

Cannery Inspection Regulations

ACIDIFIED FOOD PRODUCTS PACKED IN HERMETICALLY SEALED CONTAINERS SUBJECT TO pH CONTROL

§12400. Applicability.

Low acid (high pH) foods or acid foods containing low acid ingredients to an extent where a food poisoning hazard may exist when placed in hermetically sealed containers, and which are not processed by steam under pressure must be packed under the supervision of the Department of Public Health. This includes several types or classes of food products, among which are the following: vegetables in acidified brine or oil, vegetable juice cocktails, and various formulated products.

§12405. Acid Requirements.

(a) All products subject to Section 12400 found to have a pH greater than 4.6 will be restrained.

(b) The pH of low-acid foods may be lowered by the addition of any edible organic food acid such as citric or acetic.

Allowance must be made for the fact that certain acids, such as acetic, are quite volatile and rapidly lose their strength when heated in open containers. The Department of Public Health must be consulted to determine the strength and amount of acid to be used for each type of pack and the control measures that are necessary.

For illustration purposes only, the following examples are cited: On the basis of 60 percent solids in a final acidified artichoke pack, the following brines are found to furnish the required pH of less than 4.6:

(1) Unblanched, 0.6 percent citric acid (80 ounces per 100 gallons)

(2) Water blanched, 0.53 percent citric acid (71 ounces per 100 gallons)

(3) Acid blanched in a 1 percent citric acid solution for six minutes, 0.24 percent citric acid (32 ounces per 100 gallons)

(c) Acidified vegetables from a batch previously inspected and released by the Department of Public Health may be repacked in a packing medium of an edible vegetable oil without official reinspection only when adequate records are maintained clearly showing the batch number of the original batch and the date of release thereof and the batch number of the repacked vegetable.

§12410. Titration by Inspectors.

(a) Samples of the acid blanching solutions and brining solution shall be collected, one sample of each to be taken at the beginning of each day's run subsequently at about two-hour intervals during the day. These samples are to be titrated daily by the state cannery inspector.

(b) When the blanching or brining solution is changed, or more acid added, the batch number must be changed. A batch is understood to mean all material blanched at one time in a given solution.

§12415. Low Acid Ingredients in Acid Foods.

Some foods such as vegetable juice cocktails are made by mixing portions of low acid vegetables with products possessing a safe level of acidity, with a resulting potential food poisoning hazard. The control of acidity for this type of product is based on the examination of the finished product, and is determined directly as pH, which must be below 4.6. Samples of the finished product are to be submitted to the laboratory as requested.

§12420. Formulated Products.

By "formulated products" is meant the class of foods that is compounded from a number of ingredients according to a definite formula, and these ingredients when so compounded do not have a pH low enough to render them

commercially sterile when processed without steam under pressure. The control of acidity for this type of product is based on the examination of the finished product, and is determined directly as pH, which must be below 4.6. Samples of the finished product are to be submitted to the laboratory as requested.

§12425. Test Equipment.

All plants packing food products regulated under Sections 12415 and 12420 shall have and maintain in proper working condition for the use of the state cannery inspector pH determination equipment of the glass electrode type. All plants packing vegetables in acidified brine shall have complete titrating equipment, consisting of burette, standardized alkaline solution, indicator solution, pipettes, and titrating flasks or beakers. All of the above must be kept in clean workable condition at all times.

§12430. Samples to Laboratory.

- (a) Samples of the finished product, whether brine packed or oil packed from an acid blanch, are to be submitted to the laboratory as requested.
- (b) Cans should be labeled to show the following: product, date of pack and code number.

§12435. Production Records.

Production records shall be kept and a coding system inaugurated as specified by the inspection service. The production record shall show the cooking time and temperature for each batch, also number of containers per batch.

§12440. Inspectors' Reports.

A daily report is to be submitted to the Department of Public Health covering the results of the state cannery inspector's titrations on all blanching solutions and/or bines; also a report of his pH determinations to be certain that the acidification procedures are in order.

§12445. Releases.

Batches of foods subject to pH control are not to be released by the state cannery inspector until authorization is received from the San Francisco Office.

CONDUCT OF CANNERIES

§12450. Responsibility of Cannery.

It is the responsibility of every person, group, or organization engaged in the commercial, semicommercial, cooperative, or noncommercial community (church, school, or otherwise) canning or preservation of low-acid foods in hermetically sealed containers, among other things, to achieve commercial sterility in all units packed.

§12451. Cannery Licenses.

- (a) Cannery licenses will be valid for a two-year period from date of issue and are not transferable. The fee for the license is \$100.00.
- (b) Application for a Cannery license shall be made on State Department of Health form #EH-153.
- (c) The fee shall accompany the application and will not be refundable.
- (d) The licensee shall immediately notify the Department of any change in the information which was submitted on the license application.

NOTE

Authority cited: Sections 208 and 221, Health and Safety Code. Reference: Section 221, Health and Safety Code.

HISTORY

1. New section filed 7-21-76; effective thirtieth day thereafter (Register 76, No. 30).

§12455. Official Sterilization Processes.

All products except those under pH control as defined in Section 12400 through 12445 must meet specific requirements as to initial temperature, process time and temperature, as determined for each product. The Department of Public Health shall be contacted for the latest official sterilization requirements. (See Sections 12790 through 12975.)

§12460. Initial Temperature.

The term "initial temperature" as used herein designates the average temperature of the can contents at the time steam is turned on for the process. Just prior to the start of the process, the contents of the container used for checking the initial temperatures should be shaken or stirred and the temperature determined. This container should be representative of the coldest cans in the retort load and should have an initial temperature equal to or greater than the initial temperature specified under "Official Sterilization Process." "Initial temperature" should not be confused with "closing temperature."

§12465. Cleanliness of Materials.

All raw material must meet full requirements as to purity, wholesomeness, cleanliness and suitability for canning purposes. To this end the packer must supply any and all necessary equipment, and additional help and measures designed to insure the quality of the product.

§12470. Record of Cooks.

Each licensed retort operator shall keep a record of the cooks as required by the State Board of Public Health.

(a) The original and a duplicate of the production record must be kept by filling in accurately in complete detail the form approved by the Department of Public Health. Each entry in the record must be made by the operator at the time the specific retort operation is observed and not copied afterward. It must be in legible handwriting and be signed by the operator or operators.

(b) Chart of recording thermometer must show full time and temperature as required, otherwise the product will be restrained.

(c) Each production record and recording thermometer chart shall be stamped, initialed and numbered by a state cannery inspector before use and must be accounted for.

(d) The cook or batch number and size of cans involved must be recorded by the canner in each respective curve of all temperature charts.

(e) Production records and charts must be scrutinized and checked by a state cannery inspector before product is released for shipment.

§12475. Coding.

(a) Each plant must submit and have approved a code to appear legibly on the cover of each container. This code will show the plant where packed, year packed, the product contained therein, day code, and period code. The period shall be changed every two and one half hours or less. This time interval may be extended to three hours if a petition is filed with the Department demonstrating that adequate consumer protection is provided under those conditions when potentially hazardous products are required to be removed from retail market. If a container such as a glass bottle be used and the cap or cover be too small to permit the coding to be embossed or ink-stamped thereon, it shall be permissible to legibly perforate or ink-stamp the required code on the label, provided the label is securely affixed to the container.

HISTORY

1. Amendment filed 8-16-71; effective thirtieth day thereafter (Register 71, No. 34).

§12480. Requirements.

(a) All products must be free from adulteration and misbranding in accordance with Chapter 3 of Division 21 of the Health and Safety Code, and the United States Food, Drug and Cosmetic Act. The product must not be in violation of any state or county law. The net weight or other information as required by law must appear correctly upon labels.

(b) Any number of cans deemed necessary shall be cut and examined at any time by representatives of the Department of Public Health.

(c) Plants and equipment must comply with necessary requirements as to cleanliness and sanitation and conform to any and all state requirements.

(d) Officials of plants must insure the cooperation of all plant personnel.

(e) Packers must realize and faithfully fulfill their own responsibilities and obligations to produce a sound, wholesome, and safe product.

(f) All packers must fulfill their obligations with respect to maintenance of cannery inspection service according to Article 2 of Chapter 8 of Division 21 of the Health and Safety Code.

§12481. Examination of Can Closures and Can Closure Machines.

(a) Visual Examination. During regular production runs, a constant watch shall be maintained for gross maladjustments such as deadheads, cut-overs, and other similar double seam defects. Maintaining this constant check may be accomplished in several ways, depending on the type of closing machine, line speeds, and general equipment layout. It may best be performed by training the closing machine operator to recognize irregularities by visual examination. However, an adequate check program can be maintained through use of other trained personnel.

The operator, can closure supervisor, or other qualified personnel shall visually examine, at intervals of not more than thirty minutes, the top seam of a randomly selected can from each seaming station, and shall record his observations. Additional visual seam inspections shall be made immediately after a can-jam in a closing machine, or after start-up of a machine following a prolonged shut-down. All pertinent observations shall be recorded. If irregularities are found, the action taken shall be noted.

(b) Tear-down Examination. Tear-down examinations shall be made at a frequency of at least one can per seaming station every four hours or each major fraction thereof. Such examinations shall be made as soon as possible after starting up following a shut-down, waiting only long enough for the machine to "warm up." Cans for visual inspection shall be taken during this warm-up period. The results of the tear-down examinations shall be recorded.

