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Manual
of
GOOD MANUFACTURING PRACTICES
for the
Sanitary Control
of
Blue Crab Meat Production

1971

Proposed by the Tri-State Seafood Committee

December 15, 1971

This Manual supersedes that of June 14, 1971

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Introduction

This Manual of Good Manufacturing Practices for the Sanitary Control of Blue Crab Meat Production was prepared by the Tri-State Seafood Committee, comprised of representatives of the state health departments, technology laboratories and of the blue crab meat industry of Maryland, Virginia and North Carolina. We offer this Manual to the U.S. Department of Health, Education and Welfare, Public Health Service, Food and Drug Administration, Division of Shellfish Sanitation, for its consideration when drafting federal regulations.

Copies of the Manual, substantially the same as this revised edition, were mailed on June 14, 1971 to over 220 individuals, firms and agencies, representing all known East and Gulf coast state regulatory authorities and all known producers of blue crab meat. Comments that were received were carefully reviewed as possible amendments to the Manual. There has been no attempt to edit the Manual to achieve brevity or to rewrite in the special language reserved by the Food and Drug Administration for its regulations.

This Manual has the unanimous approval of the Committee, although each member reserves his opinion that some criteria might be too extreme and other criteria too lenient. The Committee offers these criteria with the understanding that they may be adopted as Federal Regulations, but that any state may retain its existing regulations or enact new regulations, possibly in greater detail, as long as they are not in conflict with or less restrictive than the federal regulations. Finally, we wish to emphasize the following statement:

Interpretation: Because of new developments in industry, technology and improvements in processing procedures, it is possible that any of these Good Manufacturing Practices criteria, if taken literally, may be unduly restrictive. In such cases, it is recommended that the GMP's be applied in the light of their intent, and that appropriate revisions in these GMP's be adopted promptly.

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1. Definitions

- a. Crab meat - the meat of the blue crab, Callinectes sapidus, steamed or cooked without processing other than picking, packing, pasteurizing, freezing and refrigerated storage.
- b. Food-contact surface - the parts of food equipment, including auxiliary equipment, which may be in contact with the food being processed, or which may drain into the portion of equipment with which food is in contact.
- c. Fresh crab - a live, raw or frozen crab which shows no decomposition.
- d. Internal temperature - the temperature of the animal or product as opposed to the ambient temperature.
- e. Packing/shipping - inspecting, final packaging, placing crab meat under refrigeration and shipping.
- f. Pasteurization - "pasteurization", "pasteurized" and similar terms shall mean the process of heating every particle of crab meat in an approved hermetically-sealed container to a temperature of at least 185°F. and holding it continuously at or above this temperature for at least one minute in properly operated equipment approved by the state regulatory authority; provided that nothing in this definition shall be construed as barring any other pasteurization process which has been found equally effective and which is approved by the state regulatory authority.
- g. Picking/packing - picking crab meat and placing the meat in a container.
- h. Potable water - water from an approved water supply.
- i. Sanitize - the effective bactericidal treatment of clean surfaces of equipment and utensils by a process which has been approved by the state regulatory authority and is effective in destroying vegetative cells of pathogenic bacteria and in substantially reducing other micro-organisms. Such treatment shall not adversely affect the product and shall be safe for the consumer.
- j. State regulatory authority - the state public health department, department of agriculture or other state agency having jurisdiction.

2. Plant and Grounds

- a. Plant design shall provide for continuous flow of the raw materials and product, to prevent contamination by exposure to areas involved in earlier processing steps, refuse or other objectionable areas.
- b. Plants in which crab meat is picked and packed shall, to the extent feasible, be so located that they will not be subject to flooding by high tides. If plant floors are flooded, processing shall be discontinued until after waters have receded and the facilities are cleaned and sanitized. (A minimum plant elevation of at least two feet above mean high water shall be provided in new plant construction.)
- c. Separate rooms or areas approved by the state regulatory authority should be provided for receiving, washing and cooking crabs.
- d. The following processes shall be carried out in separate rooms or facilities and the interior walls separating these rooms shall extend from floor to ceiling and contain only necessary openings (such as conveyors and doorways):
 - 1) Cooling
 - 2) Picking/Packing
 - 3) Packing/Shipping
 - 4) Refrigeration of picked crab meat
 - 5) Refrigeration of unpicked cooked crabs; provided that in an emergency cooked crabs may be stored in the same refrigeration room with packed crab meat.
 - 6) Refrigeration of uncooked items such as fresh crabs, bait, or fish.
 - 7) Pasteurizing
- e. Separate rooms shall be provided for:
 - 1) Container storage
 - 2) Locker and lunch
 - 3) Toilets
 - 4) Sales
- f. The cooking room or area shall be under permanent cover, located between the area for receiving raw crabs and the cooling room, and be properly vented to assure the quick removal of steam.

