



David F. Busken  
Oak State Products  
Wenona, IL, U.S.A.

## Food Quality in Production Facilities in Our World Today

This issue of *Cereal Foods World* highlights the topic of quality. The challenge and the idea of what is safe and consistent is always changing. In the food industry today, quality has to do with food safety as much as it has to do with end product consistency. Ten years ago, allergens beyond peanuts were seldom heard of or worried about. Today, scheduling is ruled by what allergens are in which products. Thousands of dollars are spent on clean ups to prevent cross contamination of various allergens each week.

Quality costs. Assuring food safety has a cost associated with it that is ever growing as the world becomes smaller and food systems become more complex. Is a product viable in the marketplace given the allergens that are in it? Does the cost of clean ups, which must be figured into the cost of the product, make the product unaffordable? This is just one of the aspects of food safety that has changed in the past few years. New perspectives on the state of quality come out as the world becomes smaller and more intertwined.

A copacker, depending on the number of different customers, can have a major inspection with different criteria every month based on what each customer deems as critical to the quality and safety of their product. Making sure each of these inspections goes well has a cost, both in money and personnel, regardless of how tightly your ship is run. Potential hazards or shortcomings in record keeping can always be found.

### Three Points of Exposure

The finished product has essentially three points of exposure. One is the raw material going (or processed) into the ingredient that goes into your product. The second point of exposure is through the process by which the raw material is converted to a usable ingredient. The process you use to make it into the finished product is the third point.

Starting with raw ingredients, you want to have a specification, allergen statement, country of origin statement, and a continuing guarantee of quality. The specification should have important information pertinent to the quality of the product on it. This could be protein content/type, color, flavor, granulation, sugar profile, brix, and the list goes on. Regardless of the characteristic, the method used to measure it should be identified. The specification should also have the ingredient declaration for labeling, shelf life of the product, acceptable storage conditions, allergen information, how the lot number system is read, and any micro information that may apply.

A detailed ingredient specification should include the following:

1. Standard measures of what is pertinent to the product (the product's important characteristics in regard to industry-recognized measuring standards);
2. Labeling information (how the ingredient would appear on the finished product ingredient declaration);
3. Shelf life of the product (unopened and opened);
4. Acceptable storage conditions;
5. Allergen information;
6. Country of origin;
7. Micro information (if applicable) or a statement declaring that it does not present a micro hazard as shipped from the plant and stored under recommended conditions;
8. Available package type and size; and
9. How to interpret the manufacturing lot number

So, the product specification has all these characteristics described above with methods cited on it. How do you know the company is really doing the tests and measuring that component? You don't. To give yourself some comfort, you or a third party can do unannounced inspections of the manufacturing facility and observe its processes. When observing the process in action, take note of how raw ingredients are stored and handled, and where and in what conditions. Check the lab procedures by setting up a sample program to see how closely they come to the predetermined result. Demand a paper trail of all aspects of the process; raw ingredients in to finished goods out. What are the yield numbers? Does it all balance and seem feasible?

The end user of the raw ingredients—the food processor—needs to document and put procedures and safe guards in place to make sure the product they are shipping to the consumer is safe and consistently meets customer expectations. It also has to give the company a return on their investment throughout the whole process. Each step of the manufacturing process needs to be well defined. The finished-product standards also need to be defined and procedures to measure them documented.

There are different systems that have been developed to help safeguard the food chain. Hazard Analysis Critical Control Points (HACCP) are a major component of assuring ongoing quality. Basically, HACCP identifies all the points in a process where the food product's safety could be compromised. This could be a micro check on the incoming ingredient or having a certificate of analysis (COA) stating such. Or, it could be documentation that employees have had good manufacturing practices (GMP) training. Much of HACCP goes back to documentation. Quality assurance requires a person with good organizational skills and experience in setting up procedures.

