

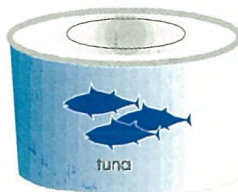
SECTION VII
PACKING

GMP 7.1 INGREDIENTS

GMP 7.1.1 *Ingredients other than tuna shall be of food grade quality. Dry or fresh ingredients shall be inspected upon receipt for cleanliness and other attributes as appropriate.*

REASON

Ingredients are part of the final product and, as such, must be of food grade quality.



GMP 7.1.2 *The water supply for “spring water” tuna packs shall meet the requirements of the competent authority having jurisdiction.*

GMP 7.2 EMPTY CANS AND LIDS

GMP 7.2.1 All lots of cans and lids brought into the cannery shall be inspected according to pre-determined standards and procedures. Cans shall be inspected for proper type of inside enamel, outside coating, defects and integrity of the side seam and bottom double seams, and general cleanliness. Cans shall be cleaned thoroughly prior to filling. Records shall be kept on the can lots and compiled in such a manner that can lots can be related to finished product can codes.

REASON

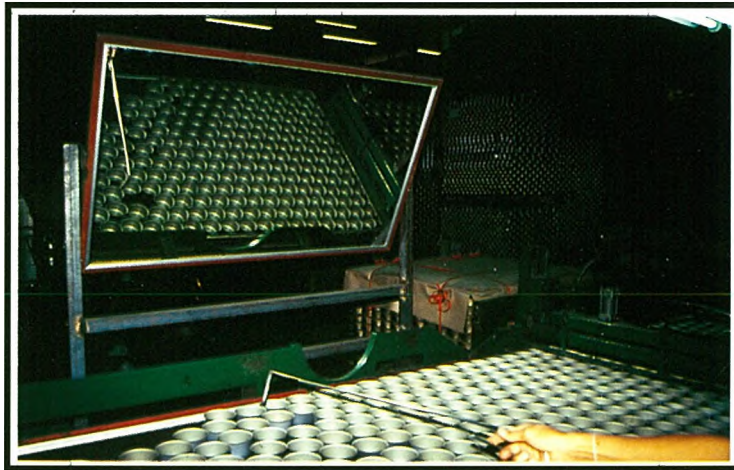
Empty cans and lids must meet specifications and the cans must be cleaned before any final product is put into them.



Every lot of empty cans should be inspected



Inspection of can ends



Inspection of empty cans before use

*Inspection of loin
before packing*



GMP 7.3 FILLING

GMP 7.3.1 Prior to can filling, cleaned fish loins and flesh shall be visually inspected for defects including off-colours, skin, bones, blood meat, foreign matter, etc. and all defective material removed.

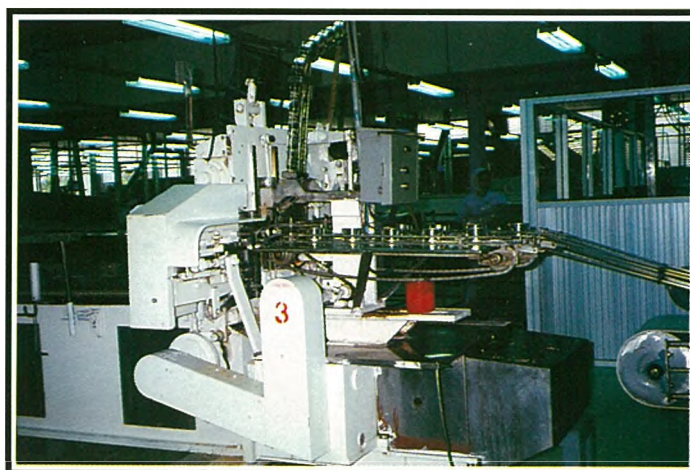
REASON

Can filling is the last point where visual inspection can take place and at which defective material can be removed from the product.

GMP 7.3.2. Filling shall be done by hand or by machine to ensure that cans are filled to the proper level. In preparation for filling, loins shall be cut neatly and uniformly to ensure proper piece size for the intended style of pack. Cans which are improperly filled shall be removed from the processing line and corrected or rejected as required. Balance scales or other suitable weighing devices shall be available at the filling area to ensure that minimum fish fill weight and net weight requirements are met.

REASON

It is essential that can filling operations, mechanical or manual, ensure that the filling requirements specified in the scheduled process for the particular type of tuna pack being produced are met. Improper can filling, overfilling and underfilling can adversely affect the safety and shelf life of a product. Improper filling or overfilling can result in product being deposited on the flanges where it interferes with the double-seam formation during the seaming operation and leads to a high proportion of cans being produced with seam defects or with inadequate vacuum due to insufficient head space.



