A PROCEDURE FOR CRAB MEAT PASTEURIZATION

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The pasteurization of crab meat has received attention from crab meat processors and health agencies. While these two groups approach the process from two different aspects, their objective is ultimately the same. That objective is the production of a high quality product for the consumer. Processors should always try to produce a quality product since it reduces losses through spoilage and, perhaps, even more important, instills consumer confidence in the product.

The following crab meat pasteurization procedure has been developed and found to give satisfactory results. At least one state requires that all pasteurized crab meat marketed in their state be processed according to this procedure. Since practically all processors currently have their own pasteurization method, they may wish to read through this procedure and give some thought to any differences that may exist between their procedure and this one.

REGULATIONS GOVERNING THE PASTEURIZATION OF CRAB MEAT

(5.00) PASTEURIZATION OF CRAB MEAT

(5.01) Pasteurization process controls.

(A) Recording and indicating thermometers. Both recording and indicating thermometers shall be provided on all pasteurizing equipment, and serve as time-temperature controllers. The bulbs of both thermometers shall be

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so located as to give a true representation of the operating temperature of the water bath. A representative of the Department of Health 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 24-hour chart, and at least 12 inches in diameter.

(B) **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 (see item 5.01 (f) 5 and 6).

(C) **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. The chart shall be scaled at 2°F. intervals in the range 160°F. and 200°F.

(D) **The 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.

(E) **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.

(F) **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 the 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 Department of Health 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:
1. Date of processing.
2. Quantity of each processed (pounds of meat, or number and size of containers).
3. Processor's code of each pack.
4. If the pasteurizer processes meat for someone else, then the packer's name, address and license or certification number must be recorded.
5. Mechanical or power failure, or opening of the recording thermometer case for adjustment or repair during a pasteurizing cycle.
6. 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.
7. Written signature of the pasteurizer operator.

(G) **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 retort. 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 retort - 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 a minimum of two (2) inches of clearance of the bottom.
4. The basket cover should be perforated for water circulation.

(H) The water bath shall be provided with effective agitation to maintain a uniform temperature.

(5.02) **Crab meat for pasteurization.**

(A) **Preparation.** Crab meat for pasteurization shall be prepared in compliance with existing state regulations for fresh meat.

(B) **Sealing of containers.** The containers of crab meat shall be sealed as quickly as possible after the meat is picked, except that when meat is being packed for pasteurization on other premises a covering of a type approved by the State Board of Health shall be used.

(C) **Refrigeration.** The containers of crab meat shall be placed immediately under ice refrigeration.
(D) **Preparation and pasteurization by different processors.** Crab meat may be packed by one processor and pasteurized by another, provided the crab meat be picked into the final container and sealed in conformance with 5.02B. Packing may be done by one processor for another in containers furnished for that purpose by the latter. In all instances, the products processed under operations permitted by this paragraph shall meet the labeling requirements of item 5.04D.

(5.03) **Pasteurization of crab meat.**

(A) **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 Health Department. 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 retort and for other conditions, such as the temperature of the meat, the size of the container and other variables. Alteration of the equipment or in the stacking of containers shall require that the procedure be re-standardized. Plant operators are warned that time-temperature conditions for one retort may not give a satisfactory pasteurization on another retort.

(B) **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.

(C) **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.

(5.04) **Labeling of pasteurized crab meat.**

(A) **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.
(B) **Coding.** Each container shall be permanently and legibly identified with a code indicating the batch and the day of processing.

(C) **Refrigeration.** The words "Perishable - Keep Under Refrigeration" or their equivalent shall be prominently displayed on the label.

(D) **Preparation and pasteurization by different processors.** When preparation and pasteurization of crab meat by different processors as permitted in item 5.02D is practiced, the label shall clearly state the license numbers of the packer and pasteurizer.

(5.05) **Bacteriological standards for pasteurized crab meat.**

(A) **Fecal coliform bacteria.** There shall be no fecal coliform bacteria present in pasteurized crab meat.

(B) **Total bacteria count.** 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 of pasteurized crab meat.

(C) **Seizure and condemnation.** The presence of fecal coliform bacteria, or a total bacteria count in excess of 25,000 per gram shall be construed as adulteration.

(6.00) **Licensing or certification or processors of crab meat.**

(6.01) In order to obtain a license or certification for processing pasteurized crab meat only, a processor shall meet the applicable existing state regulations.