## How Do You Know?

Is what's in the bag really what is labeled on the bag? What is the country of origin? What do you test for? Is the testing valid? When is the testing valid? Who does the testing? Who had ever heard of "melamine" before it started to turn up in milk and wheat protein products from China. Who knew how much salmonella-laden peanut butter made it to the public? These are all difficult questions manufacturers have had to try to answer in the past couple of years. These are all questions that a quality system needs to be prepared to answer to keep the public safe.

Every inspection, every process, and every test can be circumvented if someone works hard enough at it. The question then becomes: Is it worth the effort to game the system? It may be easier to do the job right. How do you stop these circumventions?

## SQFI

One of the latest efforts in assuring food safety and consistent standards and trust in the food chain all around the world is from the Safe Quality Food Institute (SQFI). SQFI is a division of the Food Marketing Institute. It is an association made up of companies from the food manufacturing and retailing sectors in the United States and around the world. The British also have a program with similar goals, the British Retail Consortium (BRC) Global Standards as well.

The goal, I believe, is to develop trust and confidence in the food system, from raw ingredient suppliers to end product manufacturers to deliver safe food. The goal is to put a system of inspections and controls in place with a minimum of bureaucratic layers (from the top of the organization to those on the ground inspecting the plants). The goal is also to ensure that this development occurs in partnership with the suppliers and end users of ingredients agreeing to the standards and procedures.

It is SQFI's hope that their system will become a standard on which all the various food companies can agree. This would eliminate the need for copackers to undergo a myriad of different inspections from each manufacturer. The copacker could cite a score or set of scores and a certification level and date that would be an acceptable standard for all the food manufacturers.

The mission and values of SQFI are to develop an all encompassing uniform system for assuring food quality the world over. This would be a system of standards based on scientific principles, the consistent application of those principles, transparency, trust, and respect. The end goal is to protect consumers against episodes like the melamine contamination. Suppliers need to develop a way of controlling and assuring that standards are held to and not corrupted. To do this, they have qualified two accreditation organizations to train and certify auditors. They have more oversight of the auditors as well, which I interpret as a way of helping to protect against any corruption or flaws in the system.

The program encompasses the principles of HACCP inspections and documentation throughout the processes from raw ingredients to finished products. It documents the processes within the various steps of manufacturing, both of raw ingredients and finished products.

## The Research and Development Perspective

From an R&D perspective, and I am still learning about how it all fits together, when does the system become too restrictive? Strictly speaking, all ingredients should be accompanied with all the requisite paper work to make sure they are safe to enter the plant (assuming the R&D department is in the plant, though larger companies often times have their own separate labs and pilot plant facilities for R&D). These new ingredients would or should never come close to the production area. Should they be considered a food safety hazard?

Innovation/product development often requires looking at many different possible ingredients to use in a product. In an ideal world with a lot of computer memory and organizational proficiency, all of the documentation would be at a sales person's finger tips to accompany any sample. I don't know of any company that is there yet.

Suppliers themselves are always coming up with new twists on their standard ingredient line. Necessity—the call from the development person to an ingredient supplier, usually on a Friday afternoon around 4:30, with the question "Do you have...?"—is the mother of invention. This means many of these creations are last minute, needed by the customer yesterday. It is what development people are paid to do. It is a company's life blood to meet the customer's need and be of service. By nature, there is a lag between the development of a new product and the generation of paper work to cover it. How SQF deals with this, I have yet to learn.

## Time Will Tell

Quality is a matter of balancing finished product consistency and safety with the ingredients that are coming from farther and farther away and being made by more complex methods. As the world becomes smaller, processes and standards are being put in place to create more trust and confidence in the world food supply. Through the use of HACCP, SQFI, and documentation, the food industry is trying to make this happen. We will see how this all works in the future to thwart occurrences like melamine or contaminated peanut butter in the food supply.

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**David F. Busken** is manager of research and development for Oak State Products, a copacker of cookies and bars. He grew up in a full-line retail bakery and, in all, has more than 30 years of baking and development experience. Busken can be reached at david.busken@oakstate.com.