Mechanization will result in a single flow-through process and a modification of these two requirements would be necessary to permit the use of one room for these processes.

- g. The construction and arrangement of the cooling room shall give adequate protection to the cooked crabs from flies, insects, rodents, dust, plant traffic, and the washing down operation. This room and the refrigeration room for cooked crabs shall open directly into the picking room, or screened-in area or passage-way through which crabs are transported after cooling.
- h. Adequate space shall be provided for all routine operations to permit sanitary handling of crabs and crab meat and thorough cleaning of equipment.
- i. The delivery window between the picking/packing and packing/shipping rooms shall be equipped with a corrosion-resistant shelf of metal or equal smooth "non-porous" surface, draining toward the picking room.
- j. Rooms or lockers shall be provided which have adequate capacity for storing clothing, aprons, gloves, and other personal articles of employees.

3. Floors, Walls and Ceilings

- a. Floors. All floors shall be of smooth materials and so constructed as to be easily cleanable and shall be kept clean and in good repair. Floors in cooling, picking, packing, refrigeration, and toilet rooms, shall be of concrete or other equally impervious and easily cleanable material. Adequate floor drainage shall be provided in all areas where floors are subject to flooding-type cleaning or where normal operations release or discharge water or other liquid waste on the floor. Joints between floors and walls should be coved.
- b. All walls and ceilings shall be of tile, concrete, cement plaster, concrete blocks, painted wood, or equivalent material having a smooth, light-colored surface which will endure repeated washing and shall be free from cracks, ledges and shelves. Doors and windows shall be properly fitted and maintained in good repair.

4. Animal and Rodent Control Measures

- a. The plant shall be so constructed as to prevent entrance of rodents and there shall be no evidence of rodents in any part of the plant.
- b. Effective measures shall be taken to keep domestic animals, fowl, flies, rodents, and other vermin out of the establishment and to prevent their breeding or presence on the premises. All openings to the outer air shall be effectively protected against the entrance of such insects and rodents by self-closing doors, closed windows, 16-mesh or finer screening, controlled air currents, or other effective means.

- c. Rodenticides which are highly toxic to humans shall not be stored in crabmeat-processing plants and shall not be used except under the supervision of a licensed pest-control operator or other qualified specialist. (Rodenticides which have a low toxicity for humans shall be identified, stored, and used in such a manner as to prevent contamination of the product and to cause no health hazards to employees.)
- d. Only those pesticides which have been properly registered with the U.S. Department of Agriculture and the State Department of Agriculture and approved for the purpose by the state regulatory authority shall be used; such pesticides shall be used in accordance with the manufacturer's directions and shall be so handled and stored and used as to avoid health hazards to employees and product contamination.

5. Lighting

- a. Adequate lighting shall be provided to hand-washing areas, dressing and locker rooms and toilet rooms and to all areas where crabs and crab meat are processed and stored and where equipment and utensils are cleaned. Light bulbs, fixtures, skylights, or other glass suspended over exposed crabs or crab meat in any step of preparation shall be of the safety type or otherwise protected to prevent food contamination in case of breakage.
- b. Work, storage areas, toilets and privies shall be lighted to at least the intensity indicated below:
 - 1) One hundred (100) ft. candles illumination over working surfaces in picking and packing areas.
 - 2) Twenty-five (25) ft. candles illumination in storage rooms, including refrigerated storage rooms, and toilet rooms and privies.

6. Heating and Ventilation

- a. All rooms and areas shall be well ventilated, by natural or artificial means which are effective under actual work use conditions, and shall be heated if necessary to maintain a comfortable working temperature.

7. Water Supply

- a. Only potable water shall be used in any part of the plant.
- b. All air cooling, picking, and packing rooms shall be provided with faucets and wash down hoses.
- c. An automatically regulated hot-water system shall be provided which has sufficient capacity to furnish water with a temperature of at least 130°F. during all hours of plant operation.

