

Module 15. Records for Product Protection

Thermal Processing for Meat and Poultry Products Training





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Records Essential to Canning

- Product protection for thermally processed foods involves
 - > Thermal process records
 - Critical factor control records
 - Closure evaluation records





- Recordkeeping requirements are throughout the canned food regulations.
- The main sections dealing with recordkeeping, reviewing, and maintenance requirements are in sections 431.7 and 431.8





- 1. Records demonstrate Compliance with regulations
 - Management is responsible for compliance with regulations
 - Civil and criminal penalties can be assessed against responsible parties





Reasons for Keeping Records

- 2. Records provide assurance of proper and safe application of thermal processes
 - They are the only permanent reference
 - They trace the history of the product
- 3. Careful review of records can give indication of problem
 - Responsible individual can take corrective action before the problem occurs





- Records that accurately reflect operating conditions during production must be kept.
- Data must be recorded by the designated person at the specific time the operation/condition occurs.
- Records must be reviewed by responsible establishment management.





Automatic Recordkeeping

- THERMAL PROCESSING TRAINING
 - Automatic recordkeeping may be integrated with thermal processing control systems.
 - Establishments should notify FSIS prior to use.
 - Automatic recordkeeping systems must be validated in accordance with 417.4(a)(1).





- THERMAL PROCESSING TRAINING
 - Processing and container closure evaluation records must be retained for 3 years.
 - FSIS permits storage at an alternate site during the last 2 years of the retention period.





- The establishment is required to make records required by the regulations available upon request of the CSI.
- Must allow inspection of records which verify:
 - Process adequacy
 - Container closure integrity
 - Container coding system





Establishment must provide

- 1. Process schedule development records
- 2. Process schedules
- 3. Critical factors records
- 4. Time/temperature recording charts
- 5. Processing (retort or aseptic system) records





Establishment must provide

- 6. Container closure specifications/guidelines
- 7. Container closure/integrity records
- 8. Retort operation documentation
- 9. MIG calibration/accuracy records
- 10. Yearly retort maintenance records
- 11. Information on recycled or reused container cooling water





- Establishment must provide
 - 12. A process deviation log
 - 13. Coding for each container
 - 14. Initial distribution records
 - 15. Product incubation results
 - 16. A recall procedure





- FSIS requires:
 - product, day, and year
 - establishment number on the label or container





AL PROCESSING

- RAINING
 - If the establishment chooses to incubate product samples, they must maintain records for each incubation test, including:
 - the product name,
 - the container size and code,
 - the number of containers incubated,
 - in and out dates for incubation samples,
 - incubation results, and
 - copies of incubator temperature recorder



- The recall procedure must recall product to the consumer level.
- The establishment must include a plan to identify, collect, and control the recalled product.





- Most operations must be kept within specific tolerances.
- Conditions may be monitored through statistical quality control (SQC) charts.
- Tabulated figures are difficult to analyze and time consuming.
- Converting figures to points on a SQC chart makes analysis easier.





- Indicate target and control limits
- Present a graphical picture
- A trend in data may forewarn of "out of control" situation
- Typically include:
 - Net weights,
 - Fill weights, and
 - Head space





Example of a Control Chart







- SQC charts are
 - not appropriate for monitoring batch operation critical factors, e.g., pH, product consistency
 - not appropriate for retort temperature/time





- THERMAL PROCESSING TRAINING
 - The written retort/aseptic system operator records, critical factor records, and recording charts are the heart of process control program.
 - They must be complete, accurate, and retained.
 - Recording charts must be identified to correlate with the written retort/aseptic system operator record.





- THERMAL PROCESSING
 - Measurements are usually keep on separate forms.
 - Measurements are taken according to and at the frequency listed the written procedure.
 - measurements should be made at intervals sufficient to ensure that the CF remains within the limit in the process schedule.





- The written records must identify:
 - production date,
 - product name and style,
 - container size and code,
 - process schedule including the minimum IT,
 - addition information depending on the thermal processing system
- Must include accurate temperature readings of the MIG thermometer and recording chart.



Process (Retort Operator) Record for a Still Retort

DAILY PROCESS RECORD FORM FOR STILL RETORTS

(OMPAN	Y NAM	IE			B	PI	LANT LO	, 	D/							
Product (and/or		S	cheduled Process		Retort and Re-	Cont	ainer	Actual	Time Steam	Vent	Closed	Time Temp.	Esti- mated Time Steam	Actual Time Steam	Actual Process Time	Tempe	rature
of Pack	Code	I.T.	Time	Temp.	Number	Size	No.	(°F)	On	Time &	(°F)	Up	Off	Off	(min.)	Mercury	Recorder
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<u>12</u> 																	

Note: Allow headings for critical factors, such as maximum drained weight and minimum net weight etc. where applicable to scheduled process.

