

Principle 1

Hazard Analysis



Principle #1 - Hazard ID & Analysis

- Make ordered list of process steps
(flow chart)



Receiving



Storing



Cutting



Packaging



Shipping



Principle #1 - Hazard ID & Analysis

- For each step, identify all potential hazards
 - Biological
 - Chemical
 - Physical
- That **could** be:
 - Introduced OR
 - Increased OR
 - Controlled **at that step**



Establishment:	Hazard Analysis for Product:				
Process Step	Potential Hazard	Severity of Hazard & Justification	Frequency of Hazard & Justification	Control Measures	Step carried to CCP table?
Receiving	B:				
	C:				
	P:				
Storage	B:				
	C:				
	P:				
Cutting	B:				
	C:				
	P:				
Packaging	B:				
	C:				
	P:				
5. Shipping	B:				
	C:				
	P:				

Confidential



Hazard ID & Analysis

- Consider raw ingredient hazards
 - Consider use of perishable ingredients
 - Consider potential for allergens
- Consider process step hazards
 - Hazards unique to the plant
 - Rework addition (including addition of bone separated materials)



Hazard ID & Analysis

- Packaging
- Product hazards
 - Species susceptibility
 - Because of the intended consumers of product
- Consider potential for abuse
 - Especially with returned product if reworked



Hazard Analysis

Hazard evaluation: assess the **severity** associated with each potential hazard & estimate the **frequency** at which the hazard may occur.



Establishment:	Hazard Analysis for Product:				
Process Step	Potential Hazard	Severity of Hazard & Justification	Frequency of Hazard & Justification	Control Measures	Step carried to CCP table?
1. Receiving	B:				
	C:				
	P:				
2. Storage	B:				
	C:				
	P:				
3. Cutting	B:				
	C:				
	P:				
4. Packaging	B:				
	C:				
	P:				
5. Shipping	B:				
	C:				
	P:				

Confidential



Hazard Analysis

- Severity
 - Would the hazard result in a life-threatening situation?
 - Would the hazard result in hospitalization (or worse)?
 - In the case of microbiological hazards, would the illness be mild & resolve itself within 2 days?



Hazard Analysis

- Frequency
 - Are conditions resulting in the hazard likely to occur?
 - If so, how frequently are they likely to occur?



More Questions to Ask

How Severe or Critical

- long-term situation which could compromise quality of life and/or cause serious loss of \$\$\$ to victim?
 - Includes cancer caused by continued exposure to some chemicals
- Is the rest of the our operation/process likely to eliminate the hazard(s) or significantly reduce the risk?



Significant Hazards

- Those Biological, Physical, or Chemical Hazards that are judged to
 - Occur frequently AND
 - Pose a serious threat to human health (e.g. death, long term complications that negatively impact quality of life)
- Should be carried to the CCP decision table

If not controlled, significant hazards can impact food safety! HACCP is designed to control this type of hazard



Appendix D of 1997 NACMCF Guidelines

Hazard Analysis Stage	Commercial, frozen cooked beef patties	Commercial, frozen, pre-cooked boned chicken for further processing
Stage 1, Hazard ID: determine potential hazards associated with product	Enteric pathogens (<i>E. coli</i> O157:H7, <i>Salmonella</i>)	<i>Staphylococcus aureus</i> in finished product
Stage 2, Hazard Evaluation: assess severity if potential hazard is not properly controlled	Epidemiological data indicate that these pathogens cause severe health effects (including death) in children & elderly. Undercooked beef patties have been linked to disease from these pathogens	Certain strains of <i>S. aureus</i> produce an enterotoxin that can cause a moderate foodborne illness



Appendix D of 1997 NACMCF Guidelines

Hazard Analysis Stage	Commercial, frozen cooked beef patties	Commercial, frozen, pre-cooked boned chicken for further processing
Stage 3, Hazard Evaluation: determine frequency of potential hazard if not properly controlled	<i>E. coli</i> is of very low frequency & <i>Salmonella</i> is of moderate frequency in raw beef	Human handling during deboning may add <i>S. aureus</i> . Unless pathogen multiplies to about 1,000,000/g, enterotoxin capable of causing illness will not occur. Temperatures during boning & freezing prevent growth, meaning that frequency is low
Based on this info, should this potential hazard be addressed in the HACCP Plan?	HACCP team decides that enteric pathogens are significant hazards for this product. Hazards must be addressed in Plan	HACCP team decides that potential for enterotoxin formation is very low. But, it's still desirable to keep <i>S. aureus</i> levels low – this can be accomplished through GMPs, rapid freezing, & handling instructions. Potential hazard does not need to be addressed in Plan



Hazard Analysis

- For each potential hazard that might be introduced, increased, or controlled at a particular step, describe control measures

**Remember that HACCP is a risk-
minimization program!**

100% risk-free is a myth



