

FOOD PROCESS HACCP (USDA; FDA; FDA FISH / FISHERIES)

GENERAL

All operations shall comply with government regulations that include adequate HACCP hazard control and quality assurance for receiving, inspecting, transporting, segregating, preparing, manufacturing, packaging, labeling and storing food.

Quality assurance operations shall be employed to ensure that food is suitable for human consumption and that food packaging materials are safe and suitable.

Recipes or production logs will be used by designated production employees to document product production and ingredients used.

Production procedures shall not contribute contamination from any source.

Chemical, microbial, or extraneous material testing procedures shall be used where necessary to identify sanitation failures or possible food contamination.

All food that may have become contaminated or is suspect shall be placed on hold and segregated. It shall then be evaluated by the HACCP team and a disposition made. This disposition will be dependent upon the evaluation.

All regulatory performance standards for pathogen reduction will be validated and available for review.

Determination if a production step is a CCP

1. Could contamination with a hazard occur in excess of critical limit / acceptable level? (If yes, do 2.)
2. Will a subsequent step eliminate / reduce the hazard to an acceptable level? (If no, do 3.) (If yes, go to next step.)
3. This step is required to reduce / prevent / eliminate the hazard to an acceptable level.

Quality control operations. The manufacturer, distributor, and holder of food shall at all times utilize quality control operations that reduce natural or unavoidable defects to the lowest level currently feasible. We will have written specifications for ingredients and components that identify criteria essential for the manufacturing process and product safety.

Methods of verification. This facility uses the three methods of verification as required by 9 CFR 417.4. The following is an explanation of each procedure, frequency, and results of these verification methods.

Calibration. Calibration of instruments such as thermometers used for the documentation of CCP temperature is performed on a weekly basis. Thermometers are calibrated against the _____ thermometer. The _____ thermometers are sent out and certified annually. The certificate of calibration is kept on file. The calibration of the thermometers is also verified with a records review of the weekly document. In addition, the **Equipment / Instrument Calibration and Verification Log** (Encl. B1, *MANAGEMENT / QA, QC, AND HACCP TEAM* section) will indicate that, and at least one instrument calibration has been verified with a direct observation. If any of the verifier's results are unacceptable, a **Corrective Action Report** will be completed (Encl. B12, *MANAGEMENT / QA, QC, AND HACCP TEAM* section).

Records review. A records review will be completed on every batch of product unless a direct observation is performed. When performing a records review of any HACCP documentation, the verifier will make sure that the records are written in ink, complete, accurate, performed at proper intervals or times, and that any required corrective action or additional documentation has been completed. The verifier will initial or sign the document upon completion of the review and indicate that the method of verification was a records review. The verifier must also indicate the results of the review as being either acceptable or unacceptable (pass / fail). If the results are not acceptable, a **Corrective Action Report** will be completed (Encl. B12, *MANAGEMENT / QA, QC, AND HACCP TEAM* section).

Direct observation. A direct observation will be performed a minimum of once per day per HACCP plan. When performing a direct observation, the verifier will observe the monitor taking and recording the results of the CCP or calibration being documented. The verifier will make sure that the proper procedures are used to take the temperatures of other readings and that the monitor properly records all required times, temperatures, or other readings. The verifier will initial or sign the document upon completion of the direct observation and indicate the results of the review as being either acceptable or unacceptable (pass / fail). If the results are not acceptable, a **Corrective Action Report** will be completed (Encl. B12, *MANAGEMENT / QA, QC, AND HACCP TEAM* section).

INGREDIENT HAZARDS

Our prerequisite food supply program will assure that we only purchase ingredients for which suppliers can identify the hazards that they have prevented, eliminated, or reduced to a safe level or can tell us the level of hazard that we must prevent, eliminate, or reduce to a safe level.

FOOD PRODUCTS HACCP CONTROL GROUPS

It is not essential to do a HACCP plan for each product. Products that have the same process hazard critical control points can be grouped together. Production item processes are grouped by process control categories (**Food Products HACCP Control Groups**, Encl. 1) and are adapted from USDA Process Product Groups. The flow diagrams for each of these control groups is shown in **Five USDA-based Food Process Flows**, Encl. 2.

CHEMICAL ADDITIVES

Sulfites and sulfates shall not be used in any food preparation, unless present as an ingredient in a commercial item.

Monosodium glutamate (MSG) can cause illness in some people if used in excess. It shall be used at 0.5% or less on a weight basis. [For example, no more than 1/8 teaspoon (1.7 g) of MSG shall be used per 12-ounce portion (340 g) of food.]

Nitrates and nitrites, if used in sausage manufacture, shall be used at a concentration of less than 200 ppm.

There shall be HACCP recipe procedures for the use of any food chemical in a recipe where there is any question of safety.

ALLERGIES AND ADVERSE FOOD REACTIONS

Customer food allergies can be life threatening. When a customer asks about specific ingredients in a menu item, the cook / food preparer must be able to provide accurate information. There must not be any "secret ingredients" in a recipe.