- d. Sufficient water shall be available for all plant needs. (Nonpressure supplies will not constitute compliance.)
- e. Hot and cold water outlets designed for the facility shall be provided at each sink compartment, except that warm water only may be acceptable at handwashing sinks as provided by Item 8e.

8. Plumbing and Related Facilities

- a. Plumbing shall be installed in compliance with State and local plumbing ordinances, or be substantially equivalent to the recommendations contained in the current American Standard National Plumbing Code.
- b. There shall be no cross-connections between the approved pressure water supply and water from a nonapproved source, and there shall be no fixtures or connections through which the approved supply might be contaminated by back siphonage.
- c. There shall be at least 1 lavatory for every 20 employees among the first 100 employees, and at least 1 lavatory for each 25 employees in excess of the first 100. (Twenty-four lineal inches of wash sink or 18 inches of a circular basin, when provided with water outlets for such space, will be considered equivalent to 1 lavatory.)
- d. Handwashing facilities shall be convenient to the work areas, and so located that the person responsible for supervision can readily observe that employees wash their hands before beginning work and after each interruption. There shall be at least one lavatory in the packing room for use by packing room workers.
- e. The lavatories shall be provided with hot water (at least 100°F.) either from a controlled temperature source with a maximum temperature of 115°F., or from a hot-and-cold mixing or combination valve. (Steam-water mixing or steam-water combination valves are not acceptable.)
- f. Supplies of soap and single-service paper hand towels and protected dispensers shall be available near the lavatory. (Other sanitary drying devices if approved by the state regulatory authority are also acceptable.) Adjacent to the lavatories, a container of suitable construction shall be provided for the sole purpose of sanitizing the hands in an approved solution of adequate strength, 100 parts per million of available chlorine or its bactericidal equivalent.
- g. Conveniently located, separate toilets shall be provided for each sex, excepting that separate facilities need not be required when family operations are carried on and satisfactory toilets are located nearby, or when the plant has fewer than 10 employees.

The number of water closets provided shall comply with applicable state laws. In the absence of such laws, the following number of water closets shall be provided:

Number of Employees	Number of Water Closets ¹	
	Male	Female
1 to 9	1	1
10 to 24	2	2
25 to 49	3	3
50 to 74	4	4
75 to 100	5 ²	5 ²

- 1 Whenever urinals are provided, one water closet less than the number specified may be provided for each urinal installed, except that the number of water closets in such cases shall not be reduced to less than two-thirds of the minimum specified. A 24-inch trough will be considered equivalent to one urinal.
 - 2 One additional fixture for every 30 employees over the first 100.
- h. The toilet rooms or privies shall be kept clean and in good repair.
 - i. The toilet rooms and privies shall be furnished with toilet tissue.
 - j. Toilet rooms and outside privies shall be fly tight with self-closing doors opening outward; provided that the doors shall not open directly into areas where food is exposed to airborne contamination.
 - k. Toilet rooms and privies shall be ventilated by a direct opening to the outer air, or by a mechanical ventilating system. (Exhaust fans, if used, should have a minimum capacity of 2 cubic feet a minute per square foot of floor area.) Air vents should be screened or have self-closing louvers.
 - l. Fixtures, ducts and pipes shall not be so suspended over working areas that drip or condensate may contaminate foods, raw materials or food-contact surfaces.
 - m. Plumbing facilities and equipment shall be so constructed and so located as to permit no splashing of water onto picking tables, packing tables, meat to be or already packed, packing cans, picking pans in transit, unpicked cooked crabs, or shelf of the window through which picked crab meat is delivered to the packing room.

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- n. Plumbing facilities and equipment shall be so placed as to facilitate the flow of plant activities and in relation to use, while at the same time avoiding crowded conditions.

9. Sewage Disposal

- a. Sewage shall be discharged into public sewers wherever possible.
- b. Any private sewage-disposal facilities utilized shall be constructed and operated so as to comply with state and local requirements; privies shall be permitted only where water-carriage systems are infeasible. Any newly constructed individual water-carriage systems shall be at least equal to the recommendations contained in the current "Manual for Septic Tank Practice," (USPHS).
- c. No human excreta shall be accessible to flies or rodents.
- d. All sewage and other liquid wastes shall be disposed of in such a manner as not to create a nuisance or degrade water quality standards. On new construction, no wastes from hand-wash and utensil-wash sinks shall be discharged overboard without proper treatment.

