How many calls have you received from the production or receiving department concerning problems with a raw material? How many complaints have you received from upset customers? Unfortunately, these calls are more common than we like. The most common reason for the problems is that expectations are not clearly communicated.

The first step toward resolving issues is to understand the materials being purchased and to document your expectations in your raw material specifications. While suppliers may provide baseline information with their finished product specifications or technical data sheets, this should be transferred to your own format. The reasons for developing your company-specific raw material specifications include:

- Some supplier’s specifications may provide only a target or “typical” range for some characteristics.
- Your finished product may require additional certifications for the label declarations, such as Country of Origin, Natural, Kosher, or Organic.
- Your company may be controlling or ensuring labeling for additional food allergens other than those regulated by American or Canadian agencies.
- A uniform internal system improves communication of the specifications throughout the plant.
- If seeking secondary suppliers of a raw material, the process is simplified by sending your specifications for what is being sought.

At a minimum, your raw material specifications should include technical and food safety information, including:

- The name of the product
- The ingredient’s components
- The presence of regulated or customer-recognized food allergens
- Organoleptic information (appearance, flavor and aroma)
- Pertinent physical, chemical and microbiological information
- Shipping and storage information
- Handling directions

**PRODUCT NAME.** The material identification can be general for commodity-type products or those with a standard of identity, such as salt, granulated sugar, FD&C Yellow No. 5, and so forth. General names or descriptors ease use and sharing specifications, especially when soliciting and comparing bids or purchasing from multiple suppliers.

The ingredient-identifying name assigned by the supplier may be necessary when the item is a unique or proprietary material. The specific name of the material purchased can then be supplied to the receiving function so that they can confirm that the correct item is being delivered.

**COMPONENTS.** Outline the material’s composition, in decreasing order of presence or as outlined in labeling regulations. The Hazard Analysis Critical Control Point (HACCP) Team and the group that develops your finished product label will need a list of all the ingredients used, including processing aids. For packaging materials, the specific composition of the packaging material would be needed, such as glass, polyethylene (PET) or polypropylene (PPE).

**FOOD ALLERGENS.** A supplier’s technical data sheet often will state that the material does not contain an allergen; however, the specific list of the allergens used to make this statement may not be included. There are three steps to take before you can be sure that the necessary information is provided.

Make sure to get the specific list of the allergens used in a product from your suppliers.

**Step One —** Develop a company-specific allergen list, considering the following factors:

- **Regulated Allergens** — There is not a globally recognized list of regulated food allergens, so you need to know the regulations for the countries where your product is distributed. For example, the United States has regulations addressing the proteins from eight food sources: milk, eggs, fish, peanuts, shellfish, soy, tree nuts and wheat. Canadian regulations recognize the same eight groups, as well as sesame seeds (as an allergen) and sulfites (for food intolerance).
- **Customer-Identified Allergens** — Some of your customers have their own, expanded allergen/food intolerance lists to encompass their label declarations or in recognition of the regulations in countries where their products are distributed.

**Step Two —** Provide your company-specific allergen list to the raw material supplier, including suppliers of your processing aids and food contact packaging material. If there is any allergenic material in the product, regardless of the amount, it must be identi-
Step Three — The supplier is to review their material purchased in conjunction with your allergen/food intolerance list. They then provide a documented list of all the allergens they reviewed and identify those that are in the product, if any.

ORGANOLEPTIC INFORMATION. Organoleptic characteristics are tested for visual appearance, aroma and flavor. This brief description is used typically during the receipt or pre-use at the plant to confirm that basic expectations are met or identify issues that can be readily checked by appearance (puree rather than whole fruit), smell (off odors such as musty, soapy or chemical) or taste (caramelized high fructose corn syrup or rancid oil).

ANALYTICAL INFORMATION. Analytical characteristics typically are tests requiring instruments rather than your senses. For example, an organoleptic description of a product could be “red liquid” and the analytical information would be the Colorimeter reading. Characteristics to be outlined include those affiliated with functionality, quality and food safety.