HACCP RECIPE, FLOW CHARTS, AND HACCP PLANS

Encl. 3 is an example of a generic HACCP recipe. All recipes will be documented by a Quality Assured recipe procedure.

Process flow charts should be written to show how products are produced. These flow charts can then be used to assess hazards and methods for controlling the hazards (CCPs). Based on the flow chart, HACCP plans are written according to National Advisory Committee on Microbiological Criteria for Foods (NACMCF, 1998). All food HACCP production groups will be documented with a flow chart as shown by Encl. 4.

A HACCP plan will be developed for each HACCP production group using the form in Encl. 5.

The following controls are used in the HACCP plans for potentially hazardous foods.

Process Step	Target	Critical Limit
Receiving and Storage	40°F	50°F
Pre-preparation	40°F	50°F
Preparation of fully cooked product		≥7D <i>Salmonella</i> kill, poultry ≥6.5 D <i>Salmonella</i> kill, meat
Hot hold	140°F	130°F
Cooling (120 to 55°F, 6 hours) See table, Times and Temperatures for Safe Cooling, in this section	Rapid cooling	<1 log increase of <i>C. perfringens</i> ; no increase of <i>C. botulinum</i>
Cold holding (pasteurized foods) and combined food (salads)	40°F	40°F - No increase in <i>Bacillus cereus</i>
Post Processing, packaging (no cross contamination of ready-to eat food, because GMPs and SSOPs are fully functional)	No detectable <i>L. monocytogenes</i> in 25g or in the ready-to-eat food mixing and the pack-aging environment	<55°F, <3 log increase in <i>Bacillus cereus</i> Food Safety Objective is ≤100 <i>L. monocytogenes</i> / gram of food at time of consumption

Compliance with the above shall be maintained by careful monitoring of physical factors (e.g., time, temperature, humidity, water activity, pH, pressure, flow rate), and manufacturing operations (e.g., freezing dehydration, heat processing, acidification, and refrigeration) so that mechanical breakdowns, time delays, temperature fluctuations, and other factors, do not contribute to the decomposition or contamination of food.

Current, written formulae (recipes) for multi-component products are used for production employees. The formulae will contain all details of the formulation such as the identification and amount of ingredients, including food additives present. CCP(s) will be identified. Flow charts and HACCP food production charts are shown in this section.

Physical hazards. Plant records (corrective action) show that physical contamination is a hazard not likely to occur in the food because of prerequisite programs. This fact is indicated in the HACCP plan.

Chemical hazards. Plant records (corrective actions) show that chemical contamination is a hazard not likely to occur in the food because of prerequisite programs. This fact is indicated in the HACCP plan.

FOOD MANUFACTURING HAZARD AND CONTROL RULES

Food manufacturing, including packaging and storage, shall be conducted under conditions and controls necessary to minimize the potential for the growth of microorganisms or for the contamination of food.

Encl. 6, **Production Schedule**, is an important document for process control verification. A processing facility has a maximum capacity. If that is exceeded, food safety problems will occur. The production schedule assures that maximum capacities are met and not exceeded.

Unprotected food items. When raw materials, other ingredients, or refuse are unprotected, they shall not be handled simultaneously in a receiving, loading, or shipping area if that handling could result in contaminated food.

Physical (hard foreign) objects. Effective measures shall be taken to protect against the inclusion of metal or other extraneous material in food.

Compliance with the above shall be accomplished by using sieves, traps, magnets, electronic metal detectors, or other suitable effective means.

pH. Food that relies principally on the control of pH for preventing the growth of undesirable microorganisms (e.g., acid and acidified food) shall be monitored and maintained at a pH of 4.6 or below for spore control and pH 4.2 for vegetative pathogen control.

Compliance with the above shall be accomplished by one or more of the following:

1. Monitoring the pH of raw materials, food in process, and finished food
2. Controlling the amount of acid or acidified food added to low-acid food.

Ice. When ice is used in contact with food, it shall be made from water that is safe and of adequate sanitary quality, and shall be used only if it has been manufactured in accordance with current good manufacturing practice.

Food tasting. Clean, sanitized (or disposable) forks or spoons and saucers are used each time a food is tasted and evaluated. (A suitable and convenient way to do this is to put food into a clean saucer where the liquids and the solids can be seen, smelled, tasted, and controlled.)

Surface heat blanching, when required in the preparation of food, shall be done by heating the food in a water bath (normally at 165°F), holding it at this temperature for 15 seconds, and then either rapidly cooling the food or passing it to subsequent manufacturing without delay. Thermophilic bacterial growth and contamination in blanchers shall be minimized by the use of adequate temperatures (>165°F) and by periodic cleaning. Where the blanched food is washed prior to filling, water used shall be safe and of adequate sanitary quality.

Food washing. All raw fruits and vegetables, after trimming, shall be thoroughly washed before preparation. After washing, fruits and vegetables will be sanitized in an appropriate sanitizer solution.

