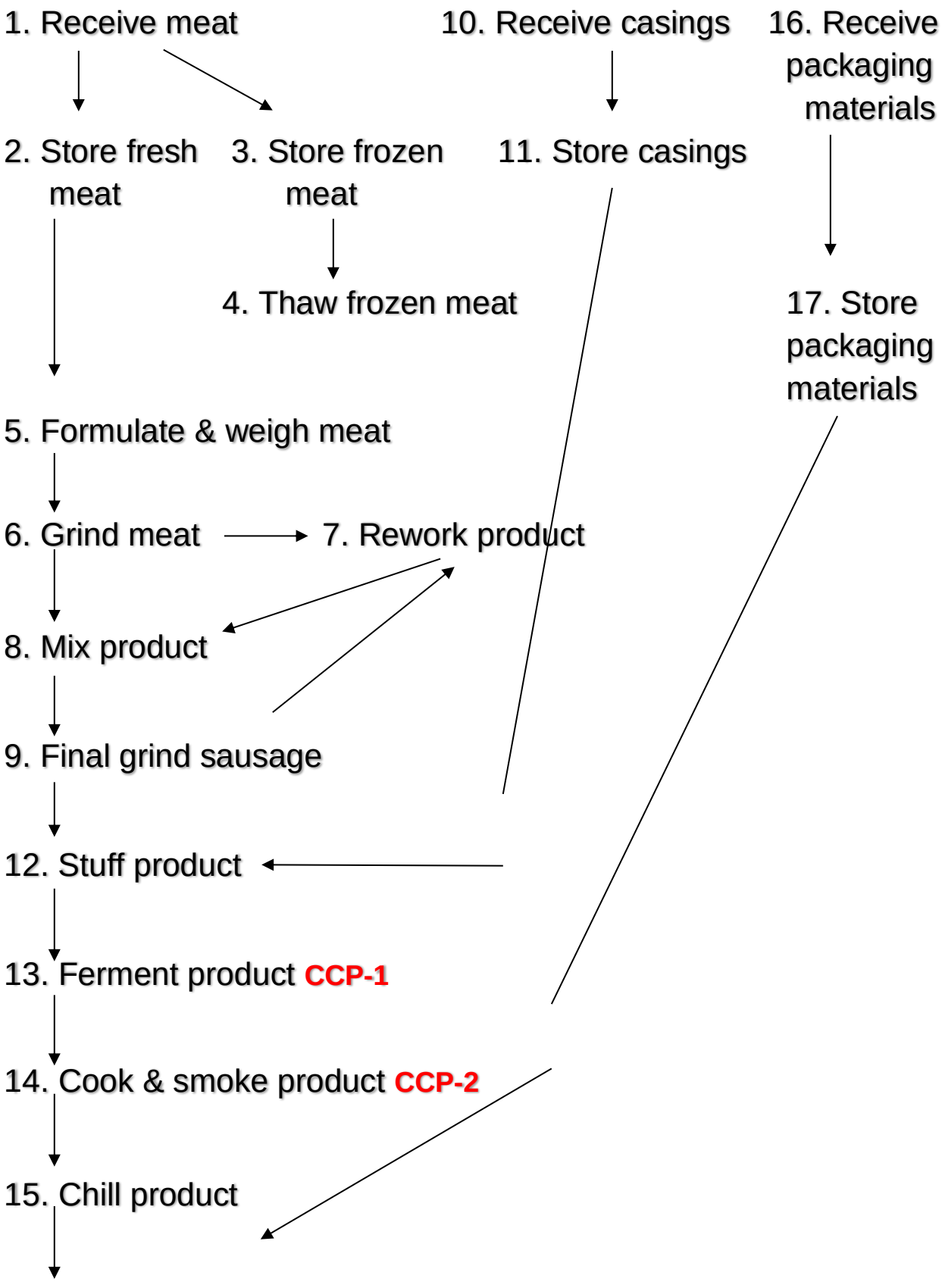
Summer Sausage HACCP Model

Flow Chart Example



18. Package product

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19. Store packaged product

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Form A

Process Step	Potential Hazards	Reasonably likely to occur?	Justification for decision made in previous column	Preventive Measures	CCP?
1. Receive meat	B1-pathogen contamination P1- needles, shot C-none identified	Yes No	Pathogens are likely to be present on incoming meat. Not likely to occur, based upon company history and suppliers letter of grantee	Fermenting to pH 5.3 in 12 hrs. and cooking to 160ºF.	Refer to CCP-1 below
2. Store fresh meat	B2- pathogen growth C-none identified P-none identified	No	Cooler temperature records show hazard not likely to occur at cooler temperatures of 40ºF		
3. Store frozen meat	B, C, P – none identified				
4. Thaw frozen meat	B3- pathogen growth C-none identified P-none identified	Yes	Product temperature increase into danger zone may occur during thawing process.	Maximum water temperature of 70ºF while thawing, plus fermenting to pH 5.3 in 12 hrs. and cooking to 160ºF.	Refer to CCP-1 below
5. Formulate & weigh meat	B4-pathogen growth B5-pathogen contamination C1-sodium nitrite level	Yes No No	Product temperature increase is likely to occur during weighing. Not likely to occur, based upon SSOP records Premixed nitrite not a hazard based upon AMI paper (Borchert & Cassens,	Maintain raw meat temperature at 45ºF or below during weighing, plus fermenting to pH 5.3 in 12 hrs. and cooking to 160ºF.	Refer to CCP-1 below
6. Grind meat	B6-pathogen growth B7-pathogen contamination P2-metal shavings P3-bone chips	Yes No No No	Temperature rise during grinding may cause temperature rise in product Not likely to occur, based upon SSOP records. Not likely to occur, based upon plant history Not likely to occur, based upon plant history	Maintain raw meat temperature at 45ºF or below during grinding, plus fermenting to pH 5.3 in 12 hrs. and cooking to 160ºF.	Refer to CCP-1 below