10. Construction of Utensils and Equipment

- a. All equipment and utensils shall be so designed and of such material and workmanship as to be smooth, easily cleanable and durable, and shall be kept in good repair; and the food-contact surfaces of such equipment and utensils, shall, in addition, be easily accessible for cleaning, non-toxic, corrosion resistant, nonabsorbent and free of open seams.

11. General Cleanliness

- a. Material and equipment not in routine use shall be stored in designated rooms or areas.
- b. The processing areas of the plant shall not be used for other operations while crabs are being processed.
- c. No unauthorized persons shall be allowed in the processing areas of the plant at any time. Sales of crabs or crabmeat shall not be made from any processing portion of the plant or by any processing personnel.
- d. Premises shall be clean and free of litter and rubbish.

12. Cleaning of Buildings and Equipment

- a. The plant interior shall be kept clean and all utensils and equipment shall be thoroughly cleaned at the end of each day's operation and more often if necessary. Food-contact surfaces

shall also be sanitized at the end of each day's operation and also immediately prior to the start of the new day's operation. Sanitized shovels shall not be stored on the floor. Picking pans and knives shall be cleaned and rinsed in a bactericidal solution frequently during the day's operations, such as after delivery of meat to the packing room. Picking knives shall not be padded with paper towels or rags.

- b. Adequate facilities shall be provided and used for the cleaning and sanitizing of utensils and equipment, including, for every 30 pickers, a two-compartment wash sink of adequate size with hot and cold running water piped to each compartment, located in the picking room. Adequate facilities for washing and sanitizing scrap containers must be provided.

13. Methods of Bactericidal Treatment of Utensils and Equipment.

- a. All food-contact surfaces shall be treated by one or more of the following methods:
 1. Exposure for at least 15 minutes at a temperature of at least 170°F., or for at least 5 minutes at a temperature of at least 200°F., in a steam cabinet equipped with a thermometer located in the coldest zone. (Absence of a thermometer violates this item.)
 2. Immersion for at least 1 minute in, or exposure for at least 1 minute to, a flow of a solution maintained at not less than 100 parts per million of free chlorine or its equivalent. All food-contact surfaces must be wetted by the bactericidal solution, and piping so treated must be filled. Bactericidal sprays containing not less than 200 parts per million of free chlorine or its equivalent may be used for large equipment. Bactericidal treatment with chemicals is not effective unless the surface has been thoroughly cleaned.
 3. Any bactericide approved by the proper regulatory authority is satisfactory for use in connection with crab plant sanitation.

14. Storage of Equipment

- a. Equipment and utensils which have been cleaned and given bactericidal treatment shall be stored so as to be protected against contamination.

15. Receiving of Crabs

- a. Only fresh crabs shall be accepted for processing. No crab plant shall pick crab meat from any interplant shipment of cooked crabs or portions thereof without special authority from the state regulatory authority.

- b. Fresh crabs shall be cooked as soon as possible after receipt at the processing plant.
- c. Crabs may be washed or purged before processing.

16. Cooking

- a. Crabs shall be cooked under steam pressure until such time that the internal temperature of the centermost crab reaches 235° F. Temperature shall be measured with a maximum registering thermometer having a range of 170-270°F.
- b. The retort shall be so constructed as to permit a working pressure of at least 0-20 psig. The steam inlet shall be at the base of the retort and permit a horizontal and upward flow of steam so as to provide a uniform and complete distribution of steam. Venting shall be sufficient to permit complete elimination of air from the retort. If more than one vent is needed, one vent shall remain in an open position at all times. Drains and vents shall be located at least two feet above mean high water.
- c. The retorts shall be equipped with:
 - 1. An automatic time-temperature device, mechanical, electrical or combination type, for regulating the cooking process, with a range of 170-270°F for 0-20 minutes. Such device shall permit inspection of time and temperature. It shall be designed to signal when timed cook has begun and signal when timed cook is completed.
 - 2. An enclosed, mercury-filled, indicating thermometer with a range that will include 170-270°F and located with the bulb extending into the heat chamber.
 - 3. A pressure indicator, at least 3 inches in diameter, with a 0-30 psig range, and located adjacent to the indicating thermometer.
 - 4. A safety valve operational at 18-30 psig, located in the upper portion of the retort, protected from tampering, and appropriate for operator's personal safety.
- d. Boiler must be of such capacity as to maintain 45 to 100 psig during cooking. The steam line from the boiler to the retort shall be at least 1 1/4 inches I.D. (inside diameter). A pressure regulating valve, with a 10-30 psig range is optional. If used, it shall be located on the steam line and shall be 1 1/4 inches I.D. if not adjacent to the retort, or at least 1 inch I.D. if adjacent.