Method: Put the vegetables / fruit in a colander and run a lot of flowing cold water over the vegetables / fruit.

Pasteurization. Fully cooked poultry products will receive at least a 7D *Salmonella* kill (160°F), and meat products will receive a 6.5D *Salmonella* kill according to: USDA-FSIS. 2001. Draft Compliance Guidelines for Ready-To-Eat Meat and Poultry Products.

Times and Temperatures for Pasteurization

°F	6.5D meat pasteurization	7D 12% fat chicken / turkey pasteurization
130	112 min.	
131	98 min.	
132	71 min.	
133	56 min.	
134	45 min.	
135	36 min.	
136	28 min.	81.4 min.
137	23 min.	65.5 min.
138	18 min.	52.9 min.
139	15 min.	43 min.
140	12 min.	35 min.
141	9 min.	28.7 min.
142	8 min.	23.7 min.
143	6 min.	19.8 min.
144	5 min.	16.6 min.
145	4 min.	13.8 min.
146	169 sec.	11.5 min.
147	134 sec.	9.4 min.
148	107 sec.	7.7 min.
149	85 sec.	6.2 min.
150	67 sec.	4.9 min.
151	54 sec.	3.8 min.
152	43 sec.	2.8 min.
153	34 sec.	2.1 min.
154	27 sec.	1.6 min.
155	22 sec.	1.3 min.
156	17 sec.	1 min.
157	14 sec.	50.4 sec.
158	0 sec.	40.9 sec.
159		33.2 sec.
160		26.9 sec.
161		21.9 sec.
162		17.7 sec.
163		14.4 sec.
164		11.7 sec.
165		<10 sec.

Also included in the USDA-FSIS. 2001. Draft Compliance Guidelines for Ready-To-Eat Meat and Poultry Products are guidelines for poultry with various fat content. The preceding table includes 7 D-values for chicken with 12% fat (the most demanding pasteurization process).

TIP-SENSITIVE THERMOMETERS ARE USED TO VERIFY ADEQUATE PASTEURIZATION.

Production Process Control Log. Product temperatures are taken and recorded to assess whether a CCP is under control and

recorded on Encl. 7. Record forms are completed to provide verification and are maintained.

Kettles: One temperature of the product is taken and recorded. Each lot of kettle-cooked food that is produced must be documented. The **Production Process Control Log** (Encl. 7) is used to record process cook / cool temperatures and times and the initials of people who measured the temperatures and verified the information. (This form can be modified for specific operations.)

Combi ovens, steamers and tilt skillets: the tip-sensitive thermometer is inserted into the top, center and bottom of the product and temperatures of these areas are measured and recorded on the **Cooked Product Monitoring Form** (Encl. 8)

Cooling. The critical limit for safe cooling of food with no growth inhibitors is to begin cooling within 90 minutes after removal from the heat source and then cool product in 6 hours from 120 to 55°F in a 38°F refrigerator (USDA, 2001). Cooling will continue until the food gets to 40°F. However, the goal is to cool food more rapidly whenever possible. The following chart will be used for safe cooling.

**Times and Temperatures for Safe Cooling
(6 hours, 120 to 55°F, with a 38°F driving force)**

Temp °F	Cooling Time (min.)	Temp °F	Cooling Time (min.)
120	0	79	158.58
119	2.81	78	164.23
118	5.65	77	170.03
117	8.53	76	175.97
116	11.44	75	182.07
115	14.39	74	188.34
114	17.38	73	194.78
113	20.42	72	201.42
112	23.49	71	208.25
111	26.60	70	215.29
110	29.75	69	222.55
109	32.95	68	230.05
108	36.20	67	237.81
107	39.49	66	245.84
106	42.83	65	254.16
105	46.22	64	262.79
104	49.66	63	271.76
103	53.15	62	281.10
102	56.70	61	290.84
101	60.31	60	301.01
100	63.97	59	311.65
99	67.69	58	322.82
98	71.47	57	334.55
97	75.31	56	346.92
96	79.22	55	360.00
95	83.20	54	373.87
94	87.25	53	388.64
93	91.37	52	404.42
92	95.57	51	421.38
91	99.85	50	439.69
90	104.21	49	459.60
89	108.65	48	481.40
88	113.18	47	505.51
87	117.80	46	532.45
86	122.52	45	563.00

Temp °F	Cooling Time (min.)	Temp °F	Cooling Time (min.)
85	127.34	44	598.27
84	132.26	43	539.99
83	137.29	42	691.04
82	142.43	41	756.86
81	147.69	40	849.62
80	153.07		

To verify safe cooling, a tip-sensitive thermometer is inserted in the center of the food a short time after cooling starts, and the center food temperature is >120°F. The monitor takes 3 independent temperatures for the cooling record. The monitor records the temperatures and time on the **Cooked Product Monitoring Form** (Encl. 8).