(c) General Observations. Following are some of the various factors which influence double seam quality and which shall be examined in the course of the can seam examination:

(1) Condition of the seaming equipment--whether or not the mechanical operation and adjustment of the closing machine give the proper seam contours.

(2) Can material--variations in tinplate thickness.

(3) Can size--roll contours change with can size to accommodate variations in plate thickness.

Other pertinent observations shall also be recorded indicating the presence or absence of such defects as cut-overs, droops, etc.

NOTE

Authority cited: Section 28440, Health and Safety Code. Reference: Sections 28310-28322, Health and Safety Code.

HISTORY

1. New section filed 3-13-67; effective thirtieth day thereafter (Register 67, No. 11).

§12482. Required and Optional Seam Measurements.

(a) Optical System (use of seam scope or projector)

Required	Optional
Body hook	Width (length, height)
Overlap	Cover hook
Tightness (observation for wrinkle)	Countersink
Thickness	

(b) Micrometer Measurement System

Required	Optional
Cover hook	Overlap (by calculation)
Body hook	Countersink
Width (length, height)	Thickness
Tightness (observation for wrinkle)	

Regardless of whether or not a seam scope or seam projector is used, the double seam shall be torn down for examination.

(c) Two measurements shall be made for each double seam characteristic if a seam scope or seam projector is used. If a micrometer is used, three measurements shall be made at points approximately 120 apart, excluding the side seam. The high and low measurements must fall within limits considered to be normal for the conditions.

With regard to measurement limits, the canner shall follow the working limits recommended by the can supplier.

Overlap length can be calculated by the following formula:

$$\text{The theoretical overlap length} = CH + BH + T = W$$

where CH = coverhook

BH = body hook

*T = cover thickness, and

W = seam width (height, length)

*In general practice, 0.010 may be used for the tinplate thickness.

(d) Records shall be kept on all seam examinations. The form of such records shall be the choice of the canning company, but the records must show the frequency of visual and tear-down inspections, and the measurements made. It is suggested that sample forms be obtained from the can supplier.

For the purposes of State inspection, records of seam examinations must be filed and held for inspection by the State Department of Public Health.

NOTE

Authority cited: Section 28440, Health and Safety Code. Reference: Sections 28310-28322, Health and Safety Code.

HISTORY

1. New section filed 3-13-67; effective thirtieth day thereafter (Register 67, No. 11).

§12485. Standards for Water Used in Fish Canneries.

Waters used in fish canning operations within canneries shall conform to the following standards:

- (a) Water satisfactory without treatment.
 - (1) For whole fish handling operations:
 - (A) Not subject to contamination with human fecal discharges.
 - (B) Maximum of 7 E. coli organisms per cc.

- (C) Bacterial standard may be exceeded in not more than 20 percent of the samples.
- (2) For cut fish handling operations:
 - (A) Not subject to contamination with human fecal discharges.
 - (B) Maximum of 7 E. coli organisms per cc.
 - (C) Bacterial standard may be exceeded in not more than 5 percent of the samples.

- (b) Waters satisfactory after treatment:
 - (1) For whole fish handling operations:
 - (A) Not subject to gross contamination with human fecal discharges before treatment.
 - (B) Maximum of 3 E. coli organisms per cc. after treatment.
 - (C) Bacterial standard may be exceeded in not more than 20 percent of the samples.
 - (2) For cut fish handling operations:
 - (A) Not subject to gross contamination with human fecal discharges before treatment.
 - (B) Maximum of 3 E. coli organisms per cc. after treatment.
 - (C) Bacterial standard may be exceeded in not more than 5 percent of the samples.
 - (D) The treatment shall include filtration or the equivalent as one of the steps of the treatment process.

Samples for bacteriological analysis shall be analyzed by an approved method set forth in the latest edition of the APHA manual entitled "Standard Methods for the Examination of Water and Sewage." Those methods shall be employed which give the most specific reliable means of measuring organisms having their origin in the intestines of man and other warm-blooded animals.

GENERAL SANITARY REQUIREMENTS FOR FOOD PACKING ESTABLISHMENTS

§12490. Establishments and Premises in or on Which Food Products Are Prepared, Handled, Stored, or Packed Shall Be Maintained in a Sanitary Condition.

The following general requirements shall be complied with:

(a) Light.

There shall be light of good quality and well distributed wherever the food product may become contaminated.

(b) Ventilation.

There shall be ventilation sufficient to insure sanitary conditions.

(c) Drainage and Plumbing.

There shall be efficient drainage and plumbing systems for the premises. All closed drains shall be properly installed with approved traps and vents.

§12495. Water Supply.

Potable water supply for plant use shall be clean, and bacterially suitable with adequate facilities for its distribution in the plant and its protection against contamination and pollution. In those cases where ocean water is used in the handling of a food product, such as in fish canneries, the ocean water must meet the bacteriological and quality standards for such water as set forth in Section 12485 of these regulations.

In cases where nonpotable water is used, there shall be no cross connection between the nonpotable supply line system and the potable water supply line system. Any nonpotable supply line system shall be painted a color to distinguish it from any potable water supply line system.

§12500. Floors, Walls, Ceilings, Etc.

The floors, walls, ceiling, partitions, posts, doors, and other parts of all preparation and processing areas shall be of such materials, construction and finish that they may be readily and thoroughly cleaned. The floors in all areas where water is used in the operation are to be so constructed and of such material as to be water tight and they shall

be maintained in such condition as to stay water tight. All areas used for edible products shall be separate and distinct from those used for inedible products, such as fish meal reduction plants.

§12505. Use of Poisonous Insecticides and Rodenticides in Food Processing Establishments.

(a) Every practical precaution shall be taken to keep establishments free from flies, rats, mice and other vermin. If necessary, rodent-proof rooms shall be provided for materials which might become contaminated by these pests.

(b) The use of insecticides or rodenticides, toxic to humans, in areas where any food product, not adequately protected, is being stored or handled is prohibited.

(c) Poisonous insecticides and rodenticides may be used under buildings, wharves, outbuildings, or similar places, or where adequately protected packaged products are stored; only, if adequate precautions are taken to eliminate the possibility of said poisons being accidentally spilled, or carried, by any means, to areas where these poisons are prohibited. These poisons are to be adequately protected from possible contact by children, or domestic animals, and are to be plainly and distinctly labeled for identification by adults.

§12510. Animals in Plant.

Every practical precaution shall be taken to exclude dogs, cats, birds, or other animals and fowl from food establishments.

§12515. Sanitary Facilities.

Adequate sanitary facilities and accommodations shall be furnished by every food packing establishment. Of these, the following are specifically required:

(a) Dressing rooms, and toilet and urinal rooms shall be sufficient in number and conveniently located. These rooms shall be well lighted, sufficiently ventilated to insure sanitary conditions, vented to the outside, and meet all requirements as to sanitary construction and equipment. All doors entering such rooms shall be self-closing. All windows shall be screened. Such rooms shall be separate from areas in which food products are prepared, stored, or handled. The walls, ceilings, partitions, and other parts of all dressing rooms, toilet rooms, lavatory rooms and urinal rooms shall be of light color and of such construction as to be easily and adequately cleaned. Where five or more persons of both sexes are employed, separate facilities shall be provided for each sex.

(b) Sanitary washing facilities, including running hot and cold water, soap, and individual towels, shall be provided, and shall be placed in or near toilet and urinal rooms and also at other places in the establishment as may be essential to insure cleanliness of all persons handling any food product.

(c) Adequate lockers or cloak rooms for all employees shall be provided and shall be kept clean and well ventilated.

(d) Toilet soil lines shall be kept separate from industrial waste lines to a point outside the buildings. Drainage from toilet bowls and urinal shall not be discharged into grease salvage basins, or into open disposal systems.

§12520. Areas, Equipment, and Operations to Be Sanitary.

(a) Areas, equipment, and utensils used for preparing, storing or otherwise handling any food product and all other parts of the establishment shall be kept clean and in sanitary condition.

Areas in which any food product is prepared, processed, stored or handled, including walls, ceilings, and overhead structures of such areas shall be kept as reasonably free from moisture as is practicable. In such areas there shall be no drippings from any source including ceilings and overhead structures that may contaminate the product.

(b) Equipment and utensils used for preparing, processing, or otherwise handling any food product shall be of such materials and construction that they can be readily and thoroughly cleaned. Pipe lines used to convey fluid or semifluid products shall be so constructed that they can be readily and thoroughly cleaned.

(c) Operations and procedures involving the preparation, storing, or handling of any food product shall be strictly in accord with good sanitary practice.

§12525. Personal Hygiene.

(a) The employees of the establishment who handle any food product shall keep their hands clean and, after visiting the toilet room or urinals, shall wash their hands before handling any food product or implement used in the preparation of the product.

(b) Outer clothing and gloves worn by persons who handle any food product shall be clean and of material that can be readily cleaned.

(c) Such practices as spitting on the floor and using empty cans, jars, or other containers as drinking cups, or for purposes other than those originally intended, are forbidden.

(d) Care shall be taken to prevent the contamination of food products with perspiration, hair, cosmetics, medicaments, and the like. Adequate head coverings must be worn by all men and women, while engaged in the preparation or handling of any food product.

(e) Smoking by any person shall not be permitted while preparing or handling any food product or while handling empty cans, jars, lids, barrels, drums or other receptacles used for food products.

(f) The use of fingernail polish by any person preparing, processing, or handling any food product without gloves whereby the product might become contaminated, is prohibited.