Signed (or initialed) by:

Operator or Designated Person: _____

Reviewed by_____ Date _____



Computer-Generated Record Example

.

	Tues	day, Feb 0	6, 2001			Log	ed onto Reto	eam Retort	2-6-01 at 7: 15: 02			Page 1
THERMAL PROCESSING	Vent	5 minutes	to 230 deg F			REP	ORT FOR R	ETORT 1				
TRAINING	RT	Cycle	Cook Date	Prod Code	# Containers	IT	IT time	Oper ID		Temp	Pressure	Selected Process
	1	1	2-06-01	Bean Broth 261	A32 200	120	07:32:02	501		90	0	Code B 15:00 at 250 deg F.
		Tim	of Day	Phase	Description	Flar	sed time		Data Logged			Computer
		$\frac{11110}{07:2}$	5: 00	Review logs	Employee ID	0:09	: 58		501	90	0	•
		07:2	6: 02	Loading	Ready to Load	0:00	: 00			90	0	adaratas
		07:2	8: 58	Loading	Retort Loaded	0: 02	: 56			90	0	yenerates
		07:2	8:59	IT	Enter IT	0:00	: 00			90	0	
		07:28	8:00	IT	IT Entered	0:00): 01		120	90	0	data to ho
		07:2	9:00	Venting	Begin Vent	0:00): 00			90	0	
		07:3	0:00	Venting	Venting	0:02	:: 00			150	0	· · · · ·
	ALA	RM 07:3	5:00	ABORT	VENT FAILURE	0:00	5:00			150	0	nrintad latar
		07:3	5:00	Pressure Cool	Begin Phase	0:00): 00			140	0	
		07:3	5:00	Pressure Cool	Hold Pressure	0:00	0:00			140	18	•
		07:3	6:00	Pressure Cool	Ramp Down	0:01	: 00			80	18	
		07:4	0:00	Pressure Cool	End Phase	0: 0:	5:00			70	0	
		07:4	0:05	Draining	Begin Drain	0:00): 00			70	0	
		07:4 07	2:00	Draining	End Drain	0:01	: 55			70	0	

IDOD C. C. D.

OPERATORS NOTE: Vent failure due to stuck steam valve on main steam supply line. Valve repaired at 7:40 am. Product was left in retort; process was started over at 7: 50 am.

							Code B 15 : 00 at 250
2	Bean Broth 2	261A32 200	120	07:51:07 001	90	0	Operator
Time of Day	Phase	Description	Elapsed time	Data Logged			
07: 50: 00	Review logs	Employee ID	0:01:58	001	90	0	innute
07: 51:00	Loading	Ready to Load	0:00:00		90	0	IIIpuls
07: 51:00	Loading	Retort Loaded	0:00:06		90	0	
07: 51: 06	IT	Enter IT	0:00:00		90	0	limited data
07:51:07	IT	IT Entered	0:00:01	120	90	0	innited data
07: 51: 08	Venting	Begin Vent	0:00:00		90	0	
07: 52: 08	Venting	Venting	0:01:00		150	0	
07: 55: 08	Venting	Vent Temp Reached	0: 04: 00		230	6	through kev
07: 56: 08	Venting	Vent Time Reached	0: 05: 00		235	8	an eagin key
07:56:10	Come Up	Begin Phase	0:00:00		240	10	1 1 1
07: 57: 50	Come Up	Temp Reached	0:01:40		250	15	nad touch
07: 58: 00	Cook	Begin Phase	0:00:00		250	15.1	puu, touon
08:00:00	Cook	Mercury Entry	0: 02: 00	250	250	15.1	
08:00:00	Cook	Chart Entry	0: 02: 00	250	250	15.1	scraan or
08: 13: 00	Cook	End Cook	0: 15: 00		250	15.1	3010011, 01
08: 13: 00	Pressure Cool	Begin Phase	0:00:00		250	18	
08: 13: 00	Pressure Cool	Hold Pressure	0:00:00		250	18	othor
08: 13: 00	Pressure Cool	Ramp Down	0:04:00		250	18	ULIEI
08:17:00	Pressure Cool	End Phase	0: 09: 00		209	0	
08: 22: 05	Draining	Begin Drain	0:00:00		70	0	mathad
08: 25: 00	Draining	End Drain	0: 01: 55		70	0	



- The recording chart must identify:
 - production date,
 - container code,
 - processing vessel number or other designation, and
 - any other information needed to correlate the chart to the retort/aseptic system operator log





THERMAL PROCESSING TRAINING

Circular Recorder Chart





Strip Chart Recorder





- Operator must sign or initial processing records
- Management representative must review processing records, including critical factor records, within 1 working day of the actual process and date and sign or initial them.