Assembly and packaging. Some products, after initial processing, are opened, combined with other ready-to-eat ingredients, and re-packaged as ready-to-eat food. This includes salads, etc. The start temperature is assumed to be 40°F. Under the worst condition, the temperature would get to 55°F instantly. It might be at 55°F for 2 hours; then, it would be recooled to 40°F using the 120-to-55°F-to-40°F cooling rate, which is 8.15 hours to 40°F. **The Assemble / Package Production Record** (Encl. 9) will be used for production of foods that are simply assembled and packaged.

Handling. Products are handled with clean, sanitized equipment, utensils, tongs, or interleaf paper. Items are conveyed in clean sanitized equipment and containers.

Labeling. Finished packaged products shall be properly labeled (weight, ingredients, and company address) in accordance with government regulations. Controls will include: effective separation of product types during changeovers; separation of product labels or pre-labeled packaging during processing activities and storage; on-line checks to ensure that products are correctly labeled.

The label will include handling instructions. Raw or partially cooked product will be clearly labeled to indicate it is not fully cooked and cooking and safe handling will be provided.

The **Product Specifications** form (Encl. 10) can be used to provide specifications for all products produced.

Finished products. Finished products for delivery to consumers are packaged in food grade packaging materials.

Finished ready-to-eat products will be handled to assure separation of raw and cooked products. Finished product will be stored at ≤40°F or 0°F to maintain shelf life. A FIFO system will be maintained. The inventory system will allow tracking of all lots. If product in the freezer is >9 months and >0°F, management will determine disposition.

Unused food. Unused portions of opened food shall be wrapped and dated with the day's date. The product will be used within 72 hours or thrown out.

Use-by date. Any product prepared, cut, and packaged but not used by that date will be discarded.

Discards. Old food is not mixed with freshly prepared, newer food. All leftover food of inferior quality (poor color, flavor, and aroma) is discarded by appropriate methods. Scrap ends of

the meat and poultry items are discarded by appropriate methods.

Water activity. Food that relies on the control of water activity for preventing the growth of undesirable microorganisms (e.g., dry mixes, nuts, intermediate moisture food, dehydrated food) shall be processed to and maintained at a safe moisture level.

Compliance with the above can be accomplished by one or more of the following:

1. Monitoring the water activity of food.
2. Controlling the soluble solids-water ratio in finished food.
3. Protecting finished food from moisture pick-up, by use of a moisture barrier or by other means, so that the water activity of the food does not increase to an unsafe level.

Shelf life validation. There will be a validated shelf life study for each product that includes all information necessary to demonstrate the safety of the product over its shelf life. The person responsible for developing the shelf life of each product should have sufficient knowledge, training and experience to conduct these studies. All critical factors should be identified and evaluated such as temperature regimes; use of additives as antimicrobials; packing materials, storage temperature; sanitation criteria; etc. The most extreme conditions will be included in the shelf life validation (e.g., temperature abuse during distribution, storage and display for sale). Challenge tests will be conducted using microorganisms of concern that the critical limits established for each factor are adequate. The shelf life study will be documented and available for review.

Frozen food and ingredients shall be kept frozen at 0°F, until needed.

1. If a freezer breaks down, first determine approximately how long it has been off. Measure 3 food temperatures on the outside of stacks, not from the center of piles of food. The critical limit for safety of thawed food with no time limit is 38°F for vacuum packaged fish and 40°F for all other foods. If the food is less than 38°F for fish and 40°F for everything else, there is no risk and the food can be refrozen. If the food is vacuum packaged raw or pasteurized fish and the temperature of the fish is above 38°F, it must be thrown out because of the chance of proteolytic *Clostridium botulinum* growth. For other food, if the temperature is between 40 and 50°F, and the time is less than 1 day between 40 and 50°F so that there is 1.4 days of the 2.4 days at 50°F to refreeze, refreeze.
2. If the food temperature is above 50°F, only save food that has inhibitors such as low water activity <0.92 and pH <4.6. Dispose of foods such as convenience, fully cooked meals, and meat items. If cost effective, the food can also be verified as safe with adequate microbiological testing.

Refrigeration units will be checked ___ times a day (morning, noon, late afternoon) and the temperature recorded and initialed on the **Refrigerator Temperature Log** (Encl. B2, *MANAGEMENT / QA, QC, AND HACCP TEAM* section).

Thawing of frozen food required before use shall be done to prevent the raw materials and other ingredients from becoming adulterated. All thawing of food will be done in the refrigerator.

Batters, breading, sauces, gravies, dressings, and other similar preparations shall be treated or maintained so that they

are protected against contamination. Compliance is accomplished by:

1. Using ingredients free of contamination.
2. Employing adequate heat processes where applicable.
3. Using adequate time and temperature controls.
4. Providing adequate physical protection of components from contaminants that may drip, drain, or be drawn into them.
5. Cooling to an adequate temperature during manufacturing.
6. Disposing of batters at appropriate intervals to protect against the growth of microorganisms.