(g) No clothing, shoes, boots, aprons, etc. shall be kept or stored in any area where any food product is prepared, processed, or handled, except in or on facilities specifically provided for this purpose.

§12530. Surroundings.

The outer premises of every food handling establishment embracing docks, storage areas, and areas where cars and vehicles are loaded and unloaded, and the driveways, approaches, yards, etc. shall be properly drained and kept in a clean and orderly condition. The accumulation of any material in which flies or other insects or vermin may breed or which will afford rodent harborage is forbidden. No nuisance which might contribute to insanitation shall be allowed on the premises of any food packing establishment.

§12535. Employment of Diseased Persons.

No food packing establishment shall knowingly employ in any department where any food product is prepared or handled, any person affected with a communicable disease.

§12540. Empty Container Storage.

Empty cans, jars, covers, lids, barrels, drums, etc. must be clean when filled with food products.

§12545. Tagging Insanitary Equipment.

When the use of any equipment, which is unclean or insanitary, would lead to contamination of the food product, an inspector may attach a quarantine tag to it. No equipment or utensils so tagged shall again be used until made acceptable. Such tag so placed shall not be removed by any person other than an employee of the Department of Public Health.

RECANNING OF FOOD PRODUCTS

§12550. Recanning.

It is not permissible to recan for sale any low acid canned food product for which the State Board of Public Health requires a specific retort process, without first obtaining written permission from the Department of Public Health. Such recanning must be done under the supervision of a duly authorized Inspector of the Department of Public Health.

SPOILAGE IN CANNED FOOD PRODUCTS

§12555. Reporting Spoilage.

Spoilage in any canned products packed under inspection must be reported in writing to the nearest office of the Department of Public Health, or to any Cannery Inspector in person.

All swells, springers and flippers found in the warehouse must be included in the report.

§12560. Segregation.

When swells or other evidence of spoilage in excess of one-half of one percent, (5 cans per 1,000), are found in any warehouse lot, such spoilage must be segregated from the normal cans, and the entire lot, including flat cans, held pending immediate notification of the Department of Public Health. No samples of such material shall be drawn for any purpose until authorization has been granted by the Department of Public Health.

§12565. Examination.

All of the above must be held in a safe and separate place in the warehouse pending examination and recommendation by a representative of the Department of Public Health as to the disposition thereof.

§12570. Monthly Reports.

HISTORY

1. Repealer filed 9-1-78; effective thirtieth day thereafter (Register 78, No. 35).

§12575. Sale to Salvage Company.

A report must be made to the Department of Public Health before any canned products packed under the supervision of the Department of Public Health are sold to a salvage company. The material must be inspected and released by a representative of the Department of Public Health before the shipment is made.

§12580. Application.

This regulation is applicable only to warehouse stocks of low acid canned foods which are packed under supervision of the Department of Public Health, and does not apply to material from the cook room damaged or spoiled because of mechanical defects.

VENTING OF CANNED FOOD PRODUCTS

§12585. Venting of Canned Food Products.

It is not permissible to vent and reprocess for sale any low acid canned food for which the State Board of Public Health requires a specified retort process.

BUCKLED CANS

§12590. Tolerance per Batch.

(a) Wherein 10 percent or more of a particular batch is found to be in buckled condition, the entire batch (both buckled and normal appearing cans) shall be restrained.

By "buckled condition" is meant those cans with strained ends caused by excessive internal pressure during processing or cooling, resulting in one or both ends having elevated or wavy areas such that they have become unsatisfactory for retail trade.

(b) Batches wherein less than 10 percent of the number of cans are buckled, only that material showing buckled condition shall be restrained and the normal appearing cans may be released.

(c) Buckled cans shall be reformed as soon as possible after the cans have been restrained. The reforming of the cans must be done before any arrangements can be made to submit the material to a flip vacuum test.

The reforming consists of forcing the distorted top or bottom back to its normal position. Ends slightly distorted may be reformed by thumb pressure whereas ends more severely distorted or strained may be reformed with the closing machine chuck or other suitable tool. Reforming the ends might have some effect upon the vacuum of the cans and as a consequence flip testing should not follow the reforming operation until approximately 30 days have elapsed.

(d) If swells develop during the holding period, they are not to be destroyed, but submitted to the laboratory for examination.

§12595. Supervision of Flip Testing.

Flip testing shall be done in the presence of a State Cannery Inspector. Workable zero, or the minimum external vacuum is to be at such a point that cans with 1 1/2" internal vacuum, or more, are segregated from cans with less than 1 1/2" internal vacuum.

§12600. Segregation of Flip-Tested Cans.

The segregation of flip-tested cans shall be into three lots, namely:

- (a) Normal appearing cans
 - (b) Cans showing 1 1/2" or more internal vacuum
 - (c) Cans showing less than 1 1/2" internal vacuum
- (1) All swells which do not show obvious cause of spoilage shall be submitted to the laboratory for examination immediately upon instructions from the State Cannery Inspector.
- (2) All leaks and cans punctured at the time of flip test shall be destroyed.

§12605. Holding After Flip Test.

All material, including normal appearing and buckled cans, not destroyed or submitted to the laboratory must remain under the original restraining order until official release has been authorized in writing.

(a) Such restrained material shall be segregated and marked to distinguish: (1) normal appearing cans, (2) cans with 1 1/2" or more internal vacuum, (3) cans with less than 1 1/2" internal vacuum.

§12610. Cans Having Less Than 1 1/2" Internal Vacuum.

After the flip test representative samples of cans having less than 1 1/2" internal vacuum shall be submitted for laboratory examination.

(a) If laboratory findings on samples containing less than 1 1/2" internal vacuum indicate no spoilage, the remainder of the cans in the batch restrained containing less than 1 1/2" vacuum may be released for manufacturing purposes or disposed of directly through channels such as hotels or restaurants for immediate consumption. The canner must notify the Department of Public Health to whom this lot is sold. The material flip testing 1 1/2" or more vacuum and the normal cans may be released for retail trade.

(b) If laboratory findings on samples containing less than 1 1/2" internal vacuum indicate the product not to be commercially sterile, all such cans are to be destroyed in the presence of the State Cannery Inspector.

§12615. Cans Having 1 1/2" or More Internal Vacuum.

In the event no cans in the lot are found with internal vacuum less than 1 1/2," representative samples of the lot having 1 1/2" or more of internal vacuum shall be submitted for laboratory examination.

(a) If laboratory findings on samples containing 1 1/2" or more internal vacuum indicate no spoilage, the remainder of the cans having flip tested 1 1/2" or more internal vacuum may be released for retail distribution. Normal cans restrained in such lots may also then be released for shipment through retail trade channels.

(b) If laboratory findings on samples having 1 1/2" or more internal vacuum indicate the product not to be commercially sterile, all such cans shall be destroyed in the presence of the State Cannery Inspector. In this event, samples will then be taken from the lot of normal appearing cans to be submitted for laboratory examination.

§12620. Normal Cans; No Spoilage.

If laboratory findings on samples of normal appearing cans indicate no spoilage, the remainder of the normal appearing cans may then be released for retail trade distribution.

NOTE

Authority cited: Sections 208 and 28440, Health and Safety Code. Reference: Sections 28432 and 28440, Health and Safety Code.

HISTORY

1. New NOTE filed 8-1-84 (Register 84, No. 31).

§12625. Normal Cans; Spoilage.

If laboratory findings on samples of normal appearing cans indicate the product not to be commercially sterile, all such cans are to be destroyed in the presence of the State Cannery Inspector.

§12630. Overfills and Hydrogen Swells.

That material found to be abnormal due to overfilling or due to the accumulation of hydrogen from chemical action may be recanned under the inspection of the Department of Public Health, based on laboratory examinations of representative samples. See Sections 12550 and 12585 of these regulations.

§12635. Sampling.

All samples submitted to the laboratory must be selected by the State Cannery Inspector.

§12640. Decision to Flip Test.

The Department of Public Health shall determine for each restrained lot whether both normal appearing cans and buckled cans must be flip tested.

DISPOSAL OF UNFIT CANNED FOODS

§12645. Prevention of Salvage of Unfit Canned Foods.

All unfit food products in hermetically sealed containers that are destroyed in public or private dumps must be destroyed by any method suitable to the Department of Public Health; thus preventing the salvage of food unfit for human consumption.

EXPERIMENTAL AND TRIAL PACKS

§12650. Applications.

Applications must be made to the Department of Public Health, in writing, for permission to put up experimental trial packs of any low acid food products. Applications must include complete details of the prospective pack: formula, product, size of pack, size of cans, number of cans, packing medium, initial temperature, time and temperature of process, pH of pack, processing equipment, proposed labels, proposed use of the finished pack. Experimental packs not so authorized will be restrained.

§12652. Exemption.

The above does not apply to a commercial cannery equipped with or having access to a qualified research department if no commodities packed on an experimental basis will be distributed in commerce.

FISH--DELIVERY, HANDLING, AND INSPECTION OF

§12655. General Rules.

(a) The term "decomposed" as used herein shall mean fish that are "in whole or in part diseased, contaminated, filthy, putrid, or decomposed or otherwise unfit for food."

(b) The Department of Public Health shall require the seller of raw fish and the canning organization involved in each sale to comply with the provisions of Chapter 3 of Division 21 of the Health and Safety Code prohibiting the manufacture, production, preparation, compounding, packing, selling, offering for sale or keeping for sale of any decomposed fish. The responsibility for maintaining an effective inspection service and of eliminating decomposed fish from the canned product shall rest upon the Department of Public Health, Bureau of Food and Drug Inspections, and the executive head of each canning organization.