	C2-cleaners & sanitizers	No	Not likely to occur, based upon SSOP records		
7. Rework product	B8-pathogen growth B9-pathogen contamination C-none identified P-none identified	Yes No	Additional handling is likely cause temperature rise in product Not likely to occur, based upon SSOP records	Maintain reworked meat temperature at 45ºF, plus fermenting to pH 5.3 in 12 hrs. and cooking to 160ºF.	Refer to CCP-1 below
8. Mix product	B10-pathogen growth B11-pathogen contamination C3-cleaners & sanitizers P-none identified	Yes No No	Temperature rise during grinding may cause temperature rise in product Not likely to occur, based upon SSOP records Not likely to occur, based upon SSOP records	Maintain raw meat temperature at 45ºF or below during mixing, plus fermenting to pH 5.3 in 12 hrs. and cooking to 160ºF.	Refer to CCP-1 below
9 Final grind sausage	B12-pathogen growth B13-pathogen contamination P4-metal shavings P5-bone chips C4-cleaners & sanitizers	Yes No No No No	Grinding is likely to cause temperature rise in product Not likely to occur, based upon SSOP records Not likely to occur, based upon plant history Not likely to occur, based upon plant history Not likely to occur, based upon SSOP records	Maintain raw meat temperature at 45ºF or below during final grinding, plus fermenting to pH 5.3 in 12 hrs. and cooking to 160ºF.	Refer to CCP-1 below
10. Receive casings	P6-foreign materials C-none identified B-none identified	No	Not likely to occur, based upon plant history, letters of guarantee		
11. Store casings	P7-foreign materials B14-pathogen contamination B15-pathogen growth C-none identified	No No No	Not likely to occur, based upon SSOP records Not likely to occur, based upon plant history Not likely to occur, based upon plant history		
12. Stuff product	B16-pathogen growth B17-pathogen contamination	Yes No No	Stuffing is likely to cause temperature rise in product Not likely to occur, based upon SSOP records	Maintain raw meat temperature at 45ºF or below during stuffing, plus fermenting to pH 5.3 in 12	Refer to CCP-1 below

	P8-foreign materials C5-cleaners & sanitizers	No	Not likely to occur, based upon plant history Not likely to occur, based upon SSOP records	hrs. and cooking to 160ºF.	
13. Ferment Sausage	B18-pathogen growth C-none identified P-none identified	Yes		Fermentation to pH 5.3 in 12 hrs.	CCP-1
14. Cook & smoke	B19-pathogen survival C-none identified P-none identified	Yes		Cooking to minimum of 160ºF (internal).	CCP-2
15. Chill product	B20-pathogen growth C-none identified P-none identified	No	Not likely to occur, because product is fermented to below pH 5.0, which is below the minimum pH for growth of *C. perfringens* (Min., Opt., Max. Growth Table below)		
16. Receive packaging materials	P9-foreign materials C-none identified B-none identified	No	Not likely to occur, based upon plant history, and letters of guarantee		
17. Store packaging materials	P10-foreign materials B21-pathogen contamination C-none identified	No No	Not likely to occur, based upon SSOP records Not likely to occur, based upon SSOP records		
18. Package product	B23-pathogen contamination C-none identified P-none identified	No	Not likely to occur, based upon SSOP records		
19. Store packaged product	B24-pathogen growth C-none identified P-none identified	No	Not likely to occur, based upon nature of product		

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Form B

Process Step/CCP	Critical Limits	Monitoring Procedures				Corrective Action
		What	How	Frequency	Who	
CCP-1 Ferment	pH 5.0 in 12 hrs.	Product pH, time on house recording chart	Chart recorder & portable pH meter	After 10 hrs. fermentation	Smoke-house operator, trained designee or plant manager	Action will be taken to ensure: 1. The cause of the deviation is identified and eliminated. 2. The CCP will be under control after the corrective action is taken. 3. Measures to prevent recurrence are established, and 4. No product that is injurious to health or otherwise adulterated as a result of the deviation enters commerce.
CCP-2 Cook	160ºF final internal temperature	House recording chart, product internal temperature	Chart recorder & hand-held thermo-meter	At end of cooking cycle for each batch	Smoke-house operator, trained designee or plant manager	Action will be taken to ensure: 1. The cause of the deviation is identified and eliminated. 2. The CCP will be under control after the corrective action is taken. 3. Measures to prevent recurrence are established, and 4. No product that is injurious to health or otherwise adulterated as a result of the deviation enters commerce.

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Form C

Process Step/CCP	**Verification Activities**	**Record keeping Activities**
CCP-1 Ferment	Calibrate pH meter daily and house chart recorder – weekly by manager, supervisor, or trained designee Daily verification of monitoring & corrective action records by manager, supervisor, or trained designee. Check the checker weekly by manager, supervisor, or trained designee. Reassess plan – annually by HACCP team.	Monitoring & Verification (meat temperatures) records – Form 101 Corrective action records – Form 101 Calibration records – Form 103
CCP-2 Cooking	Calibrate thermometers and house chart recorder – weekly by manager, supervisor, or trained designee. Daily verification of monitoring & corrective action records by manager, supervisor, or trained designee. Check the checker weekly by manager, supervisor, or trained designee. Reassess plan – annually by HACCP team.	Monitoring & Verification (meat temperatures) records – Form 101 Corrective action records – Form 101 Calibration records – Form 103