Metal detection. Screening for metal contaminants using on-line metal detection is necessary for all products for which metal contamination is a practical concern. Metal detection should be applied to the individual consumer package, prior to casing. Products that must be processed with metal detection require ferrous, non-ferrous, and stainless steel standards to be passed for calibration. Metal detector standard sizes should be as small as possible to ensure that metal is restricted.

Food transport. Food transported by conveyances and containers shall be protected against contamination as necessary. Transportation and storage of food products will preferably take place in conveyances and containers dedicated to food use only. When used for food and non-food loads, procedures will be in place to restrict the type of non-food loads to those that do not pose a risk to foods in the same shipment or to subsequent food loads after an acceptable clean up.

Transport of materials or products, internally and externally, shall be done so as there is no mixing of those released materials and products with those on hold. Transport shall be done so that the integrity of the product is maintained during the transportation process.

Hold program

1. A written hold program for controlling potentially non-conforming items is required. It must include a hold tag and a log for tracking all items on hold. Disposition decision (release) authority must be stated in the program.
2. All items on hold must be properly tagged for identification.
3. Ingredients, packaging, work-in-process, or finished products on hold must be stored in a designated area to prevent their accidental use.
4. All finished products must be placed on hold when pathogen testing is conducted, until results are completed.
5. All finished products corresponding to swabbing of food contact surfaces for *Listeria* spp. must be placed on hold until test results are completed.

Rework. Rework generated by daily processing areas will be chilled and held in our cooler or freezer until the next time that product is going to be manufactured. At that time, it will be mixed in the fresh new product but will only be used back into itself (LIKE INTO LIKE). If the rework is beyond its shelf life, it will be discarded. Any rework that is added back into production will be documented on the recipe and will include the amount added and production date of the original product.

Returned product. Customer Service personnel at our facility will be notified when there is product to be returned by a customer. Customer Service will notify quality control

personnel and plant receiving personnel when a product is going to be returned to the plant. After the product is received into our facility, it will be inspected and evaluated by QC personnel and/or a management person.

Product returned for reasons other than quality issues (e.g., wrong quantity, mis-shipped, wrong product) will be returned back into "good inventory" after being inspected by management personnel.

Product being returned for "quality reasons" will be inspected by QC personnel or a management person to determine the cause of the quality problem, and appropriate corrective action will be taken.

Product that has been returned for quality reasons may be disposed of or reworked based on the evaluation of the product. Product that is reworked will be properly identified throughout the process.

All product that does not meet specification will be recorded on the **Product Disposal Sheet** (Encl. 11) before disposal.

Non-human food. Food manufacturing areas and equipment used for non-human food. Food manufacturing areas and equipment used for manufacturing human food shall not be used to manufacture non-human food-grade animal feed or inedible products, unless there is no reasonable possibility for the contamination of the human food.

PACKAGING

Packaging will be purchased only from suppliers who can provide complete performance standards. In addition, the material must be safe in terms of meeting FDA standards.

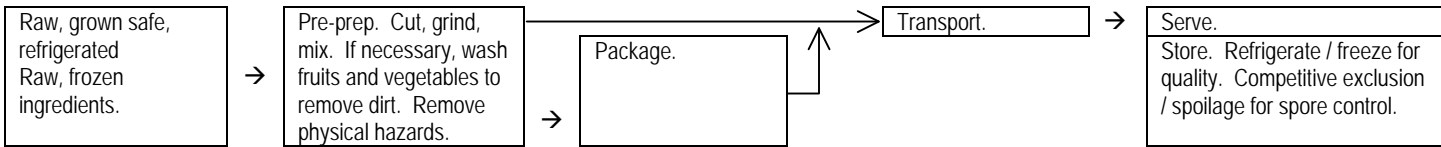
FOOD PRODUCTS HACCP CONTROL GROUPS

HACCP Process Groups (USDA HACCP, 9 CFR 417) Prerequisite / GMPs working	Control	Shelf life
I Not heat treated, not shelf stable (raw). Not PHF / no RPG: sprouts; raw meat, fish; sushi, sashimi; eggs, raw fruits and vegetables	Grown safe, with H_0 that meets FSO. May require Temperature Control for Quality.	<14 days (bact. spoilage)
II Not heat treated, with inhibitors to make shelf stable. <u>Water activity:</u> flour, corn meal, nuts, salt, sugar, sugar icing, honey, spices and herbs, oil, lard; salted, dried fish, fresh pasta <u>Fermentation:</u> pepperoni, salami; olives; dairy (cheese, yogurt, sour cream / milk / crème fraîche); bread; sauerkraut; kimchee; beer, wine <u>Acidified:</u> salad dressing; cole slaw; salsa; condiments	Grown safe, made safe by supplier, with H_0 that, with $+\Sigma I-\Sigma R$ (5-log <i>Salmonella</i>), meets FSO. Does not require TCS because of product a_w , pH, or additives.	>2 years, 70°F (chem. spoilage)
III Fully cooked, not shelf stable. hot or cooled, refrigerated ready-to-eat food; meat, fish, poultry; fruits, vegetables, dairy, pastry filling, pudding	Pasteurized (5-log to 7-log <i>Salmonella</i>) so that $+\Sigma I-\Sigma R$ meets FSO. Requires TCS.	41 to 135°F, ≤4 hours or Cold 41°F, 14-90 days
IV Fully cooked, with inhibitors to make shelf stable. marinara sauce; fruit pie fillings; cake icing, bread and pastry, dry cereals, dry pasta, smoked fish; packaged, low-pH fruits and vegetables	Pasteurized (5-log to 7-log <i>Salmonella</i>) so that $+\Sigma I-\Sigma R$ meets FSO. Does not require TCS because of product a_w , pH, or additives.	>5 years
V Commercially sterile, shelf stable. "packaged" meat, fish, poultry, fruits, vegetables, dairy / UHT milk	Sterilized, <i>Clostridium botulinum</i> spores reduced 9 log to 12 log. Does not require TCS.	>5 years