(c) The inspector in charge at the plant shall require that all cannery operations be carried on under clean and sanitary conditions and require the immediate disposal of decomposed fish, fish offal and bait chum.

(d) The term "inspector" as used in these regulations shall mean a duly authorized "state cannery inspector."

§12660. Standards for Inspection of Raw Fish.

(a) Inspection of raw fish shall be strict and uniform and shall be designed and carried out to the end that fish unsuitable for canning shall be rejected in the raw state insofar as possible.

(b) The standards to be used in the examination and judging of fish shall be such as will make the resultant product conform to the Food, Drug and Cosmetic Act of the United States and to the California Health and Safety Code, Chapter 3 of Division 21.

(c) The Department of Public Health shall reject fish only if decomposed or unfit for human consumption.

The Department will not reject cooked fish because of its color or quality, unless such color or quality indicates decomposition as defined in subsection (a) hereof.

(d) Split, mashed, or broken fish shall be condemned if deemed by the inspector to be necessary for the prevention of acceptance of decomposed fish.

(e) The canner shall, promptly on arrival of each boat-load of fish, notify the Department of Public Health, and no canner shall receive fish into its plant until authorization is given by the inspector.

(f) Raw tuna in the round, shall be inspected by the examination of each raw, defrosted fish at the time they are eviscerated. "Defrosted" shall mean that each fish is thawed out to the point that odors are readily detectable. Raw tuna, not in the round, received dressed, eviscerated, gilled, headed or loins or pieces received frozen, shall be inspected in a manner satisfactory to the Department of Public Health at such places and times as may be directed by the inspector to prevent the canning of decomposed fish. Cooked fish, frozen cooked fish or fish pieces, shall be inspected at such places and times as may be directed by the inspector to insure compliance with the law and these regulations.

(g) Raw sardines and mackerel shall, when offered for delivery, be inspected in the boat or at the hoist or at any other point selected by the inspector in charge of the district in order to insure the most effective inspection at each plant. There may be more than one place of inspection.

HISTORY

1. Amendment filed 9-30-60; effective thirtieth day thereafter (Register 60, No. 21).

§12665. Inspection Service--Tuna.

(a) The inspection of all fish for canning purposes shall be under the direction of the Chief of the Bureau of Food and Drug Inspections of the Department of Public Health. The inspector on duty at each plant shall observe that all operations are carried out in a sanitary manner and in a manner to prevent the canning of decomposed fish, and shall immediately report to his superior any unusual or objectionable practice.

(b) In order to facilitate and expedite the administration and enforcement of the aforementioned acts and these regulations each canner may select sufficient personnel from his own employees who shall be trained by an inspector of the bureau to examine fish. The supervising inspector shall notify each canner in writing the names of employees of each company who are approved by the bureau as fish examiners.

(c) The detailed examination of the fish shall be made by an inspector or an approved cannery fish examiner under the supervision of an inspector. The inspector shall specify the number of cannery fish examiners required, in

accordance with the condition of fish in process from time to time, and the canner immediately shall supply the number so specified, referring any difference of opinion in this regard to the inspector in charge of the district. The approved cannery fish examiners shall at all times be under the direction of the inspector in charge at the plant while they are performing the duty of examining fish. The inspector in charge at the plant may call upon the cannery management for an approved substitute whenever any authorized cannery fish examiner is, in the opinion of the inspector, doing his work unsatisfactorily. In the event such substitution is not immediately made, an inspector shall be assigned to replace him until an approved substitute is available. The canner involved shall not receive or pack any fish until a proper substitute or an inspector is available. All costs shall be assessed against the canner involved.

(d) The inspector in charge of the district shall have full authority over the activities of his subordinates while assigned to the respective canneries.

§12670. Raw Fish Reports.

(a) The inspector shall make a written record of each boat load on a printed form. The records shall state total quantity of fish and include such evidence as the inspector may be able to obtain as to the method of handling.

(b) The bureau shall have free access to the records of each cannery which bear directly on the problem of fish and cannery inspection.

(c) Condemned tuna shall be weighed by the canner in the presence of the inspector and the inspector's report shall show accurately the weight of condemned fish. The inspector shall keep separate weight records of fish rejected by the canner because of quality or condition other than decomposition.

§12675. Fishing Vessels.

(a) Decks and holds of all boats and vessels catching tuna, mackerel, or sardines and transporting them to a cannery shall be kept in a clean and sanitary condition. The requirement for cleaning vessels and boats shall be enforced regardless of the size or type of the vessel or boat and shall be uniform throughout the State.

(b) Each vessel shall keep a written log which shall be available to the inspection service. Records of net boats shall show the time of each set.

(c) No decomposed chum may be used for bait or in taking mackerel. All bait or chum used must be fresh (not over 24 hours old) unless it be salted or frozen.

(d) High seas fishing boats, whether net or bait, shall keep a record of their catch and their methods of handling fish, including hold and water temperature.

(e) The Department of Public Health or its authorized agent may require interested parties, including members of the laboratory staff, to appear when undue quantities of fish have been condemned. Inquiry shall be made of the fishermen to determine the methods used in fishing and handling. An endeavor shall be made to explain to the fishermen the proper method of handling raw fish to prevent the recurrence of the loss. Representatives of the United States Food and Drug Administration and other interested parties may be admitted to the inquiry.

§12680. Disposal of Condemned Fish.

(a) When a boat load of tuna or mackerel has been condemned as unfit for canning, the inspector shall notify the supervising inspector who shall take such action as is necessary to prevent delivery of the rejected fish to any other plant.

(b) When a boat load of sardines has been condemned and the canner to whom delivery was offered can not receive the fish for reduction purposes, the inspector shall take the necessary steps to prevent the canning of these fish by any other canner.

(c) In all cases the inspector shall serve notice upon the captain of the boat whose fish are condemned that they shall not be used or sold for canning purposes.

(d) The inspector shall take such action as may be necessary to insure that fish which are condemned for canning purposes shall not be used for canning.

§12685. Sampling Canned Tuna.

(a) The supervising cannery inspector in charge of the district shall determine whether or not sample cans of the final product shall be taken for examination. He shall base his decision upon the condition of the boat load and the

report of the inspector. If the boat load of fish is in a prime state of preservation at the time of packing, confirmed by inspection in the plant, no samples need be taken.

(b) Sampling shall be carried out according to rules promulgated by the Department of Public Health and the minimum quantities of samples shall be as follows:

A lot of less than 200 cases	48 cans
200 to 1,000 cases	96 cans
1,000 to 2,000 cases	192 cans
2,000 to 5,000 cases	288 cans
5,000 to 10,000 cases	576 cans
Over 10,000 cases	960 cans

Not more than one can should be taken from any one case in sampling.

MACKEREL, HORSE, LABELING EXEMPTION

§12690. Horse Mackerel.

(*Treacherous symmetricus*) may be labeled as “Jack mackerel” providing that the word “jack” shall be prominently printed in the same size, style and color letters as the word “mackerel” which it modifies; and in addition, that the scientific name *Treacherous symmetricus* be included on the label; also no written or oral representation on the label or in connection with the sale of the product in invoicing or elsewhere implying that this fish is California mackerel or Pacific mackerel (*Pneumatophorus diego*) or any fish other than *Treacherous symmetricus*.

INSPECTION LEGEND

§12710. Application.

Any packer desiring to use the inspection legend on labels for products packed under the provisions of Chapter 8 of Division 21 of the Health and Safety Code shall make a formal written application therefor to the Board of Public Health.

§12715. Permission.

Upon receipt of written permission from the Board of Public Health the following statement may be placed on the labels of only those products packed in compliance with the provisions of the Laws Relating to Cannery Inspection.

§12720. Official Wording.

The official wording of the legend is as follows: Sterilized under the supervision of and according to the regulations of the California State Department of Public Health.

RETORT EQUIPMENT AND OPERATION

§12725. Notification of Intention to Install Retorts.

Every person, firm, company, organization, association, or corporation in the State of California desiring to install a retort to be used for the sterilization of low-acid food products in accordance with the provisions of Sections 28410 and 28411 of the Health and Safety Code, prior to installation of such equipment, shall notify the Department of Public Health.

§12730. Obtaining Approval.

Approval shall be obtained from the Department of Public Health before any retort equipment is installed or before previously installed equipment may be used for processing commercial products under inspection.

Upon request diagrams of minimum installations for discontinuous retorts may be obtained from the Department of Public Health.

§12735. Types of Retorts.

- (a) Horizontal. Still and rotary retorts
- (b) Vertical. Still retorts
- (c) Continuous. Pressure cookers

Installations and operations of continuous pressure cookers are not sufficiently standardized at the present time to permit making regulations governing their installations and operation. However, such installations shall be subject to the approval of the Department of Public Health.

§12740. Definition of Terms.

- (a) Inspector. "Inspector" means a duly authorized representative of the Department.
- (b) Vent. A "vent" is a valve-controlled opening into a retort, used for the elimination of air during the coming-up time.
- (c) Retort Bleeder. A "retort bleeder" is an opening of at least one-eighth inch into a retort which is open during the entire process for the removal of air that may enter the retort with the steam or through a leaky air valve.
- (d) Thermometer Bleeder. A "thermometer bleeder" is a one-sixteenth inch or larger opening into a thermometer well or pocket. This bleeder is open during the entire process to ensure a continuous flow of steam from the retort past the thermometer bulb in order that the temperature shown will be the same as that in the retort.
- (e) Coming-Up Time (Lag). The "coming-up time" is the time which elapses between the turning on of the steam and the time when the retort reaches the processing temperature.
- (f) Process. The term "process" designates the heat treatment expressed in terms of temperature and time given the product after the container is permanently sealed, in order to destroy spoilage microorganisms.
- (g) Plug-Cock Valves. An approved type of "plug-cock valve" is one which permits an unrestricted flow of air through the valve.

