

ASSOCIATION OF FOOD AND DRUG OFFICIALS

RETAIL GUIDELINES

REFRIGERATED FOODS IN REDUCED OXYGEN PACKAGES

INTRODUCTION

While oxygen reduced packaging may extend the shelf life of certain foods, the process can also create a serious public health hazard if the proper control parameters are not followed. These control parameters must include recognized barriers that prevent the growth of infectious or toxigenic microorganisms combined with proper temperature control of the product at all times and carefully monitored rotation of the processed food. Retail establishments should only engage in this practice after a thorough evaluation of the potential hazards has resulted in the establishment of adequate safeguards against food poisoning. Recognized food processing experts, certified laboratories, and food regulators must be consulted on the safe application of the process for each product proposed for processing. Individuals properly trained to recognize the hazards of this process and execute adequate control measures must be on duty during the processing period at each retail location.

We must recognize that products packaged in a reduced oxygen atmosphere may pose a serious public health threat even though the food may not exhibit the usual organoleptic (taste/smell) or visual signs relied on by consumers to warn them that food is no longer edible.

It is incumbent on the retailers to take a proactive position on this practice with product safety being the primary concern before reduced oxygen packaging is commenced.

DEFINITIONS

Acceptable Product List — A list of foods, endorsed by the regulatory authority or a process authority acceptable to the regulatory authority, which because of their characteristics will present a barrier to the growth of *Clostridium botulinum*.

Barrier — A safety factor of a physical, biological, or chemical nature which inhibits or minimizes the growth of microorganisms including those which may be infectious or toxigenic.

Critical Control Point — Any point or procedure in a specific food processing or packaging operation where loss of control may result in an unacceptable health risk.

Dedicated Equipment or Personnel — Equipment or personnel reserved solely for use in one operation.

Hazard Analysis Critical Control Point (HACCP) Program — A comprehensive food safety control plan which includes a step-by-step description of the food processing, packaging, and storage procedures including identification of critical control points (CCPs); the food contact surface cleaning and sanitizing procedures; lot identification procedure; and training procedures.

Lot — A unique run of processed or packaged product with a specifically designated date and processing operation.

Official Method of Analysis — Refers to the *Official Methods of Analysis of the Association of Official Analytical Chemists* published by the Association of Official Analytical Chemists, 1111 North Nineteenth Street, Suite 210, Arlington, Virginia 22209.

Processing — To manufacture, compound, intermix or prepare food products for sale or for customer service.

Retail Food Establishment — A facility where food products are processed, prepared, stored or handled, and sold or offered for sale at retail with such sales being made primarily to the consumer.

TYPES OF REDUCED OXYGEN PACKAGING

Cook-Chill — In this process, a plastic bag is filled with hot cooked food and the air is expelled, usually by hand, while the bag is being sealed, often with a twist tie, before being blast or tumble chilled.

Vacuum-Packaging — In this process, the air (including the oxygen) is mechanically extracted from the package immediately prior to sealing.

Sous Vide — This is vacuum packaging of raw ingredients followed by cooking within the sealed container. The cook is not sufficient to make food shelf-stable, so it must be held refrigerated.

Modified Atmosphere Packaging (MAP) — This is a one-time gas-flushing and sealing process. The gas atmosphere within the package is then allowed to passively change due to factors of container permeability and food product respiration.

Controlled Atmosphere Packaging (CAP) — This is an active system which continuously maintains the desired atmosphere within the package throughout the shelf-life. It uses an agent to bind or “scavenge” oxygen permeating the package, or a sachet to emit a gas.

REGULATORY AUTHORITY APPROVAL

Retail food establishment must obtain written permission from the appropriate regulatory authority assigned the primary food protection responsibility in their respective jurisdiction before packaging foods in a reduced oxygen atmosphere. The request from the retailer and approval from the regulator must be product specific.

POSTING OF ACCEPTABLE PRODUCTS & PRECAUTIONS

A list of products approved by the regulatory authority or a process authority acceptable to the regulatory authority for reduced oxygen packaging must be posted in the processing area along with a warning against packaging unapproved foods.

EMPLOYEE TRAINING

Retail employees assigned to process foods in reduced oxygen packages must be familiar with these guidelines and the potential hazards associated with reduced oxygen packaged foods. A description of the training and course content provided to the retail employees must be available for review by the regulatory authority.