PHF=Potentially Hazardous Food; RPG-Rapid and Progressive Growth; UHT=Ultra High Temperature; H_0 =Starting Hazard; FSO=Food Safety Objective; Σ =summary; I=Increase; R=Reduction; TCS=Temperature Control for Safety; a_w =water activity

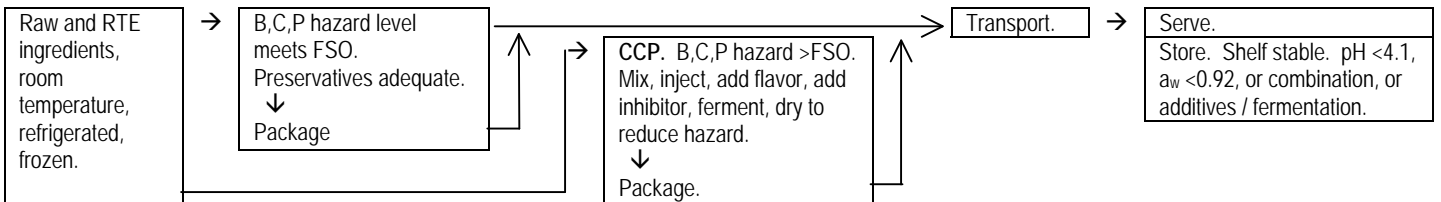
FIVE USDA-BASED FOOD PROCESS FLOWS (Physical and chemical hazards controlled by prerequisite programs)

GROUP I. Grown safe / $H_0 \leq FSO$. Not heat treated, not shelf stable / no added preservatives (no TCS); NHT / NP
Sprouts; raw meat, fish; sushi, sashimi; eggs, raw fruits and vegetables



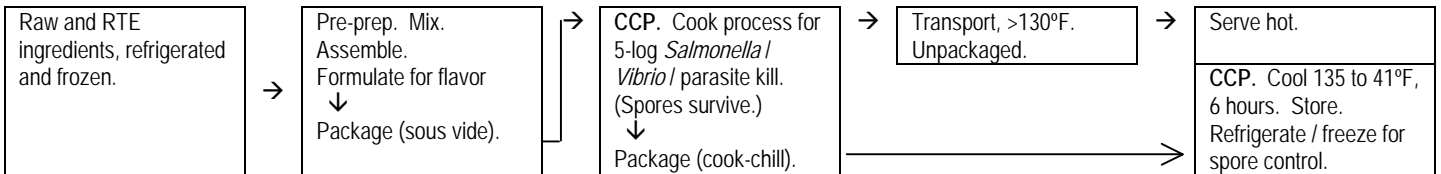
GROUP II. Not heat treated, with inhibitors / preservatives to make shelf stable (no TCS); NHT / P

Water activity control: flour, corn meal, nuts, salt, sugar, sugar icing, honey, spices and herbs, oil, lard; salted, dried fish, fresh pasta
Fermentation control: pepperoni, salami; olives; dairy (cheese, yogurt, sour cream / milk / crème fraîche); bread; sauerkraut; kimchee; beer, wine
Acid control: salad dressing; cole slaw; salsa; condiments



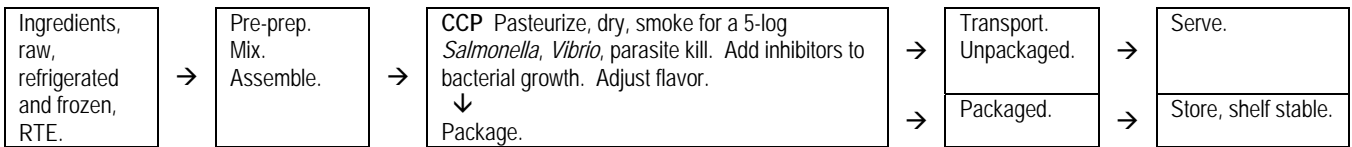
GROUP III. Fully cooked (pasteurized), not shelf stable (requires TCS); HT / NP / TH or TC