Determining the key biological, chemical and physical parameters requires historic information about the material, regulatory requirements and the supplier’s capability. A comprehensive evaluation to determine the key characteristics’ affiliated parameters (target and range) requires research as well as knowledge from the Research and Development and Quality departments, and the supplier.

For example, microbiological standards for granulated salt would not be pertinent, though they would be necessary for ready-to-eat meats. Another example is that the granulation size for the salt may be critical for a potato chip manufacturer (topical application), but not as important for a product where the salt is dissolved. Food safety parameters or tolerances could include:

- **Chemical** — Characteristics such as fortification levels, sulfite levels and heavy metal content.
- **Physical** — Characteristics such as size and foreign material (rocks, glass, metal and bones).
- **Biological** — Microbiological limits for pathogens (*Salmonella*, *Listeria monocytogenes*, *E. coli*).

Functionality or quality parameters include those that can impact the functionality of the material or adversely impact your product. This could include:

- **Chemical** — Characteristics such as concentration levels or purity.
- **Physical** — Characteristics such as viscosity, granulation size, insect parts, crush strength and physical measurements.
- **Biological** — Microbiological limits for spoilage organism or indicators of poor sanitation, including total plate count, yeast and mold.

SHIPPING & STORAGE. Outline the appropriate conditions for shipping and storing the material. Temperature requirements would include ambient, refrigeration or frozen. There also can be special storage or handling directions, such as “do not freeze” or “store in a flame-resistant cabinet.”

HANDLING INFORMATION. Determine if there are additional steps affiliated with handling or using the material, such as “shake the material before use” or “apply only in well ventilated area.”

OTHER INFORMATION. Additional information concerning a new or revised material may be vital to your company and customer. You may wish to stipulate these requirements in the raw material specification. The following list is not all encompassing; however, all should be considered when developing a raw material specification:

- **Material quantity and packaging**
  Outline the packaging material containing the raw material being purchased such as weight, multi-layered paper bag; poly-lined corrugated container; or bulk tanker.

- **Religious requirements**
  Does your finished product label include a kosher or halal symbol? If so, the specification must indicate the requirements.

- **Regulatory information**
  • **Standard of Identity** — outline the Code of Federal Regulations (CFR) listing
  • **Generally Recognized As Safe (GRAS)** items are also listed in the CFRs. If the material you are purchasing falls into this category, identify the CFR listing that identifies it as being GRAS.
  • **Other CFR listing** — The FDA and USDA also assess food chemicals and food contact packaging raw materials to determine if they are appropriate for food. Know where in the CFR the product you are purchasing is referenced as being appropriate.
  • **Color information** — The FDA and USDA assess food colors to determine if they must be a “Certified Color” (such as Yellow No. 5, Red No. 40) or “Exempt from Certification.” Exempt colors are typically listed as GRAS.
  • **Flavor information** — Is the flavor artificial and/or natural?
  • **Organic** — Does the material meet the definition of organic as outlined in the “National Organic Program” [regulated by the USDA (7 CFR 205)]?
  • **Potential legal limits** — Be familiar with specific levels at which food additives are toxic or carcinogenic, as outlined in the CFRs.
  • **California Proposition 65** — Does the product or components within the product meet the declaration requirements as outlined in California Proposition 65?

CERTIFICATE OF ANALYSIS. A Certificate of Analysis (CoA) is the supplier’s report of the test results from a specific lot of material. Tools for determining what tests should be reported, report format and periodic validation of the results will be discussed in a future article.

SUMMARY. A clear understanding of the materials being purchased is vital for suppliers and customers. Materials that do not meet your expectations can significantly impact quality, reduce productivity, increase cost due to additional testing or clean up, and place your product, company, customers and consumers at risk for hazardous issues. Purchasing and using desired raw materials is a key building block toward making a consistent, high-quality finished product.

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