



## Principle 3: Critical Limits



Chapter 10 Critical Limits  
HACCP A Systematic Approach to Food Safety

OFFICE OF THE TEXAS STATE CHEMIST  
Texas Feed and Fertilizer Control Service • Agriculture Analytical Service



## HACCP Principles

1. Conduct a Hazard Analysis (HA)
2. Identify Critical Control Points (CCPs)
- 3. Establish Critical Limits (CLs)**
4. Establish CCP Monitoring Requirements
5. Establish Corrective Actions (CA)
6. Establish Verification Procedures
7. Establish Record-Keeping Procedures

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## What are Critical Limits?

For each CCP, one or more specific parameters, called critical limits (CLs), must be established to signify whether a CCP is “in” or “out” of control.

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## Critical Limits (CLs)-NACMCF

Definition of a Critical Limit (CL)- A maximum and/or minimum value to which a biological, chemical or physical food hazard must be controlled at a CCP to prevent, eliminate, or reduce to an acceptable level the occurrence of the identified safety hazard.

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## FSMA Rules for Animal Feed

(1)(ii) the maximum or minimum value, or combination of values to which any biological, chemical, or physical parameter must be controlled to significantly minimize or prevent a hazard requiring a process control.

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## Critical Limits (CLs)-Codex

Definition of a Critical Limit (CL)-  
A criterion which separates acceptability from unacceptability

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## Examples of parameters that may be CLs

- Temperature
- pH
- Moisture level
- Line speed
- Time
- Water activity
- Physical dimensions
- Weight
- Viscosity

## CLs and CCPs

- Used to distinguish between safe and unsafe operating conditions at a CCP
- Represents a science-based performance standard

## CL are not Operational Limits

CL's are not operational limits

Operational limits are established for a manufacturing process to meet product specifications that may or may not include food safety. CLs are established for specific CCPs to prevent, eliminate or reduce an identified food safety hazard.

## Setting CLs

- Must be scientifically based
- May be derived from:
  - Regulatory standards and guidelines (also known as performance standards)
  - Scientific literature
  - Experimental results (validation studies)
  - Experts

## Regulatory Considerations

If an agency has a regulation on a critical control point, you must use the regulation, even if strict compliance with regulation is not necessary for safety.

## Examples of Performance Standards

- Mandatory guideline for pasteurization times and temperatures for milk (e.g. 161° F for 15 sec.)
- All feed must be labeled in conformance with state and federal regulations.

## Establishing CLs

**For each CCP:**

- If there's no regulatory CLs, you may consult outside experts or conduct validation studies
- It is possible to have several criteria for a CL
  - *Steam pressure and residence time in a feed conditioner*
- Document the process of establishing CLs

## Identifying Critical Limits, Monitoring and Corrective Actions

Processing Category Cattle Protein/Mineral Medicated Supplement

Process/Step CCP	Critical Limit	Monitoring Procedures	Corrective Action
Write in process step and CCP#	Write in CL for this CCP	What will be measures?  Where will the CL be measured?  How will the CL be measured?  Who will monitor the CL?  How often will the CL be measured?	Cause of deviation?  How will the process be corrected?  Product Disposition?  Measure to prevent recurrence:  Who is responsible for implementing the CA?



**END**

Dr. Tim Herrman  
 Professor, State Chemist & Director  
 Office of the State Chemist  
 Texas A&M University  
 (979) 845-1121  
 tjh@otsc.tamu.edu

