

# PRODUCT SAFETY

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## Supplier Management

### Learning Objectives

- Identify documentation that is pertinent to supplier approval
- Monitor and verify suppliers and their associated materials to ensure they conform to expectations

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### Approved Suppliers

Although the cost of goods is a key factor in selecting a raw material supplier, cost should never be the determining factor. There are hidden costs with poor suppliers. You may have to add costs to “clean up” the purchased material. The material may function poorly, resulting in decreased productivity or yield. You may need to purchase emergency supplies or substitute materials if delivery is poor. Or, out-of-specification finished product may result in customer dissatisfaction or loss.

Multiple departments or positions may be involved with the initial approval of a supplier, including research and development, quality, production, finance, sales, etc. At a minimum, the following information is essential from the supplier to determine approval.

- Contact information, including corporate and manufacturing contacts, for business hours and emergency situations
- Ability to ensure that the supplier’s policies, programs, and procedures minimize product safety concerns; this can be via third-party inspection/audit, an on-site inspection by a knowledgeable internal auditor, or by providing essential documentation
- Ability to consistently meet the material specifications
- An agreement that the supplier will call you as soon as possible during a recall situation, whether the material being recalled was supplied to you or not
- An insurance policy for the level of coverage that would cover your costs if the supplier’s recall adversely affected your product

### Supplier Monitoring and Verification

Supplier compliance should be periodically checked against the specifications. The frequency of checks will depend on your history with the supplier, the microbiological sensitivity of the material, and the essential functionality of the material to your operation or finished product.

Each lot-specific certificate of analysis (COA) should be checked against the specifications. Checks include that required tests are being conducted/reported and that the results are within the specifications. Verification of COA test results should be periodically conducted. This involves collecting a sample of the incoming raw material and testing it for some or all of the characteristics outlined in the supplier's COA. For materials being tested for pathogens, all containers of the lot should be placed on hold and not used until negative test results have been received. Some raw materials may not have COA requirements; however key characteristics should be periodically checked.

The frequency of collecting and testing samples of incoming materials depends on multiple factors, including:

- Supplier/raw material status - For a new supplier or new raw material, the first several shipments/lots should be tested for the key characteristics. If the initial shipments are shown to meet specifications, this frequency can be reduced.
- Functionality - Testing for the granulation/sieve size for salt or sugar may not be needed if it is being dissolved in a liquid (granulation size may not be critical), however the same check may be needed frequently if the salt is sprinkled on chips.
- Amount of material being received - Simple organoleptic (visual, aroma, taste) analysis should be considered for bulk materials to make certain it is acceptable before being mixed in silos. For example, it is typical to test for color and flavor on each shipment of high fructose corn syrup.

## Quality Control

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Use other supporting information to determine supplier compliance, including:

- History of identified issues - Keep a running track of issues identified by receiving, production, and packaging.
- Supplier response - How the supplier responds to any identified issues or requested changes.
- Shipments - Are they on time; do the materials and amounts received match what was ordered; is billing is timely and accurate?

Periodically communicate your findings to the supplier. Do not limit this communication to negative feedback (i.e., identified concerns), but also let them know when your monitoring and verification confirms that they are meeting your specifications and expectations.

### Raw Material Specifications



After the team has discussed and agreed upon the key characteristics for the raw material, it is essential to document these expectations.

This can be as simple as the supplier's dated technical data sheet or as complex as developing your own specifications. There are advantages to developing company-specific material specifications. Special requirements, such as narrowing key parameters or proprietary materials can be outlined and agreed upon between the supplier and purchaser. Certificates of analysis and other unique requirements can be specified and understood. Your company-specific specifications can be readily shared with other suppliers (e.g., secondary suppliers or when price shopping). A uniform format for all specifications eases retrieval of key information.

At a minimum, each raw material should have clearly documented technical and food safety information, including:

- The name of the product and the item number
- Components or composition of the material (an ingredient declaration)
- 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
- Shelf life
- Handling directions (such as temperature or humidity)
- Revision date

### Certificate of Analysis (COA) Requirements

Certificate of Analysis		
Product Code: AC-ROS-001 B		Issue Date: 23/07/2009
Product Name:		
Batch No: 09070		
Quantity: 100 Kg		
Manufacturing Date: 02/07/09		
Physical Properties		
	Observed	Standard
1. Refractive Index	1.433	1.403 - 1.463
2. Specific Gravity	1.030	1.001 - 1.063
3. Bulk Density	-	Not Established
4. Appearance	Matches Standard	Clear Liquid
5. Colour	Matches Standard	Colourless to pale yellow
6. Flash Point	Matches Standard	> 100
Sensory Data		
1. Aroma	Matches Standard	Floral, Rose like
2. Taste	Matches Standard	Sweet Rose

COA requirements are based on the tests you determine are needed for a raw material. The supplier then conducts the tests on the specific lots being sent to you and reports the results (the certificate of their analysis). You may not need lot-specific testing for some materials (e.g., corrugated cases). Other materials may

have an extensive list of parameters to be tested and reported. COA requirements are based on your identified need for assurance that the product meets the key specifications.