NOTE

Authority cited: Sections 208 and 28440, Health and Safety Code. Reference: Section 28440, Health and Safety Code.

HISTORY

1. Editorial correction of subsection (a) and new NOTE filed 8-1-84 (Register 84, No. 31).

§12745. Required Equipment for All Types of Retorts When Sterilizing Food in Tin or in Glass Jars with Closures Such That They May Be Processed in Steam.

- (a) Recording Thermometer.
 - (1) The temperature chart shall be easily readable to 1 degree F and shall be graduated in not to exceed 2 degrees F divisions within the range of plus and minus 10 degrees F of the official process to be used. All charts shall have a working scale of not less than three inches. Written permission from the Department shall be obtained for the use of old equipment with charts having a working scale of less than three inches. All replacements or new installations shall conform to a minimum three-inch working scale.
 - (2) No temperature chart shall be used in a recording thermometer unless it is a chart manufactured specifically for use in the recording thermometer installed on the retort.

- (3) It shall be unlawful to use charts with the temperature indicated in code.
- (4) Every recording thermometer shall bear the name plate of the original manufacturer having the serial number assigned by the manufacturer, and the manufacturer's chart number die stamped thereon.
- (5) Any recording thermometer found by a cannery employee or Inspector to be faulty in its operation shall be promptly adjusted or replaced by a properly functioning instrument.
- (6) Any recording thermometer requiring repair of the thermal system shall be repaired by the manufacturer or a servicing organization accredited by the manufacturer.
- (7) Documentary evidence of proper calibration may be required for any repaired recording thermometer when returned by the manufacturer or accredited servicing organization.
- (8) All recording thermometers shall be so placed with respect to light that they are conveniently readable.

(b) Indicating Mercury Thermometer.

- (1) The divisions shall be easily readable to 1 degree F and shall not exceed 20 degrees F per inch of graduated scale. It shall be unlawful to use mercury thermometers with the temperatures indicated in code.
- (2) All mercury thermometers shall be placed in respect to light so that they are conveniently readable.

(c) Pressure Gauge.

- (1) Every retort shall have a pressure gauge of the Bourdon type in which the operating mechanism is a complete unit independent of the case. Every gauge shall be equipped with a compensating hair spring.
- (2) The minimum diameter of the dial shall be four inches.
- (3) The range of the pressure scale shall preferably be 0 to 30 pounds, but a range of 0 to 60 pounds may be used.
- (4) Any retort pressure gauge found to be inaccurate either by a cannery employee or by an Inspector shall be replaced by a properly functioning instrument.

(d) Valves for Removal of Condensate.

- (1) Condensate shall not be allowed to accumulate in horizontal retorts.
This may be prevented by the installation of a one-half inch or larger valve in the bottom of the retort to be left open sufficiently to remove the condensate.
- (2) To assure that condensate will not accumulate in a retort during the process, a one-eighth inch or larger petcock or valve shall be installed or a hole drilled in the drain or bottom of the retort and it shall remain open during the entire processing time.

(e) By-Pass Around Diaphragm Control Valve on Steam Inlet.

Each diaphragm control valve shall be equipped with a by-pass to allow for hand control in case of an emergency.

(f) Steam Inlet.

(1) Horizontal Retorts:

(A) For retorts more than 20 feet in length, the steam shall enter the spreader pipe near the center of the retort. For retorts less than 20 feet in length, the steam may enter the spreader pipe either at the center or at the end. If steam enters at the end, the spreader pipe shall be no smaller than the steam inlet.

(B) The retort shall be equipped with an adequately perforated pipe extending throughout the entire length of the bottom of the retort with perforations arranged so that the steam is directed up and into the load of cans. The ends of the steam spreader shall be closed.

(2) Vertical Retorts:

(A) If steam is admitted into the bottom of the retort, it shall be directed up into the load of cans. Any other position of the steam inlet must be approved by the department.

The recommended number of holes to be used in steam spreaders is given in the following table:

Size Holes Inches	Size of Steam Supply Inlet					
	¾ Inch Pipe	1 Inch Pipe	1 ¼ Inch Pipe	1 ½ Inch Pipe	2 Inch Pipe	2 1/2 Inch Pipe
3/16	25	45	70	112	185	265

7/32	18	35	50	82	135	195
¼	14	25	38	62	105	145

(g) Retort Bleeders.

(1) For Horizontal Retort:

(A) A horizontal retort shall be equipped with bleeders along the top of the retort not more than eight feet apart and there shall be one within approximately one foot of each end of the retort. These bleeders shall be kept wide open during the entire process.

(B) Any bleeder at least one-eighth inch in size on a thermometer well may be considered to comply with this requirement when the well is in the top of the retort and located at the proper place.

(2) For Vertical Retort:

(A) A vertical retort shall be equipped with a bleeder at the end of the retort opposite the steam inlet. This bleeder shall be wide open during the entire process. In the case of very small retorts (less than 30-inch diameter and less than four feet in depth) a three-thirty-second inch bleeder may be used.

(h) Thermometer Bleeders. Bleeders for All Thermometers on All Types of Retorts. A one-sixteenth-inch or larger bleeder hole shall be kept open for the free escape of steam on all thermometer fittings unless thermometer bulbs are set wholly within the shell of retort proper. The bleeders shall be so located as to provide a full flow of steam past the sensitive part of the thermometer bulb.

(i) Vents for Removal of Air From Retorts During Coming-Up Period. Vents shall be installed and operated in such a way that all the air is removed from the retort before timing of the process is started.

See the venting systems described under Sections 12760 and 12765 of these regulations.

(j) Stacking Equipment for Use in Horizontal and Vertical Retorts.

(1) Stacking equipment (baskets, trays, gondolas, etc.) for all types of containers in discontinuous retorts, when cans or jars are stacked in a vertical position, shall be preferably of strap iron. When perforated sheet metal baskets are used, the perforations in the bottoms shall be at least one-inch holes on one-and-three-fourths-inch centers or their equivalent, unless other equipment has been approved.

(2) If dividers are used, they shall be of wide mesh material, such as fish nets or onion sacks, or of strap iron or sheet metal having perforations at least the equivalent of one-inch holes on one-and-three-fourths-inch centers. Close meshed cloth dividers are not permitted.

NOTE

Authority cited: Sections 208 and 28440, Health and Safety Code. Reference: Section 28411, Health and Safety Code.

HISTORY

1. Amendment filed 7-1-66; effective thirtieth day thereafter (Register 66, No. 20).
2. Editorial correction of subsections (a)(1), (a)(5) and (c)(4) filed 8-1-84 (Register 84, No. 31).

§12750. Additional Equipment Suggested but Not Required by the Department of Public Health.

(a) The use of an additional thermometer on each retort is advised to serve primarily as a check instrument, preferably located adjacent to the temperature recorder bulb.

(b) An automatic temperature controller is recommended.

(c) A safety valve of such size and capacity that it meets with the requirements of any board of mechanical engineers or any safety code in the State of California, and/or the California Industrial Accident Commission. It is recommended that the safety valve discharge be equal to or greater in capacity, than the retort steam supply line.

§12755. Venting of Retorts for Removal of Air, General Considerations.

(a) Vents (except drains when used as vents) shall be in the opposite side or end of the retort from that at which the steam is admitted.

(b) Vent valves shall be of the gate or plug cock type, preferably quick acting, except where otherwise specified. A globe valve of one pipe size larger than the minimum vent requirement may be substituted for a gate valve.

(c) for the most efficient operation of a retort, cans shall be so stacked, and the stacking equipment shall be of a type such that the air can be removed rapidly enough to permit a uniform distribution of heat throughout the retort at the time processing temperature is attained. Anything which interferes with the free flow of steam through any part of a retort load makes this requirement more difficult to meet.

Use of the drain as a vent in conjunction with venting from the top of the retort is permissible and several combinations of top and bottom vents are described. However, it is more desirable to use venting systems which do not involve the use of the drain. Various arrangements of vents may be used to obtain uniform heat distribution throughout a retort. The following vent arrangements and cycles of operation have been found to give satisfactory heat distribution. Every retort shall be equipped with one of these installations or some other arrangement of vents which is equally satisfactory. If venting systems other than those described here are desired, or if shorter coming-up times are to be used, the approval of the Department of Public Health shall first be obtained. A special investigation may be required in order to determine the conditions under which such equipment may be used. If equipment now in use approximates, but does not exactly conform to one of the prescribed venting systems, the Department of Public Health should be consulted before any expensive change of equipment is undertaken. Full details concerning the present installation should be furnished to the department. Conditions such as boiler capacity and size of steam inlets vary in different plants and modifications of the venting procedure may be necessary in some instances to permit reaching the temperature specified within the recommended time. When this seems necessary, an investigation will be made by the Department of Public Health and modifications of the equipment or venting procedure will be suggested in accordance with conditions found. When a change in procedure is suggested, this new procedure will then become the approved method of venting the retorts in question at that plant.

§12760. Venting of Horizontal Retorts for Removal of Air.