REFRIGERATION REQUIREMENTS

All retail processed foods in reduced oxygen packages must be refrigerated at +45°F or below, or kept frozen at 0° or below.

LABELING — REFRIGERATION STATEMENTS

All retail packaged foods in a reduced oxygen atmosphere must bear a “keep refrigerated” or “keep frozen” statement. This statement must appear on the principal display panel in bold type on a contrasting background.

LABELING — “USE BY” DATES

Each package of refrigerated retail processed food in a reduced oxygen atmosphere must bear a “use by” date. This date cannot exceed 14 days from retail processing. Also, the date assigned by the retailer cannot go beyond the manufacturer’s recommended “pull date” for the food. The “use by” date must be listed on the principal display panel in bold type on a contrasting background. Foods that remain frozen before, during, and after processing are exempt from this requirement.

SAFETY BARRIERS

Refrigeration is the primary safety barrier. Only refrigerated foods that possess one or more of the following secondary safety barriers can be packaged in a reduced oxygen atmosphere at retail:

- Water activity (a_w) below .91
- Acidity (pH) of less than 4.6
- High levels of non-pathogenic competing organisms that prohibit the growth of pathogenic bacteria
- Meat or poultry products processed under USDA Supervision with a nitrite level of at least 120 ppm and a minimum brine concentration of 3.5%
- Frozen foods provided the product is maintained in a frozen state before, during, and after packaging.

FISH AND FISHERY PRODUCTS

Raw or processed fish and fishery products may not be processed at retail in a reduced oxygen atmosphere unless held frozen before, during, and after packaging.

SAFETY BARRIER VERIFICATION

The safety barrier requirement must be verified in writing for all foods processed in a reduced oxygen atmosphere at retail. This can be accomplished via written certification from the product manufacturer or through independent laboratory analysis of the incoming product using the official method of analysis. Any changes in product formulation or processing procedures that impact on the safety barrier require recertification of the product. All barrier certifications must be updated every twelve months or as required by the appropriate regulatory authority. A record of all safety barrier verifications must be available at the processing site for regulatory review.

USDA PROCESS EXEMPTION

Meat and poultry products, cured under USDA inspection or a state program equal to that provided by USDA, with a nitrite level of at least 120 ppm and a brine concentration of at least 3.5% are exempt from the safety barrier verification requirements.

HAZARD ANALYSIS AND CRITICAL CONTROL POINT (HACCP)

All retail food establishments processing food in a reduced oxygen atmosphere must develop a HACCP program and maintain a copy of this program at the processing site for review by the appropriate regulatory authority. This HACCP program shall include:

- A complete description of the processing, packaging, and storage procedures. The program must also identify the critical control points in the procedure with a description of how these will be monitored and controlled.

- A list of the equipment and food-contact packaging supplies used including compliance standards required by the regulatory agency (i.e., NSF, USDA, etc.)
- A description of the lot identification system.
- A description of the employee training program.
- If gases are used, they must be identified as being of food grade quality and must be listed in order of their proportion in the packaging.
- A description of the procedure along with the frequency for cleaning and sanitizing the involved food-contact surfaces in the processing area.
- A description of action to be taken if there is a deviation from the process approved by the regulatory agency.

PRECAUTIONS AGAINST CONTAMINATION

Only unopened packages of commercially manufactured food products can be used to process in a reduced oxygen atmosphere. If it is necessary to stop processing for a period in excess of one-half hour, the remainder of that product must be diverted for another use in the retail operation.

DISPOSITION OF EXPIRED PRODUCT

Retail processed reduced oxygen foods that exceed the "use by" date or the manufacturer's "pull date" cannot be sold in any form and must be destroyed in a proper manner.

DEDICATED AREA AND RESTRICTED ACCESS

All aspects of reduced oxygen packaging shall be conducted in an area specifically designated for this purpose. There shall be an effective separation to prevent cross-contamination between raw and cooked products. Access to the processing area shall be restricted to responsible trained personnel who are familiar with the potential hazards of this operation.

REGULATORY AUTHORITY EXEMPTION

Foods recognized as not potentially hazardous by the regulatory authority or a processing authority acceptable to the regulatory authority may be exempted from all or part of the requirements in these retail guidelines. Any exemptions granted must be listed after the product on the approval list posted in the processing area. For example:

Coffee Beans — exempt from refrigeration requirements.