Packing machine

GMP 7.3.3 The recipe for the particular product involved shall be adhered to fully, to insure that sufficient liquid (oil, water, broth), salt and/or other ingredients are added, to bring can contents up to total fill specifications and net weight requirements.

REASON

It is essential that can contents meet the recipe specifications and net weight requirements so that the intended label correctly describes the product, and that the product will be properly processed.

GMP 7.4 CANSEAMING

GMP 7.4.1. Cans shall be washed after seaming to remove any extraneous materials from the surfaces.

REASON:

Extraneous material adhering to the surfaces of cans is a real source of contamination to the can contents if any leakage into the can occurs in subsequent stages of processing, handling, storage and distribution.

GMP 7.4.2. The can seams shall be inspected for smoothness and tightness and, if any defects such as scuffed ends, rough edges, lipped metal or other evidence of defective seams are found, the seamer shall be stopped immediately for corrective action. The top double seam and can code shall be inspected every 30 minutes during the operation of each seamer. A daily record of inspections shall be maintained for each line.

REASON

Hermetically sealed containers must protect their thermally processed contents from recontamination with microorganisms. Thus, can integrity is critical for the safety and shelf stability of canned foods. An example of a daily record for seam inspection is given in Chapter 2, table 10.



Seaming machine



Inspection of can ends

Visual inspection of seam



GMP 7.4.3 At least once every 4 hours of seamer operations, after a jam, or after a lengthy shut down, one can from each seaming head of each machine shall be removed for top double seam tear down examination. Can vacuums shall be monitored to ensure proper vacuum drawing procedure sufficient to maintain can ends concave at 35°C. The cans shall be opened and the seams disassembled, measured and inspected to ensure that they meet the recommendations of the can and seamer manufacturers. If defective seams are found, the seamer shall be stopped and all production of finished goods that has passed through the seamer since the last approved can seam inspection shall be isolated and held for further testing. The nature of the defective seams shall be determined, corrections shall be made and the seams shall be retested and found acceptable, before this machine will be returned to regular production. Seam measurements shall be recorded.

REASON

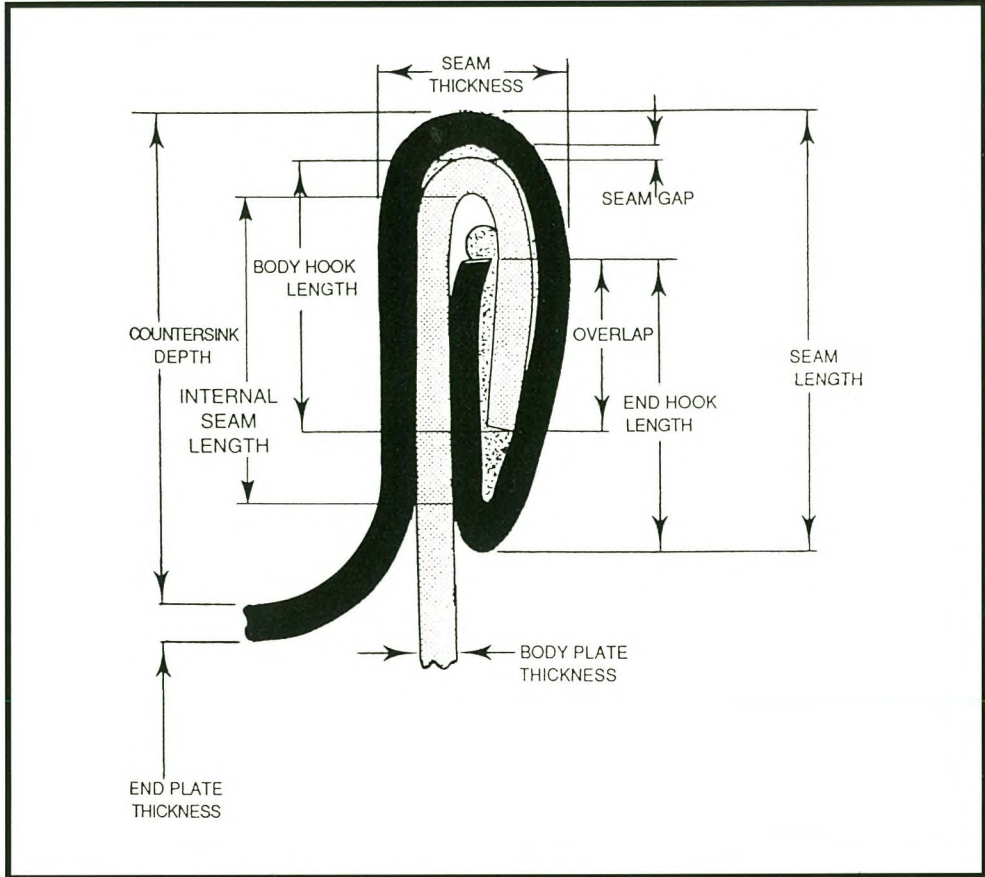
Since the hermetically sealed containers must protect their thermally processed contents from recontamination with microorganisms, can integrity is critical for the safety and shelf stability of canned foods. Producers should be capable of producing lots with can defect levels of 0.01% defective or less. It should be noted that, even under GMP the average number of serious defects may reach up to 0.01% defectives (10 per 100,000) for 3-piece cans and up to 0.004% defectives (4 per 100,000) for 2-piece cans or welded side seam cans. Under GMP, the canning industry must be capable of producing canned products which do not exceed 0.04% defectives (40 per 100,000 cans).