- e. Overhead hoists shall be equipped with chain bags.
- f. Retort cooking baskets shall be of stainless steel or equivalent material, and shall be so designed as to allow for proper steam disbursement, ease of handling and dumping, and satisfactory cleaning.

17. Cooling

- a. Cooked crabs, after removal from the retort, must be moved immediately to a protected area to be air cooled to room temperature without being disturbed. Cooked crabs must be placed under refrigeration at 40°F. or less if not picked within 24 hours following cooking. Cooked crabs must be protected from all contaminants and must be stored in original retort cooking basket.

18. Picking and Packing

- a. The picking and packing operations shall be conducted in a sanitary manner. All cooked crabs placed before a picker shall be picked before a new supply is delivered. Crab meat shall be placed under refrigeration within two hours after picking.
- b. (1) Repacking of crab meat which has been picked or processed in (either) another plant shall not be allowed.
- (or) (2) Repacking of crab meat which has been picked or processed in another plant shall not be allowed except in plants which are engaged in preparing institutional or bulk shipments for further processing. Prior written approval from the state regulatory authority must be obtained. Institutional repackers shall not prepare pasteurized crab meat for retail trade.

NOTE: Unanimous consent for either b(1) or b(2) has not been given. b(1) is believed excessively restrictive, while with b(2) the required degree of surveillance may be prohibitive.

- c. Blending of fresh, and/or frozen and/or pasteurized crab meat shall be prohibited.
- d. Cans or other containers for packaging cooked crab meat shall be clean, sanitized, single-service, made of an approved material, and capable of being tightly sealed.
- e. Packer's certificate number shall be legibly impressed, embossed or lithographed in or on the sides of the containers in which crab meat is packed, except when the lid becomes an integral part of the container during the sealing process the number may be on the lid; name and address of the firm or distributor shall be similarly marked on the container lid. Plastic bags shall have the name and address of the packer or distributor and certification number of the packer permanently marked on them (hand-stamping

is unacceptable). Containers bearing a certificate number other than that of the respective plant shall not be allowed in the plant. Each container shall be permanently and legibly identified with a code indicating the date of packing.

- f. Only clean shipping barrels, boxes and containers shall be used.

19. Pasteurizing

- a. Pasteurization process controls shall be provided as follows:

1. Indicating and recording thermometers. Both indicating and recording thermometers shall be provided on all pasteurizing equipment, and serve as time-temperature controllers. The bulbs of both thermometers shall be so located as to give a true representation of the operating temperature of the water bath. A representative of the state regulatory authority shall check the accuracy of both thermometers as installed and at least once each operating season. The recording thermometer chart must be at least a 12-hour chart, and at least 10 inches in diameter.
2. Protection of recording thermometer. The recording thermometer shall be installed so that it will be protected from vibration and from striking by loading operations of plant traffic. The thermometer mechanism shall be so located as to be protected from moisture under prevailing operating conditions. The thermometer case shall not be opened during the pasteurizing cycle except for temperature check, or for emergency adjustment or repair, a record of which shall be made.
3. Recording thermometer temperature range and accuracy. The recording thermometer shall have a range of at least 120-220°F. It shall be accurate within plus or minus 1° F. between 160°F. and 200°F. The chart shall be scaled at a maximum of 2°F. intervals in the range 160°F. and 200°F.
4. Indicating thermometer temperature range and accuracy. The indicating thermometer shall be a mercury thermometer with an accuracy and readability of plus or minus 1°F. between 160°F. and 200°F. The thermometer should be protected against damage.
5. Recording thermometer time accuracy. The recording thermometer shall be equipped with a spring-operated or electrically-operated clock. The recorded elapsed time as indicated by the chart rotation shall not exceed the true elapsed time as shown by an accurate watch. The rotating chart support shall be provided with pins upon which the chart shall be affixed by puncturing the chart.

6. Use of the recording thermometer chart. The pasteurization unit shall not be operated without a recording thermometer chart in place, the pen in contact with the chart and an inked record being made of the operating time-temperature cycle. Any indication of falsification of a thermometer chart shall constitute a violation. A new chart shall be used for each days operations and the code number or date of each batch affixed to the chart for each pasteurizing cycle. A permanent file of the used thermometer charts shall be maintained by the pasteurizer and kept available for inspection by the state regulatory authority for a period of one year. The following information shall be recorded within the confines of the pen markings after the pasteurization cycle has been completed:
- a) Date of processing.
 - b) Quantity of each batch processed (pounds of meat, or number and size of containers).
 - c) Processor's code of each pack.
 - d) If the pasteurizer processes meat for someone else, then the packer's name, address and license or certification number must be recorded.
 - e) Mechanical or power failure, or opening of the recording thermometer case for adjustment or repair during a pasteurizing cycle.
 - f) After the optimum temperature has been reached and during the holding time, the reading of the indicating thermometer and the time of reading shall be recorded on the chart.
 - g) Written signature of the pasteurizer operator.
7. Use of a constant-flow steam-control valve. A constant-flow steam-control valve is required if steam is used as a source of heat.

- Advisory:
1. Do not overload the water bath. Overloading often results in undercooked meat.
 2. Better distribution of heat is provided if steam is released from the side of the steam discharge spreader pipes in the base of the water bath - this results in the tangential release of steam.
 3. The containers should be immersed to a depth of six (6) inches below the surface of water with a minimum of three (3) inches of clearance of the sides of the water bath and minimum of two (2) inches of clearance of the bottom.
 4. The basket cover should be perforated for water circulation.

8. The water bath shall be provided with effective agitation to maintain a uniform temperature.
- b. The preparation of crab meat for pasteurizing shall be in accordance with the following:
 1. Preparation. Crab meat for pasteurization shall be prepared in compliance with existing State regulations for fresh meat.
 2. Sealing of containers. The containers of crab meat shall be sealed as quickly as possible after the meat is picked.
 3. Refrigeration. The containers of crab meat shall be placed immediately under ice refrigeration.
- c. The pasteurizing of crab meat shall be in compliance with the following:
 1. Pasteurizing operation. Crab meat for pasteurization shall be pasteurized within 24 hours of the time it is picked. The minimum pasteurization specifications shall be the raising of the internal temperature of the container of crab meat to 185°F. and holding at that temperature for at least one minute at the geometric center of a container approved by the state regulatory authority; provided, that nothing in this definition shall be construed as barring any other pasteurization process which has been found equally effective and which is approved by the state regulatory authority. Each set of pasteurizing equipment shall be standardized so that the above pasteurization treatment can be obtained. The pasteurizer shall keep on file the standardization report, and his pasteurization procedure shall be performed in accordance with it.

Advisory: This means that temperature-time requirements must be determined for each water bath and for other conditions, such as the temperature of the meat, for the size of the container and other variables. Alteration of the equipment or in the stacking of containers shall require that the procedure be restandardized. Plant operators are warned that time-temperature conditions for one water bath may not give a satisfactory pasteurization on another water bath.

2. Chilling. The containers of meat must be chilled by cooling to 100°F. within 50 minutes to allow refrigerated storage within one hour after processing. The procedure for chilling shall be standardized.
3. Refrigeration. Refrigerated storage shall be provided for the chilled pasteurized crab meat and shall maintain a storage temperature at or below 36°F. but above 32°F.

d. Labeling of pasteurized crab meat shall be in compliance with the following:

1. Designation of contents. The label used shall clearly identify the contents of the container as pasteurized crab meat.

Whenever the term "crab meat" (or its equivalent) appears on the label, the word "pasteurized" shall be used in immediate conjunction in type of equal prominence.

2. Coding. Each container shall be permanently and legibly identified with a code indicating the batch and the day of processing.
3. Refrigeration. The words "Perishable -- Keep Under Refrigeration" or their equivalent shall be prominently displayed on the label.

20. Freezing

- a. Crab meat for freezing shall be frozen within 24 hours of the time it is picked.
- b. Storage of frozen crab meat shall be at 0°F or lower temperatures.

21. Crab Scrap Disposal

- a. Scrap containers shall be removed from the picking room as soon as they are filled, placed in suitable, protected storage, and shall be removed from the premises at least daily and disposed of in such a manner as to prevent a nuisance. All scrap containers shall be leakproof and of non-absorbent materials and shall be thoroughly cleaned at least daily. Other solid wastes shall be stored and disposed of with sufficient frequency and in such a manner as to prevent a nuisance.