The following venting specifications are for discontinuous horizontal retorts not exceeding five and one-half feet inside diameter, and are based on data from tests made with round cans in strap iron trays. There is evidence to indicate that the use of perforated sheet metal trays may necessitate supplementary retort venting or modifications in the stacking of cans.

(a) System A. Venting Through Multiple One-Inch Vents Discharging Directly to the Atmosphere.

(1) Equipment. A retort shall be equipped with unrestricted one-inch pipes approximately one foot in length, one for each five feet--or fraction thereof--of retort length, approximately symmetrically placed along the top of the shell, uniformly separated and not more than seven feet apart. There shall be one of the above vents within two and one-half feet of each end of the shell.

(2) Operation. The vent valve shall be wide open when steam is admitted to the retort, and shall remain wide open for at least five minutes after steam is turned on, and until the mercury thermometer on the retort indicates a temperature of at least 225 degrees F, or at least seven minutes to at least 220 degrees F.

(3) If vent pipes are to be extended beyond the valves, the extensions shall be of at least one pipe size larger than the vent pipes entering the retort.

(b) System B. Venting Through the Drain Valve and Through Multiple One-Inch Vents Discharging Directly to the Atmosphere.

(1) Equipment. A retort shall be equipped with unrestricted one-inch pipes approximately one foot in length, one for each five feet--or fraction thereof--of retort length, approximately symmetrically placed along the top of the shell, uniformly separated and not more than seven feet apart. There shall be one of the above vents within two and one-half feet of each end of the shell.

(2) In addition, the retort shall be equipped with a drain of not less than three-inch pipe size for retorts up to 15 feet in length or of not less than four-inch pipe size for retorts over 15 feet in length.

The drain valve may be either globe or gate type.

(3) Operation. The vent valves and the drain valve shall be wide open when steam is admitted to the retort.

(4) The drain valve shall remain wide open for at least two minutes after steam is turned on, and until the mercury thermometer on the retort indicates a temperature of at least 210 degrees F.

(5) The one-inch vent valves shall remain wide open for at least five minutes after steam is turned on, and until the mercury thermometer on the retort indicates a temperature of at least 220 degrees F.

(6) If vent pipes are to be extended beyond the valves, the extensions shall be of at least one pipe size larger than the vent pipes entering the retort.

The drain may be extended beyond the valve with pipe the same size as the valve.

(c) System C. Venting Through Multiple One-Inch Vents Discharging Through a Manifold.

(1) Equipment. A retort shall be equipped with unrestricted one-inch pipes, approximately one foot in length, one for each five feet--or fraction thereof--of retort length, approximately symmetrically placed along the top of the shell, uniformly separated, not more than seven feet apart, and connected into a manifold. There shall be one of the above vents within two and one-half feet of each end of the shell. The manifold shall be of 2 1/2-inch pipe size for retorts up to 15 feet in length, and of three-inch pipe size for retorts over 15 feet in length. Venting shall be controlled by a vent valve in a pipe leading from, and of a size not smaller than that of the manifold.

(2) Operation. The vent valve shall be wide open when steam is admitted to the retort, and shall remain wide open for at least six minutes after steam is turned on, and until the mercury thermometer on the retort indicates a temperature of at least 225 degrees F or at least eight minutes to at least 220 degrees F.

(3) If the vent valve is connected into a discharge pipe or system for removal of steam from the building, the header shall be sufficiently large so that venting will not be impaired.

(d) System D. Venting Through the Drain Valve and Through Multiple One-Inch Vents Discharging Through a Manifold.

(1) Equipment. A retort shall be equipped with unrestricted one-inch pipes approximately one foot in length, one for each five feet--or fraction thereof--of retort length, approximately symmetrically placed along the top of the shell, uniformly separated, not more than seven feet apart and connected into a manifold. There shall be one of the above vents within two and one-half feet of each end of the shell. The manifold shall be of 2 1/2-inch pipe size for retorts up to 15 feet in length, and of three-inch pipe size for retorts over 15 feet in length. Venting shall be controlled by a vent valve in a pipe leading from, and of a size not smaller than that of the manifold.

(2) In addition, the retort shall be equipped with a drain of not less than three-inch pipe size or retorts up to 15 feet in length or of not less than four-inch pipe size for retorts over 15 feet in length.

The drain valves may be either gate or globe type.

(3) Operation. The vent valve and drain valve shall be wide open when steam is admitted to the retort.

(4) The drain valve shall remain wide open for at least three minutes after steam is turned on, and until the mercury thermometer on the retort indicates a temperature of at least 210 degrees F.

(5) The vent valve shall remain wide open for at least five minutes after steam is turned on, and until the mercury thermometer on the retort indicates a temperature of at least 220 degrees F.

(6) If the vent valve is connected into a discharge pipe or system for removal of steam from the building, the header shall be sufficiently large so that venting will not be impaired.

(e) System E. Venting Through the Water Spreader.

(1) Equipment. The water spreader shall be of not less than 1 1/2-inch pipe size for retorts less than 15 feet in length, with the water inlet connected through the shell so that the spreader pipes extend in both directions from a tee in the water inlet.

The water inlet to which the spreader is connected shall be of not less than two-inch pipe size. The vent pipe shall be of at least two-inch pipe size and shall be connected into the water inlet without any restriction in pipe size.

The water spreader shall be of not less than two-inch pipe size for retorts from 15 to 30 feet in length with the water inlet connected through the shell so that the spreader pipes extend in both directions from a tee in the water inlet. The water inlet to which the spreader is connected shall be of not less than 2 1/2-inch pipe size. The vent pipe shall be of at least 2 1/2-inch pipe size and shall be connected into the water inlet without any restrictions in pipe size.

If the water enters at or near one end of the retort the water spreader shall be at least as large as the water inlet.

For retorts over 30 feet in length, the Bureau of Food and Drug Inspections, Cannery Inspection Section, shall be consulted for the proper venting requirements.

(2) The water spreader shall have holes of not less than three-sixteenths-inch diameter distributed uniformly along the length of the spreader pipe, and of sufficient number so that their aggregate area is not less than that of a two-inch pipe (3.34 square inches) for retorts up to 15 feet in length, or not less than that of a 2 1/2-inch pipe (4.75 square inches) for retorts having lengths of 15 to 30 feet.

(3) Operation. The vent valve shall be wide open when steam is admitted to the retort, and shall remain wide open for at least five minutes after steam is turned on, and until the mercury thermometer on the retort indicates a temperature of at least 225 degrees F; or the vent valve shall remain wide open for at least seven minutes to at least 220 degrees F.

(4) If the vent valve is connected into a discharge pipe or system for removal of steam from the building, the header shall be sufficiently large so that venting will not be impaired.

(5) The following table indicates the minimum number of holes permissible in water spreaders when used for venting:

Number of Holes in Spreader Pipe

Drill Size Inches	For 1 1/2-Inch Pipe Outlet (2.02 Sq. In.)	For 2-Inch Pipe Outlet (3.34 Sq. In.)	For 2 1/2-Inch Pipe Outlet (4.75 Sq. In.)
3/16	74	121	173
7/32	54	89	127
1/4	42	69	97

(f) System F. Venting Through the Drain Valve and Through the Water Spreader.

(1) Equipment. The water spreader shall be of not less than 1 1/2-inch pipe size for retorts less than 15 feet in length, with the water inlet connected through the shell so that the spreader pipe extends in both directions from a tee in the water inlet. The water inlet to which the spreader is connected shall be of not less than two-inch pipe size. The vent pipe shall be of at least two-inch pipe size and shall be connected into the water inlet without any restriction in pipe size.

The water spreader shall be of not less than two-inch pipe size for retorts from 15 feet to 30 feet in length with the water inlet connected through the shell so that the spreader pipe extends in both directions from a tee in the water inlet. The water inlet to which the spreader is connected shall be of not less than 2 1/2-inch pipe size. The vent pipe shall be of at least 2 1/2-inch pipe size and shall be connected into the water inlet without any restrictions in pipe size.

If the water enters at or near one end of the retort the water spreader shall be of at least the same size as the water inlet.

For retorts over 30 feet in length, the Department of Public Health shall be consulted for the proper venting requirements.

(2) The water spreader shall have holes of not less than three-sixteenths-inch diameter distributed uniformly along the length of the spreader pipe, and of sufficient number so that their aggregate area is not less than that of two-inch pipe (3.34 square inches) for retorts up to 15 feet in length, or not less than that of a 2 1/2-inch pipe (4.75 square inches) for retorts having lengths of 15 to 30 feet.

See table in subsection (e)(5) for number and size of holes required.

(3) In addition, the retort shall be equipped with a drain of not less than three-inch pipe size for retorts up to 15 feet in length or of not less than four-inch pipe size for retorts over 15 feet in length. The drain valve may be either globe or gate type.

(4) Operation. The vent valve and the drain valve shall be wide open when steam is admitted to the retort.

(5) The drain valve shall remain wide open for at least two minutes after steam is turned on, and until the mercury thermometer on the retort indicates a temperature of at least 210 degrees F.

(6) The vent valve shall remain wide open for at least five minutes after steam is turned on, and until the mercury thermometer on the retort indicates a temperature of at least 220 degrees F.

(7) If the vent valve is connected into a discharge pipe or system for removal of steam from the building, the header shall be sufficiently large so that venting will not be impaired.

(g) System G. Venting Through a Single 2 1/2-Inch Top Center Vent--for Retorts Less Than 15 Feet Long.