Hot or cooled, refrigerated ready-to-eat food; meat, fish, poultry; fruits, vegetables, dairy, pastry filling, pudding



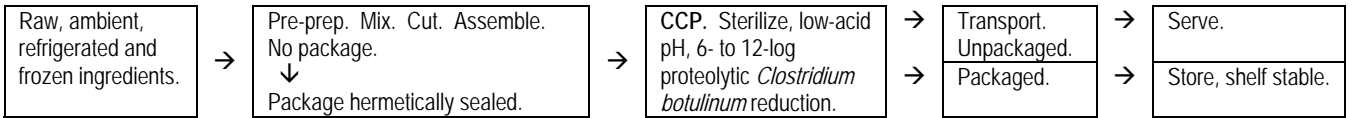
GROUP IV. Fully cooked (pasteurized), with inhibitors / preservatives to make shelf stable (no TCS); HT / P

Marinara; fruit pie fillings; cake icing, bread and pastry, dry cereals, dry pasta, smoked fish; packaged, low-pH fruits and vegetables



GROUP V. Commercially sterile, shelf stable (no TCS); Sterilized

"Packaged" meat, fish, poultry, fruits, vegetables, dairy / UHT milk



Key:
 H_0 = Initial level of the hazard (\log_{10}); FSO = Food Safety Objective; TCS = temperature control for safety; NHT = no heat treatment; HT = heat treatment; NP = no preservative; P = preservative; TH = temperature control, hot; TC = temperature control, cold

QUALITY-ASSURED HACCP RECIPE PROCEDURES

Product: _____ Portion size (vol./wt.): _____ Preparation time: _____
 Written by: _____ Date: _____ Number of portions: _____ Prepared by: _____
 SA/QA by: _____ Date: _____ Final yield (AS): _____ Supervisor: _____

Gp #	Ing #	Ingredients and Specifications	Lot # / Rec	Amt	EP Wt %	Verif

Management and Prerequisite Procedures (SSOP / GMP) are in place: personal hygiene, environment / facility / equipment cleaning and maintenance. Supplies are safe from chemical and physical hazard contamination.

Format for writing a recipe step

Process step #	Start food ctr. temp., °F	Thickest food dimension (in.)	Container size HxWxL (in.)	Cover Yes/No	Temp. on/around food	End food ctr. temp., °F	Process step time, hr./min.
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#. Take (food) at ___°F, (inches) thick, in a ___-inch pan, (un)covered (Y/N), and put in the (equipment) at ___°F for (process time) until the center temperature is ___°F.

Ingredients that could cause adverse allergic or intolerance reactions:

Pre-preparation (Not a CCP. Washing fruits and vegetables for 2-log / blanch for 5-log reduction or center pasteurization for 5-log *Salmonella* reduction assures an ALOP.)

1. Get weighed and measured ingredients for recipe. Identify allergens.
2. Thaw, if required.
3. Trim / cut ingredients. Sort and remove physical hazards.

Preparation (CCP. 5-log reduction of *Salmonella*.)

4. **CCP.** Fruits and vegetables wash 2-log reduction or surface blanch / center pasteurize for 5-log *Salmonella* reduction assures an ALOP. Monitor.
5. **CCP.** Combine. Add preservatives. Pasteurize, 5-log reduction of *Salmonella*. Cook 150°F, 1 minute. Monitor – did the food get to correct time and temperature?

Hold / Serve (<1-log increase of *Clostridium perfringens*.)

6. Hot hold, transport, serve or package, >125°F. Monitor.

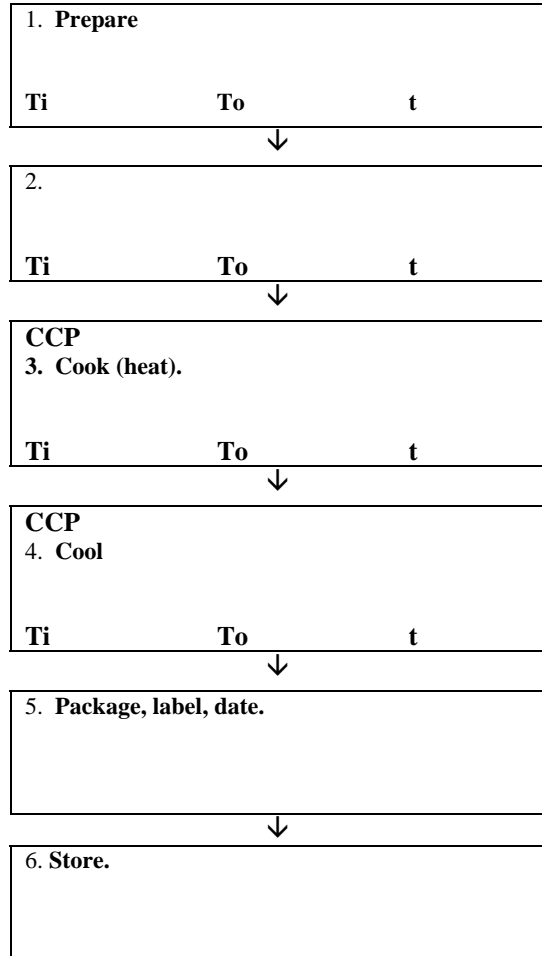
Leftovers (CCP. Cool for <1-log increase of *Clostridium perfringens*. Cold hold and prevent >3-log multiplication of *Bacillus cereus*. Prevent allergen cross-contamination.)