22. Handling of Single-Service Containers

- a. All single-service containers shall be stored and handled in a sanitary manner and, where necessary, shall be given bactericidal treatment immediately prior to filling, and adequately drained.

23. Refrigeration

- a. Refrigeration rooms shall be of sanitary construction with an impervious floor graded to drain quickly. The rooms shall be so constructed that they will not receive drainage from other portions of the plant. Floor drains shall not be connected directly to a sewer.
- b. Ice boxes for the picked product will be of sanitary construction with an impervious lining, and have an effective drain.
- c. The refrigeration room or ice box shall be large enough and so constructed that a full day's production, with ice, can be conveniently stored and equipped with an accurate thermometer located in the room or box.
- d. Ice shall preferably be manufactured in the plant, otherwise it shall be obtained from an approved source. Packers purchasing crushed ice shall secure it from dealers who handle, crush and deliver it in a sanitary manner.
- e. Ice bins shall have smooth, impervious ice contact surfaces and shall be so constructed and located that the bottom is above the level of the adjacent floor and drains away from the unused ice.
- f. Block ice shall be properly stored to avoid contact with contaminated surfaces and shall be thoroughly washed on an elevated metal stand or grating with a hose provided for this purpose before it is placed in the crushing machine. A corrosion-resistant container shall be provided to catch the crushed ice falling from the crusher. (Where the crusher is located in a protected portion of the refrigeration room, this container is not required.)
- g. All facilities and equipment employed in handling and/or preparing ice for use shall be used for no other purpose and shall be cleaned each day the plant is in operation. Shovels shall be hung or stored in a protected manner when not in use.
- h. Where it is necessary to have ice in the packing room, a metal-lined container or compartment of sanitary construction shall be provided for the sole purpose of storing such ice manufactured in the plant, purchased crushed ice, or block ice that has been crushed in the plant; except that clean wooden barrels for shipping crab meat may be used for this purpose.

24. Health and Cleanliness of Personnel

- a. Persons, while affected with a disease in a communicable form, or while a carrier of such a disease, or while afflicted with boils, infected wounds or an acute respiratory infection, shall be excluded from the plant.

- b. Daily observations or inquiries of employees shall be made by the managers or supervisors to detect any sign of illness among employees.
- c. A report shall be made to the local health authority when an employee is known or suspected of having a disease in a communicable form.
- d. Employees shall wash their hands thoroughly with warm water and soap, then dip them in an approved sanitizing solution before beginning work and prior to returning to work after leaving working areas, or after contact with any unprotected surface or other source of contamination. Employees engaged in picking and packing operations shall rinse their hands, following washing, in a clean sanitizing solution containing at least 100 parts per million of available chlorine or other equally effective bactericide. Fingernails shall be short and clean, and ornate rings shall not be worn while picking or packing. Use of cloth wraps or cloth finger cots shall not be permitted.
- e. Appropriate handwashing signs shall be posted in toilets or privies, and at conspicuous places in both packing and picking rooms, and at the hand-washing lavatories.
- f. Pickers, packers, and handlers of unpicked cooked crabs or picked meat shall wear clean outer garments and aprons. Aprons shall cover the front and sides of body. Caps or hair nets shall cover the hair. Arms shall be bare to the elbow or covered with approved type arm guards. Any type of protective clothing employing ruffles and gathering of material as well as scrap plastic, shall not be used.
- g. Clean, individual, single-service, hand paper towels shall be provided for each picker to use during picking operations.
- h. Employees shall not eat food or use tobacco in any form in the picking or packing rooms.

25. Supervision

- a. The owner or manager shall either personally supervise or shall designate an individual whose principal duty shall be to supervise and be responsible for the compliance with these regulations.

26. Microbiological Standards

- a. Fresh cooked crab meat shall not contain more than 46 Escherichia coli or 93 fecal coliform M.P.N. per 100 grams, and/or have a standard plate count of more than 100,000 bacteria per gram.

- b. Pasteurized crab meat shall contain no Escherichia coli or fecal coliform. Samples of pasteurized crab meat taken within 24 hours of processing, shall not have a standard plate count of more than 3000 bacteria per gram. The presence of Escherichia coli, fecal coliform, or a total bacteria count in excess of 25,000 per gram shall be construed as adulteration.