(1) Venting may be accomplished by the use of a single 2 1/2-inch unrestricted vent located at the top of the shell, provided this vent is within two feet of the center of the retort.

(2) Operation. The vent valve shall be wide open when steam is admitted to the retort, and shall remain wide open for at least four minutes after steam is turned on, and until the mercury thermometer on the retort indicates a temperature of at least 220 degrees F.

If the vent valve is connected into a discharge pipe or system for removal of steam from the building, the header shall be sufficiently large so that venting will not be impaired.

(h) System H. Venting Through the Drain Valve and Through a Single 1 1/2-Inch Top Center Vent for Retorts Less Than 15 Feet Long.

(1) Venting may be accomplished by the use of the drain valve in conjunction with a single unrestricted 1 1/2-inch vent located at the top of the shell, provided the vent is within two feet of the center of the retort.

(2) In addition, the retort shall be equipped with a drain of not less than four-inch pipe size.

(3) Operation. The vent valve and the drain valve shall be wide open when steam is admitted to the retort.

(4) The drain valve shall remain wide open for at least two minutes after steam is turned on, and until the mercury thermometer on the retort indicates a temperature of at least 210 degrees F.

(5) The vent valve shall remain wide open for at least five minutes after steam is turned on, and until the mercury thermometer on the retort indicates a temperature of at least 220 degrees F.

(6) If the vent valve is connected into a discharge pipe or system for removal of steam from the building, the header shall be sufficiently large so that venting will not be impaired.

§12765. Venting of Vertical Retorts for Removal of Air.

(a) The following specifications apply for venting vertical retorts not larger than approximately 42 inches diameter by 96 inches high, when the following equipment is used:

(1) Strap-iron or adequately perforated metal baskets.

(2) Vents located in or near the top of the retort.

(3) At least a one-inch steam line into the bottom of the retort and arranged so that steam is directed up into the load of cans.

(4) Raised supports for retort baskets so constructed that no baffling effect occurs. Baffle plates are not permitted.

If dividers are used, they shall be of wide mesh material, such as fish nets or onion sacks, or of strap iron or sheet metal having perforations at least the equivalent of one-inch holes on one and three-fourths-inch centers. Close meshed cloth dividers are not permitted .

(b) System I. Venting Through a Single 1 1/2-Inch Overflow Pipe.

(1) Venting of a vertical retort may be accomplished through a 1 1/2-inch overflow pipe if it is connected to the retort within at least 10 inches of the top of the shell. The overflow pipe shall have not more than eight feet of 1 1/2-inch pipe beyond the valve. If the vent pipe discharges into a manifold, the manifold shall be sufficiently large so that venting will not be impaired.

(2) Operation. The vent valve shall be wide open when steam is turned on, and it shall remain wide open for at least four minutes after steam is turned on and also until the mercury thermometer reaches a temperature of at least 218 degrees F or for at least five minutes to at least 215 degrees F.

(c) System J. Venting Through a Single One-inch Top Vent.

(1) Venting of a vertical retort may be accomplished through a single unrestricted one-inch vent located in the lid of the retort. This vent shall be equipped with a one-inch gate valve and shall discharge into the atmosphere, with not more than four feet of one-inch pipe beyond the valve.

(2) The vent valve shall be wide open when steam is turned on, and it shall remain wide open for at least five minutes after steam is turned on and also until the mercury thermometer reaches a temperature of at least 230 degrees F or for at least seven minutes to at least 220 degrees F.

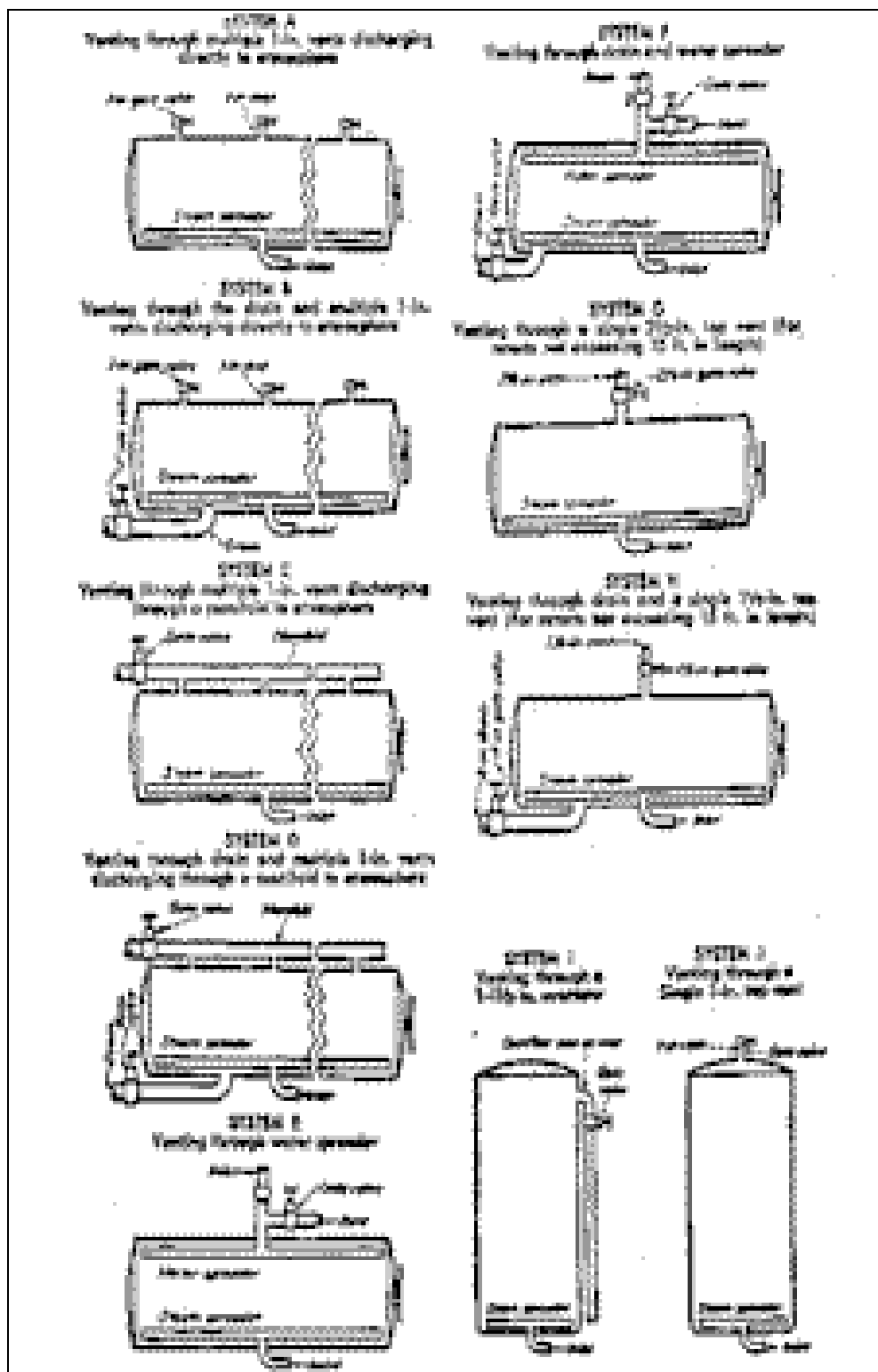
NOTE

Authority cited: Sections 208 and 28440, Health and Safety Code. Reference: Section 28411, Health and Safety Code.

HISTORY

1. New NOTE filed 8-1-84 (Register 84, No. 31).

§12767. Diagrams of Venting Systems.



Diagrams Reprinted from "Food Industries" Vol. 16, Page 93, February, 1944

NOTE

Authority cited: Sections 208 and 28440, Health and Safety Code. Reference: Section 28440, Health and Safety Code.

HISTORY

1. New NOTE filed 8-1-84 (Register 84, No. 31).

RETORTS, FOR FOODS IN GLASS

§12770. Notification of Intention to Install Retorts.

Every plant desiring to install a retort to be used for the sterilization of low acid food products in accordance with the provisions of Sections 28410 and 28411 of the Health and Safety Code, prior to installation of such equipment, shall notify the Department of Public Health.

§12775. Obtaining Approval.

Approval shall be obtained from the Department of Public Health before any retort equipment is installed, or before previously installed retort equipment may be used for processing commercial products under inspection. Every plant must be properly equipped to satisfy all requirements of the department.

§12780. Equipment Required.

Every horizontal steam operated discontinuous retort to be used for the sterilization of food products packed in glass containers must have the following as minimum equipment:

- (a) Gauge water glass or series of petcock water level indicators. (Gauge water glass is recommended.) Automatic pressure control is recommended to prevent waste of compressed air.
- (b) Pressure regulating valve in the overflow line. It shall be the same size as, or larger than, the water supply line.
- (c) Automatic temperature control.
- (d) Recording thermometer
 - (1) The temperature chart shall be easily readable to 1 degree F and shall be graduated in not to exceed 2 degrees F divisions within the range of plus and minus 10 degrees F of the official process to be used. All charts shall have a working scale of not less than three inches. Written permission from the Department shall be obtained for the use of old equipment with charts having a working scale of less than three inches. All replacements or new installations shall conform to a minimum three-inch working scale.
 - (2) No temperature chart shall be used in a recording thermometer unless it is a chart manufactured specifically for use in the recording thermometer installed on the retort.
 - (3) It shall be unlawful to use charts with temperature indicated in code.
 - (4) Every recording thermometer shall bear the name plate of the original manufacturer having the serial number assigned by the manufacturer, and the manufacturer's chart number die stamped thereon.
 - (5) Any recording thermometer found by a cannery employee or State Cannery Inspector to be faulty in its operation shall be promptly adjusted or replaced by a properly functioning instrument.
 - (6) Any recording thermometer requiring repair of the thermal system shall be repaired by the manufacturer or a servicing organization accredited by the manufacturer.
 - (7) Documentary evidence of proper calibration may be required for any repaired recording thermometer when returned by the manufacturer or accredited servicing organization.
 - (8) All recording thermometers shall be so placed with respect to light that they are conveniently readable.
- (e) Indicating mercury thermometer
 - (1) The divisions shall be easily readable to 1 degree F and shall not exceed 20 degrees F. per inch of graduated scale. It shall be unlawful to use mercury thermometers with the temperature indicated in code.
 - (2) All mercury thermometers shall be placed in respect to light so that they are conveniently readable.
- (f) Pressure gauge.

(1) Every retort shall have a pressure gauge of the Bourdon type in which the operating mechanism is a complete unit independent of the case. Every gauge shall be equipped with a compensating hair spring.

(2) The minimum diameter of the dial shall be four inches.

(3) The range of the pressure scale shall preferably be 0 to 30 pounds but a range of 0 to 60 pounds may be used.

(4) Any retort pressure gauge found to be inaccurate either by a cannery employee or by an Inspector shall be replaced by a properly functioning instrument.

(g) Proper circulating equipment to insure agitation of the water during come-up and process time. In horizontal retorts this may be accomplished with a recirculating pump. In vertical retorts this may be accomplished by providing for a continuous supply of compressed air through the steam distributor cross during these periods. The bypass line around the air control valve, providing a continuous supply of air, shall be at least one-eighth inch inside diameter.

(h) Adequately perforated steam distributor pipe extending the length of horizontal retorts or forming a cross throughout the width of the bottom of vertical retorts or any other approved methods.

(i) Bottom drain.

(j) A safety valve of such size and capacity that it meets with the requirements of any Board of Mechanical Engineers or any Safety Code in the State of California, and/or the California Industrial Accident Commission. It is recommended that the safety valve discharge be equal to or greater in capacity than the retort steam supply line.

NOTE

Authority cited: Sections 208 and 28440, Health and Safety Code. Reference: Section 28411, Health and Safety Code.

HISTORY

1. Amendment filed 7-1-66; effective thirtieth day thereafter (Register 66, No. 20).

2. Editorial correction of subsections (d)(1), (f)(4) and new NOTE filed 8-1-84 (Register 84, No. 31).

§12785. Installation of Equipment.

(a) The gauge water glass or series of petcocks shall be installed in such a position as to determine the water level during the process. If a gauge water glass is used, a mark indicating the height of the top row of jars shall be placed on the gauge water glass. If a series of petcocks is used, the petcock above the level of the top row of jars must be open at all times during the process and the free flow of water shall be visible to the retort operator.

(b) Steam and air shall be admitted at the bottom of the retort. Water may be admitted at the top, or bottom, or both.

It is recommended that all pipe connections be equipped with check valves where there is a common entrance for steam, water, and air.

(c) Steam and air shall be admitted into the bottom center of the retort through a perforated pipe or cross extending the length of the horizontal retort or throughout the width of a vertical retort, and in which the perforations are so arranged as to produce equal turbulence and distribution throughout the length of the pipe or cross. The extreme ends of the perforated steam distributor pipe or cross shall be closed; other methods of producing turbulence and proper distribution of heat are subject to approval.

(d) Each diaphragm control valve shall be equipped with a bypass to allow for hand control in case of an emergency.

(e) In horizontal retorts a suction manifold shall be installed in the bottom of the retort to remove the water for circulation.

The number of water inlets to the suction manifold shall be dependent upon the length of the retort with a minimum of one for each eight linear feet of retort length. The inlets shall be spaced at approximately equal intervals. The combined area of the inlets shall equal the area of the manifold. The manifold shall be connected to a recirculating pump operating at a sufficient rate to completely recirculate the water in not more than seven minutes. The water shall re-enter the top of the retort through the perforated water spreader.

Any other type of manifold or suction installation will be subject to the approval of the Department.

It is recommended that the switch operating the pump be equipped with a signal light, preferably red, or other warning device, so that the operator can see at all times that the pump is properly functioning.

(f) In horizontal retorts the mercury thermometer bulb, recording thermometer bulb and temperature controller bulb shall be located within the shell of the retort, and in such a position that they are beneath the surface of the water throughout the process.

(g) In vertical retorts the recording thermometer bulb and temperature controller bulb shall be installed at the bottom of the retort beneath and away from the steam inlet.

(h) In vertical retorts the mercury thermometer shall be so installed as to permit continuous circulation of the heating medium past the bulb during the process.

This may be accomplished by inserting the thermometer in a gradually sloped shallow and closed extension of the retort.

(i) The bottom of the overflow outlet shall be above the level of the top of the jars in the retort.

(j) All recording thermometers, mercury thermometers, pressure gauges and gauge water glasses must be so placed in respect to light that they are easily readable.

NOTE

Authority cited: Sections 208 and 28440, Health and Safety Code. Reference: Section 28411, Health and Safety Code.

HISTORY

1. Editorial correction of subsection (e) and new NOTE filed 8-1-84 (Register 84, No. 31).

§12976. Cookroom Personnel.

In order to facilitate and expedite the administration and enforcement of these regulations, each canner shall select sufficient qualified personnel from his own employees who, to the satisfaction of the State Cannery Inspector, shall see that these regulations are followed.

NOTE

Authority cited: Sections 102, 208, 26202, 26501 and 28440, Health and Safety Code.

HISTORY

1. New Sections 12976 through 12984 filed 8-16-71; effective thirtieth day thereafter (Register 71, No. 34).

§12977. Posting of Cooks

Official cooks for all low acid products being packed must be conspicuously posted near the retorts.

NOTE

Authority cited: Sections 208 and 28440, Health and Safety Code. Reference: Section 28440, Health and Safety Code.

HISTORY

1. New NOTE filed 8-1-84 (Register 84, No. 31).

§12978. Marking Containers.

Each can, glass jar, or other food container, basket, truck, car or crate containing unretorted material to be processed in still retorts shall be plainly and conspicuously marked with a heat sensitive indicator which will visually indicate to all cookroom personnel whether or not each unit has been retorted. The marking of each individual food container with an indicator to indicate process status is desirable.

NOTE

Authority cited: Sections 208 and 28440, Health and Safety Code. Reference: Section 28440, Health and Safety Code.

HISTORY

1. New NOTE filed 8-1-84 (Register 84, No. 31).

§12979. Time Limits.

Not more than two hours shall elapse between the time the first can is closed, and the time steam is admitted to the retort containing that batch or cook, except

- (a) tuna which may be held for a maximum of three hours after closing, and
- (b) canned ripe olives and acidified food products packed under pH control for which the time limitation does not apply.

In the event this time limit is exceeded, the cans or jars may be processed but shall be quarantined by the inspector until the Department has determined they are free from spoilage.

NOTE

Authority cited: Sections 208 and 28440, Health and Safety Code. Reference: Section 28440, Health and Safety Code.

HISTORY

1. Editorial correction filed 8-1-84 (Register 84, No. 31).

§12980. Double Door Retorts.

No uncooked containers may be placed in a double door retort before the rear door has been closed. Deviations will be allowed only if prior approval has been obtained from the Department.

NOTE

Authority cited: Sections 208 and 28440, Health and Safety Code. Reference: Section 28440, Health and Safety Code.

HISTORY

1. Editorial correction filed 8-1-84 (Register 84, No. 31).

§12981. Retort Markers.

A distinctive marker must be hung over the still retort opening when the retort contains unprocessed containers. It must be placed so that the door or lid cannot be locked before the marker is removed. A retort must not be locked until the operator indicates that it is ready for the process to start. Deviations will be allowed only if prior approval has been obtained from the Department.

NOTE

Authority cited: Sections 208 and 28440, Health and Safety Code. Reference: Section 28440, Health and Safety Code.

HISTORY

1. Editorial correction filed 8-1-84 (Register 84, No. 31).

§12982. Care of Containers.

Any container which falls on the floor must be immediately picked up. Any container removed for inspection must be promptly returned. Any container of unproven status with regard to processing must be punctured.

NOTE

Authority cited: Sections 208 and 28440, Health and Safety Code. Reference: Section 28440, Health and Safety Code.

HISTORY

1. Editorial correction filed 8-1-84 (Register 84, No. 31).

§12983. Blanching.

In the canning of leafy vegetables, all of the product which has been blanched must be canned and the containers closed within thirty minutes after shut down in order to prevent incipient spoilage before processing. If this period is exceeded, the product may be canned, but must be quarantined by the inspector until the Department has determined they are free from spoilage. All such material shall be carefully segregated so representative samples may be sent to the laboratory.

NOTE

Authority cited: Sections 208 and 28440, Health and Safety Code. Reference: Section 28440, Health and Safety Code.

HISTORY

1. Editorial correction filed 8-1-84 (Register 84, No. 31).

§12984. Posting Regulations.

These regulations covering operation procedures must be conspicuously posted in all cookroom areas where they can be read and understood.

NOTE

Authority cited: Sections 208 and 28440, Health and Safety Code. Reference: Section 28440, Health and Safety Code.

HISTORY

1. New NOTE filed 8-1-84 (Register 84, No. 31).