Container Closure Inspection

- THERMAL PROCESSING TRAINING
 - Container integrity is critical to maintaining commercial sterility.
 - Records are proof that required examinations were accomplished.





Container Closure Records

- Container closure records must include:
 - container code,
 - date and time of closure examination,
 - measurements obtained, and
 - any corrective actions taken



Can Seam Evaluation Records

- THERMAL PROCESSING TRAINING
 - The establishment is required to make visual and teardown examinations of can seams.
 - Conduct visual check on one container per closing machine head





VISUAL SEAM EXAMINATION

CAN CODE 3402126

DATE - 3/4/02

LINE NO. 1

CONTAINER SIZE 300/303

THERMAL PROCESSING TRAINING TIME 9:00 AM

TIME	HEAD #	ACCEPT	REJECT	COMMENTS
9:00 AM	1	✓		
9:30 AM	2	✓		
10:05 AM	3		~	SHARP SEAM NOTIFIED MAINTENANCE
10:10 AM	3	✓		ADJUSTED 2 ND OP ROLLER
10:30	1	✓		

Equipment adjustments should be recorded.



- Destructive test that permits internal observation of seams
- Interval between observations should not exceed 4 hours





Example of Seam Evaluation Records

THERM TRAINI

RECORDING DOUBLE SEAM MEASUREMENTS	s	DOUBLE SEAM MEASUREMENTS	
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DATE _____

PLANT	
LINE NO.	
CAN SIZE _	

CAN CODE

Can Supplier

Time	Spindle	Width	Thick	ness	Counter- sink Depth	Bo Ho Len	dy ok gth	Cover Hook Length	Overlap Optical	Tightness Rating	Pressure Ridge	
	NO.	Max.			Max.	Min	Max.				SEE	REMARKS (See Note)
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			LEG	END	N - No		G - Goo	d S	- Severe			

NOTE Under remarks indicate all abnormal seam conditions which are observed such as Jumped Seams, Cut Overs, Cut Seams, Droops, Lips, etc.. When adjustments are made, duplicate measurements of seam components should be recorded for the seaming station involved. Duplicate measurements should be shown in a color different from the original recording. Indicate under remarks when measurements are recorded after an adjustment has been made to the seaming station.

Signed by	(Container Closure Inspt)	
Reviewed by	(Management Rep)	
Date	(4) (4)	



Example of Remarks Written in Records





Example of Double Seam Inspection Records

THERMAL PROCESSING TRAINING





C)



- Columnar or SQC format
- Visual and destructive examinations





Example of Capper Evaluation Records

PACKAGE EVALUATION RECORD - AT CAPPER

THERMAL PROCESSIN TRAINING	G						/ () ()			
	Plant				Line No		·····	- Produc	ct	
	Contai	ner Size & M	fg					_ Closur	e Size	
	Date _							_ Code _		
	Time	Type Capper	Product Vac. and IT	Cold Water Vac.	Head Space	Cap Tilt	Pull	Sec	Closure	Remarks
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Signed by (Container Closure Inspt.)

Reviewed by (Management Rep.)



Example of Container Closure Records

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Container Closure Record Responsibility

- Signed or initialled by closure technician
- Management representative must review closure records within 1 working day of the actual production and date and sign or initial them





Written Records

- THERMAL PROCESSING TRAINING
 - Use ink or permanent marker
 - Recording errors:
 - Lined out
 - Correct entry is made

45 50 JD

Initialled by person correcting the entry





- THERMAL PROCESSING TRAINING
 - Computerized or automated recordkeeping systems can be used for thermal processing, critical factor monitoring and container integrity testing provided they meet the requirements in FSIS regulations.
 - Automated recordkeeping systems for retorts and aseptic systems are usually integrated with thermal processing control systems.





- THERMAL PROCESSING TRAINING
 - FSIS has encouraged the industry to work cooperatively in the development of automated recordkeeping systems.
 - Computerized record systems must be validated.





Questions

Questions?