The recommended procedures involved for double seam tear down are given in Appendix I (Recommended International code of Practice Low-Acid and Acidified Low-Acid Canned Foods).

Table 2

VISUAL SEAM EXAMINATION		
EXTERNAL SEAM APPEARANCE		
Inspection Items	Frequency	Sample Size
Check for any externally visible defects or irregularities, for example, cut over, cut seam, vee, droops, false seams, spinner, etc.	1) At the closing machines as frequently as feasible. Minimum - every 30 minutes during operation. Also set up, after adjustments, jam-ups and change overs.	A minimum of cans each seaming head.
	2) Once a day. Cans from each line.	
TEAR DOWN EXAMINATION		
EXTERNAL SEAM MEASUREMENTS		
First Operation		
Inspection Items	Frequency	Sample Size
1. Thickness 2. Width	At set up and at least after every 40 hours of operation.	A minimum of 1 can from seaming head.
Second Operation		
1. Thickness 2. Width 3. Countersink	At set up. After adjustments, jam-up and change overs. Minimum: every 4 hours	A minimum of 1 can from each seaming.
VISUAL INTERNAL SEAM INSPECTION AFTER TEAR DOWN		
Inspection Items	Frequency	Sample Size
1. Tightness 2. Jumped Seam 3. Internal Droop (Juncture Rating) 4. Pressure Ridge 5. Pucker or Pleat	At set up.	A minimum of 1 can from each seaming head.

COMPONENTS OF DOUBLE SEAM



GRAPHIC "Dimensional Terminology of the Double Seam"



Seam tear down

TECHNICAL NOTE: CAN JAM-UPS

Jam-ups, i.e. points where the flow of cans is obstructed, can occur at several points in the line.

Depalletizer and Conveyors: All the affected cans and those in the immediate vicinity must be removed.

Filling Machine: Most jam-ups occur where the cans are ejected from the turret, when the flange of the can becomes jammed in the upper portion of the pocket instead of being released.

Weighing Machine: The area most susceptible to jam-ups on mechanical weighing machines is the underweight eject mechanism where the cans take a sudden change of direction.

Clincher: Devices used to separate the ends of cans and emboss the can code cause jam-ups. Generally, jam-ups occur when the clincher screw-worm is timed improperly, the coder is improperly adjusted, a separator knife is worn or a defective lid is encountered.

Closing Machine: Jam-ups may be caused by defective cans or can ends or improper clinching.

Can Washer: Jam-ups may occasionally occur at the can washer for a variety of reasons.

The following procedure must be followed to clear jam-ups:

1. Remove all sound and damaged cans and fish within the proximity of the jam-up.
2. If all metal can be accounted for,
 - a) It is safe to start the line and re-commence normal operation.
 - b) Inspect the fish and give it to the patching table for separate inspection before use as patching material.
 - c) Wash the empty, undamaged cans and carefully inspect prior to their re-use.
3. If all metal cannot be accounted for,
 - a) Thoroughly wash-out the equipment, paying particular attention to the trouble spots identified above.
 - b) Check the machine for metal fragments; use a waterproof flashlight and mirrored surface steel probe if necessary.
 - c) Start canning again and remove the first six cans; remove the fish and, after inspection, give it to the patching table for inspection and use as patching material.
 - d) Wash out the cans and carefully inspect prior to re-use.
 - e) Resume normal operations.
4. In any event, determine and eliminate the cause of the jam-up.
5. If the jam-up occurred in the seamer, carry out seam tear-downs on the first cans seamed to ensure that the seams are within all established tolerances.
6. Maintain a record of the number and location of every jam-up and the corrective action taken.

GMP 7.5 CAN CODING

GMP 7.5.1 All cans shall be legibly embossed, at the time of can closing, with a can code indicating the establishment and day, month and year of processing.

REASON

Products must be identified by establishment and packing date to facilitate the segregation of lots because of real or potential problems with safety or quality, or to initiate a complete and rapid recall of any lot. It is also standard practice to code batch/retort load and/or shift period/sub-period. In addition, a procedure to permit the complete and rapid recall of any lot of finished food products from the market should be established by the producing company.