**Principle 3: Establish Critical Limits**

A critical limit is a maximum and/or minimum value to which a biological, chemical, or physical parameter must be controlled at a CCP to prevent, eliminate, or reduce the occurrence of a food safety hazard to an acceptable limit. Each CCP must have one or more critical limits. If the process deviates from the critical limit, a corrective action must be taken to ensure that your product is safe. This process separates acceptability from unacceptability and safe from unsafe conditions.

Critical limits may be based on:

- Temperature
- Time
- Flow rate
- Cooling rate
- Physical dimensions
- Titratable acidity
- Product pH
- Salinity
- Moisture activity
- Water activity ($a_w$)
- Available chlorine
- Preservative levels
- Weight
- Viscosity

Science-based sources of information on critical limits:

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**How to Determine Critical Limits**

- There are many different types of critical limits.
  - Must be specific for the CCP
  - Different critical limits may be needed differing types of hazards.
- Each CCP must have one or more critical limits.
  - A critical limit must exist for each significant food safety hazard
  - An effective critical limit will define what can be measured or observed to ensure that the hazard is controlled at that CCP.
- Critical limits must be science-based.
  - Scientific studies must determine the conditions that are necessary to control certain hazards.
Critical Limits vs. Operating Limits

The FDA defines an operating limit as criteria that are more stringent than critical limits and that are used by the operator to reduce the risk of a deviation. An operating limit allows the detection of a potential problem before a critical limit is reached.

If monitoring shows a lack of control at a CCP, operators may make an adjustment to the process before the critical limit is violated. The point where operators make the process adjustment is the operating limit. A processor may use these adjustments to avoid loss of control.