

Principle 3: Establish the Critical Limits

Critical limits are the values at critical control points (CCPs) that must be achieved to ensure the safety of food. These critical limits must be monitored at CCPs, as [explained in Principle 4](#) [1], and failure to consistently achieve these values must result in appropriate corrective action, as [outlined in Principle 5](#) [2].

Choosing critical limits

The critical limits that you choose must be suitable to ensure that the control measures that you have selected at the CCPs are adequately controlled. As such, appropriate critical limits should meet the following criteria. They should be:

- **Observable:** Achievement of and any subsequent changes in the critical limits during processing can be detected.
- **Measurable:** Achievement of the critical limits can be confirmed by measurement and any deviations quantified.
- **Subject to “real time” monitoring:** Any observations and measurements must be capable of being made whilst processing is in progress to allow appropriate corrective actions to be made in good time.

Critical limits may be chemical, physical or even procedural in nature depending on the type of hazard that is subject to control. Some examples include:

Chemical critical limits

- Water activity (A_w)
- pH
- Salt content
- Mycotoxin levels
- Absence of allergens

Physical critical limits

- Temperature
- Dried weight
- Time
- Absence of metal
- Viscosity
- Moisture content

Procedural critical limits

- “Supply of raw beef from approved slaughterhouses which have specific controls in place to minimise the risk of contamination of meat intended to be eaten raw or lightly cooked.”

It is common for a combination of factors to be used as critical limits at a CCP and each must be separately measurable. For example:

- The critical limits for controlling *Salmonella* in chicken pieces at the cooking step (CCP) could be 70°C for 2 minutes. Both the time and temperature are critical limits and must both be achieved.

MyHACCP tool requirements

MyHACCP requires you to provide information on the following:

1. What is the critical limit for this critical control point?

You should insert the values and any relevant units of measurement. For example:

- “70°C for 2 minutes”
- “A_w of 0.92”
- “pH of 4.0”

2. Provide details of how the critical limit was determined

Some critical limits are set out in legislation, for example for the pasteurisation of milk (in [Regulation 853/2004 Chapter II, Article 3, Annex III, Section IX, Chapter II, Paragraph II \(1\)](#) ^[3]) whereas others may be obtained from guidance issued by the Food Standards Agency, Industry Guides, trade associations or published in peer-reviewed journals. Care must be taken to ensure that critical limits are based on scientific evidence, as [outlined in Principle 6](#) ^[4].

3. Is the critical limit appropriate to control the specific hazard?

The critical limit selected must be adequate to either prevent, eliminate or reduce the identified hazard to an acceptable level.

4. Is the critical limit measurable or observable in real time?

It is possible for some critical limits to be observed rather than actually measured, for example water can be seen to boil. However, it must be possible to detect such changes in real time.

Microbiological criteria are rarely useful as critical limits because their measurement normally involves a time delay whilst cultures of the relevant microorganisms are grown.

5. Is there a target value?

Target values may be selected which are more stringent than the critical limit values required to control the hazard to assist in the early detection of potential process failures. For example:

- The critical limits for controlling Salmonella in chicken pieces at the cooking step (CCP) could be 70°C for 2 minutes. However, a target value of 72°C could be set to provide extra assurances that the minimum temperature will be consistently achieved.

Where a target level is set, the difference between this target and the critical limit is known as the tolerance.

Documentation and Records

Details of how the critical limit was established (including sources of information or data used) need to be recorded.

Review

A review of this principle should be scheduled and triggered if there are changes within the company or new information becomes available (e.g. legislation, emergence of a new hazard), as [outlined in Principle 6](#) [4].

Source URL: <https://myhaccp.food.gov.uk/help/guidance/principle-3-establish-critical-limits>

Links

[1] <https://myhaccp.food.gov.uk/cymorth/canllawiau/egwyddor-4-llunio-system-fonitro>

[2] <https://myhaccp.food.gov.uk/cymorth/canllawiau/egwyddor-5-llunio-cynllun-campau-unioni>

[3] <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:139:0055:0205:en:PDF>

[4] <https://myhaccp.food.gov.uk/cymorth/canllawiau/egwyddor-6-gwirio>