7. **CCP.** Cool. USDA 120 to 55°F, 6 hours (14.2 hours to 40°F); <2 inches deep or 1-gallon pot.
8. If making cold mixed salad, get all ingredients to 55°F before mixing. Mix and package and finish cooling to 40°F.
9. **CCP.** For allergen control, do not combine / mix leftovers (rework). Clean food contact surfaces before the next food is prepared.

Verif

FOOD CONTROL GROUP FLOW CHARTS

This flow chart applies to the following products:



Approved (QC) _____ Date _____

Approved (Process Authority) _____ Date _____

FOOD HACCP PLANS

Process Steps and Controls: GMP's and prerequisites are in place	B, C, P, Potential Hazards and Risk Analysis	Control Control Limit (CL) for each Hazard Control	Monitoring & Record; (What, How, Frequency, Who)	Corrective Action & Record	Verification & Record (Procedures and Frequency)
1.	B: C: P:				
2.	B: C: P:				
3.	B: C: P:				
4..	B: C: P:				
5.	B: C: P:				
6.	B: C: P:				
7.	B: C: P:				
8.	B: C: P:				
9.	B: C: P:				

B, C, P = Biological, Chemical, and Physical

CCP = Critical Control Point

Approved (QC) _____ Date _____

Approved (Process Authority) _____ Date _____

Approved Plant Manager _____ Date _____

COOKED PRODUCT MONITORING FORM

Product:

Date: _____

Supplier: _____

Auditor/Monitor _____

Pre-heat Set Temp. 500°F
 Bake Temp. I 500°F 10 minutes
 Bake Temp. II 475°F 25 Minutes
 Minimum Critical Temp. >160°F
 Target Internal Temp 165

Corrective Action Requirements

1. Cause of deviation is identified and eliminated.
2. Identify the action taken to bring the CCP under control.
3. Action taken to prevent re-occurrence.
4. Document status of affected product.

Rack No.	Raw Temp. (°F)	Cooked Internal Temp. (°F)	Time	Cooling Internal Temp. (°F)	Time	Pack Internal Temp. (°F)	Time	Corrective Action / Person taking Action
1.								
2.								
3.								
4.								
5.								

Supplier Lot Code: _____ Finished Lot Code: _____ Verified: _____

Rack No.	Raw Temp. (°F)	Cooked Internal Temp. (°F)	Time	Cooling Internal Temp. (°F)	Time	Pack Internal Temp. (°F)	Time	Corrective Action / Person taking Action
1.								
2.								
3.								
4.								
5.								

Supplier Lot Code: _____ Finished Lot Code: _____ Verified: _____

Pre-shipment Review _____ Date _____

ASSEMBLE / PACKAGE PRODUCTION RECORD

Product: _____

Date: _____

Lot # / Product	Size / # Pkgs	Employee Initials	Time Started	Time Finished / Temp				Cooling, 120-55°F				Initials	Verify	Preship	Comments Below (✓)	
				Time	Temp	Temp	Temp	Time / Temp	Time / Temp	Time / Temp	Time / Temp					

Comments: _____

PRODUCT SPECIFICATIONS

Product Name:

Product Code:

Product Description:

Shelf Life

Ingredient Statement:

Allergen Statement:

Microbial Specifications:

Description	Specification
APC	
<i>Escherchia coli</i>	
<i>Listeria spp.</i>	
<i>Salmonella</i>	
Yeast	
Mold	

Physical Specifications:

Description	Specification
Finished Product Weight:	
Dimensions:	
Texture	
Flavor/Aroma	
Foreign Material	
Color	
Shape	

Kosher Specifications

(If desired)

Nutrition Data for Package

Product Name:
UPC:
Product Description:
Serving Size:
Serving Description:

Nutrient Name	Value	% Daily Value **
Calories (Kcal)		
Calories from Fat (Kcal)		
Total Fat (g)		%
Saturated Fat (g)		%
Trans Fat (g)		
Cholesterol (mg)		%
Sodium (mg)		%
Total Carbohydrates (g)		%
Dietary Fiber (g)		%
Sugars (g)		
Protein (g)		
Vitamin A (IU)		%
Vitamin C (mg)		%
Calcium (mg)		%
Iron (mg)		%

** Percent Daily Values are based on a 2,000 calorie diet. Individual daily values may be higher or lower, depending on calorie needs.

Packaging

Preparation Instructions: (consumer handling, temperature etc.)

Storage: (Before and after preparation)

Warnings:

