Guidelines for Food Processing Safety

There are two categories of processed foods regulated by the Georgia Department of Agriculture.

Perishable: Refrigerated or frozen temperatures are required.

Nonperishable: Food items stored at ambient air temperatures above 40°F (shelf stable).

Perishable processed foods require refrigerated temperatures to insure food safety; less than 40°F for foods labeled "Keep Refrigerated" and less than 0°F for foods labeled as "Keep Frozen". The low temperature slows or inhibits the growth of pathogenic bacteria making temperature controls and monitoring procedures very critical. During processing of perishable foods, exposure to temperatures above 40°F should be kept to a minimum.

The classification of nonperishable or shelf stable processed foods can be placed into three categories:

1. **Acid Foods** are defined as foods that have a natural pH of 4.6 or less.

2. **Acidified Foods (21 CFR 114.3)** are defined as a low acid food to which suitable acidifying agent including, but not limited to vinegar, citric acid, or natural acid foods, such as, tomato juice or lemon juice are added to adjust the pH to a safe level. An equilibrated pH of 4.6 or lower is considered a safe level. A few examples of acidified foods are: relishes, fresh-packed pickles, chow-chow and salsa.

3. **Low-acid Foods** are defined as a low-acid food to which high temperature processing is required to insure food safety. The low-acid food is containerized and heat treated under pressure for a specified period of time. This is commonly known as pressure cooking and involves products such as green beans, corn spinach, turnip greens, some vegetable soups, meats and fish.

4. **Exempt Foods: the food products exempt from 21 CFR 114 are:**

   - Carbonated beverages
   - Jams
   - Jellies
   - Preserves
   - Fruit spreads and fruit butters
   - Acid foods[1]
   - Standardized and non-standardized food dressings[2]
   - Condiment sauces[2]
   - Fermented foods preserved by microbial fermentation, such as sauerkraut and certain pickles
   - Alcoholic beverages
   - Foods with a water activity of 0.85 or less.
   - Foods that are stored, distributed and retailed under refrigeration

[1] Products with natural or normal pH of 4.6 or below

[2] Products that contain small amounts of low acid food(s) and have a resultant finished equilibrium pH that does not significantly differ from that of the predominant acid or acid food.

In all shelf stable products, the target pathogenic bacteria is *Clostridium botulinum*. This organism's spores can withstand boiling temperatures for up to eight hours and reproduces by forming vegetative cells with spores. Spore destruction can only be accomplished by high heat (under pressure). An equilibrated pH of less than 4.6 will prevent the germination of spores to vegetative cells. Equilibrium pH is usually recorded after holding the product for at least 24 hours. The greater the density of the product, the longer it takes to achieve equilibrium. **The lower the pH at equilibrium, the greater the margin of safety, but you must balance the safety factor with palatability.**

Growth of vegetative cells of C. botulinum can be prevented by: 1. Equilibrating the pH at 4.6 or lower. 2. Keeping the water activity at or below 0.85. 3. Process for thermal destruction of spores.

Low-acid canned foods are seldom commercially processed on a small scale because of the expense involved in equipment and professional assistance as required by the Code of Federal Regulations 21 CFR 113. All retorts must be approved through a processing authority that conducts the heat transfer test specific for a single retort for each product, container size and type.

Acid Processing requires the following:

1. pH Meter
2. Record log (each lot)
3. Have process for all products reviewed by Processing Authority

All **Acidified Processing** requires the following:

1. pH Meter
2. Certified Thermometer
3. Record log (each lot)
4. Processed under the authority of an individual who has successfully completed the "Better Process Control School".
5. Have schedule process for all products reviewed and approved by Processing Authority.
6. All schedule processes must be filed with FDA for interstate commerce or Georgia Department of Agriculture for intrastate commerce.

All **Low-acid Processing** requires the following:

1. Retorts properly equipped as required by the Code of Federal Regulations.
2. Record Logs
3. Processed under the authority of an individual who has successfully completed the "Better Process Control School.
4. Thermometers (mercury in Glass) calibrated
5. Have a schedule process for all products established by a process authority, including heat transfer test for specific products, containers, retorts and sizes, and submitted to FDA.

Jams, Jellies, Preserves and Fruit Spreads or Fruit Butters: The Code of Federal Regulations (21 CFR 150.140) require a Brix level of not less than 65 (65% soluble solids) to be considered Jams, Jellies or Preserves. **Fruit Butters** require a Brix of not less than 43 (21 CFR 150.110). A routine sample of these products is to be submitted to the Georgia Department of Agriculture Lab to verify Brix.

Labels:

Prior to the manufacture of products, all packaged product labels are subject to review by the Department as administrative procedures enjoin.
Basic label requirement for food products include:

1. The name and address including the Zip Code of manufacturer, packer or distributor.

2. The Net Contents in definite units (Refer to 40-15-3-.08)
   a. If liquid, in liquid measure
   b. If solid in terms of weight
   c. If a mixture (solid and Liquid) in terms of weight
   d. The declaration of contents of a package must be listed on the label and shall appear on the bottom 30 % of the principal display panel.

3. Metric declaration must be listed on label of food products.
   For example: Net Wt.16 oz (454 g.); Net. 16 Fl. Oz. (473 ml.)

4. The common name of the product.

5. A list of ingredients, the common name of each ingredient, and in order of predominance by weight.

6. Under certain conditions, the following are necessary:
   a. Optional ingredients
   b. Dietary properties, if claimed
   c. If used, artificial ingredients must be so labeled
   d. Preservatives identified in the Ingredient's Statement
   d. Clearly indicated in event anything is **Imitation**
   e. NLEA Requirements
   f. Allergen Declaration after the Ingredient's Statement

7. A product code shall be applied to all packaged foods by the food manufacturer or processor at the time of packaging, which indicates information that would be useful in tracing the product back to the production date, location, and like information.

Labels submitted for review by the Atlanta Office should first be critiqued by responsible sanitarian and/or supervisor using label review policy (Memorandum No. 96-4) and deficiencies addressed with management and corrected prior to submission.

PLEASE CONTACT THE DISTRICT OFFICE IN YOUR AREA FOR FURTHER ASSISTANCE AND DIRECTION. FOOD SAFETY IS A RESPONSIBILITY OF EVERYONE!

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