may want to pursue formal certification to prove the safety of your program and products. Benefits of obtaining a food safety certification include:

- Verifying you are following GMPs, SOPs, prerequisite programs and/or a specific food safety methodology;
- Establishing your brand as a symbol of safety;
- Setting your company and products apart in the marketplace;
- Helping build and maintain confidence among consumers.

Food safety certifications include Safe Feed/Safe Food from the [American Feed Industry Association](#), SQF, BRC and ISO 22000. However, do not take for granted this selection process, as not all certifications are created equally. For example, the [GFSI](#) (Global Food Safety Initiative) is taking great strides across the globe in high-

lighting the importance of food safety, both in food and petfood. Further, GFSI guidelines are quickly becoming the recognized certification most major retailers are turning to as the current and future requirement they will ask their suppliers to meet. For many valid reasons, GFSI only recognizes specific food safety programs, related certifications and audits as a means to meet their guidelines. Therefore, if GFSI certification is part of your strategy for future growth in the petfood market, it is recommended to first confirm with them which food safety program certifications/mechanisms they recognize for final GFSI certification.

In summary, if a GFSI classification is required for future growth of your market share, then your food safety mechanisms have been narrowed. ■

Will Henry is director of technology R&D for Extru-Tech Inc. and recently completed SQF 2000 training and the certification exams for SQF consultancy, making him a registered practitioner. For more information, contact him at willh@extru-techinc.com.

Clarification

The authors of *The Extru-Technician* want to extend our appreciation for the growing readership and the continued input as to the topics you would like us to focus on.

From time to time we find it necessary to further expound on comments made in these issues, and we want to take this opportunity to clarify the intent of the July 2010 and October 2010 publications of *The Extru-Technician*. These issues are two in a series that includes steps that can be taken to implement a food safety plan specifically related to petfood manufacturing. For example, the October 2010 publication focused on HACCP (hazard analysis and critical control points) programs, which are part of the foundation for a complete food safety program. As it is anticipated that the new FDA regulations will mandate HACCP in all food processing sectors, including petfood manufacturing

plants, we felt it important to focus on this program. The intent of our statement, "Currently, the safety of petfood is not regulated" was in regard to regulation through guidelines such as defined within a HACCP based program.

Under the current federal Food, Drug and Cosmetic Act, petfoods must be safe to eat, produced under sanitary conditions, contain no harmful substances and be truthfully labeled. Within FDA, the Center for Veterinary Medicine (CVM) is responsible for regulation of animal drugs, medicated feeds, food additives, feed ingredients and finished feed including petfoods (Code of Federal Regulations, Title 21, Food and Drugs, Part 500). Furthermore, CVM enforces a requirement that petfoods must contain appropriate levels of nutrients. In addition to these

federal regulations, state governments impose additional requirements to ensure petfood safety.

In the October 2010 article, we also stated that "assuring safety in the petfood industry is critical at all levels" and that petfood safety in the US and other developed markets is far ahead of other parts of the world. The manufacturers of petfood and organizations that support the industry should be recognized for the ongoing efforts to exceed federal and state food safety requirements through their efforts to strengthen existing food safety programs/certifications prior to and most assuredly well beyond the scope of the Food Safety Modernization Act. Commitment to safety on the part of petfood makers and their suppliers is one more way our industries honor the trust of our customers.