If a COA is required, the test results should clearly identify the lot number the tests were conducted on, the sample size, and the test methodology used (e.g., BAM, AOAC, etc.)

Also determine the procedures associated with a COA review, such as:

- The department responsible for ensuring that a COA is available for each lot received and actions to take if the COA was not provided
- The department (receiving, quality, purchasing, etc.) responsible for comparing the results against the specifications to determine if the material meets your requirements

## Quality Control

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- The person approved to determine if the material can be accepted and used if the results do not meet your specifications (typically quality)

### Proprietary Information Controls

Proprietary information (e.g., product formulation, batch sheets, work instructions, and in-process standards) need strong controls to ensure that information is not released outside the company, that information can only be changed by approved individuals/positions, and that changes are clearly identified.

## Quality Control

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Use this Quality Reference Card as you contribute to your company's quality program. When you are ready, proceed to the workshops to apply what you have learned to real-life situations.

### Quality Reference Card

#### Quality Assurance

- A variety of programs and related activities designed to ensure that products are manufactured, stored, and shipped in a way that ensures a safe and consistent product
- Shelf life
- Handling directions
- Revision date

#### Quality Control

- An area of quality assurance
- Monitoring against process settings, process output, and finished product samples to ensure finished products meet customers' expectations

#### Approved Suppliers

- Provide corporate and local contact information for business and emergency hours
- Minimize product safety concerns through policies, programs, and procedures
- Consistently meet material specifications
- In the case of a recall situation, agree to contact immediately
- Obtain an insurance policy

#### Supplier Monitoring and Verification

- Periodically check supplier compliance against the specifications
- Check that required tests are being conducted and that the results are within specifications

#### Raw Material Specifications

- Name of the product and item number
- Ingredient declaration
- Identified food allergens
- Organoleptic information
- Physical, chemical, and microbiological information
- Shipping and storage information

## Certificate of Analysis Workshop

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1. Which of the following certificates of analysis is in compliance with the given specification?

### SPECIFICATION

Cracked Black Pepper: 23455

Particle Size: 1.2-2 mm

Moisture: 13% Max

Piperine: 7% minimum

Salmonella: Non-detected

E. Coli: Non-detected

### Certificate of Analysis

Product: Black Pepper, Cracked

Lot: 4-099

Piperine: 7.2%

Particle Size: 1.2-2.8 mm

Pathogens: None detected

### Certificate of Analysis

Product: Black Pepper, Cracked

Lot: TR3113

Particle Size: 1-2 mm

Moisture: 11.5%

% Piperine: 8%

Salmonella: <3/g

E.Coli: < 3/g

### Certificate of Analysis

Product: Black Pepper, Cracked

Lot: 58712

Moisture: 13.1%

Piperine: 7.7%

Particle Size: 1.2-2.0mm

Salmonella: < 3/g

E. Coli: <3/g

2. Which of the following certificates of analysis is in compliance with the given specification?

### SPECIFICATION

Tomato Paste 28/30%

Ingredients: Tomato (salt)

Optical Residue: 28-30%

pH: 4.2-4.4

Bostwick: < 10 cm

### Certificate of Analysis

Tomato Paste

Lot: 76514

pH: 4.2

Optical Residue: 30%

Sugar Ratio: 43

Color a/b: 2.2

### Certificate of Analysis

Tomato Paste

Lot: 14-132

pH: 4.2

Optical Residue: 30%

Bostwick: 10.4 cm

### Certificate of Analysis

Tomato Paste

Lot: MD1477

pH: 4.5

Optical Residue: 28%

Bostwick: 9 cm



## Non-Conforming Product Workshop

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Which of the following checks indicate non-conforming product based on these specifications?

Raw Material Specification		Process Specification	
Protein %	8.0 +/-1.0	Dough Temperature	90°F Maximum
Ash %	0.4 +/- .04	Piston PSI	20-25 bars
Vomitoxin	<1 ppm1001	Oven Temperature	250°F- 300°F
		Cooling Time	3 minutes minimum

Finished Product Specification	
Moisture %	12.5-14.5 %
pH	5.2-6.2
Diameter	5.5 -6.5"
Label Weight	322 grams

Check Type	Result
Ash %	0.5%
Cooling Time	200 seconds
Diameter	6.6"
Dough Temperature	88°F
Moisture	14%
Oven Temperature	288°F
pH	5.2
Piston PSI	26 bars
Protein %	10.80%
Vomitoxin	1 ppb
Weight	340 grams