

Equipment Calibration Guide for Food Processors.



Adequate equipment calibration plays an important role in food safety when food is handled and produced. Calibration ensures that equipment monitors a food process accurately and consistently, and controls physical, chemical, or biological hazards in the food operation

Measuring & Monitoring Devices

All measuring and monitoring devices used in a food processing plant should be:

- calibrated at scheduled intervals
- identified with an approved identification record/mark after calibration
- protected from adjustments that may invalidate the calibration used and calibrated under suitable environmental conditions
- handled and stored cautiously to protect against deterioration
- calibrated by trained employees, using manufacturer's specifications to ensure accuracy

When a measuring or monitoring device is outside specification, appropriate corrective action should be taken and records of calibration must be kept. Digital instruments also require calibration; their analog circuitry performance can change over time.

Calibration using standards

Calibration of equipment should be performed against:

- standards
- certified equipment
- a new or recently certified unit that can be traced to a standard as a reference, e.g., Canadian Standards Association (CSA) or the National Institute of Standards and Technology (NIST)

The equipment manufacturer or supplier can provide you with a recognized calibration kit (e.g., NIST-traceable calibration) that meets official standard requirements for particular equipment. Trained employees can use this calibration kit and perform the calibration of the equipment when required.

Equipment Requiring Calibration

Equipment that requires calibration includes devices for measuring: temperature of thermal processes, quantities of food ingredients, and equipment measuring safety and quality-related product characteristics. The type of equipment that is used in a food plant depends on the product that is processed.

Common equipment needing calibration includes:

- **Magnets and Metal Detector**
These are critical devices that should be calibrated by an accredited agency or the manufacturer at a predetermined frequency.
- **Temperature Measuring Devices**
These calibrated temperature devices should be used to monitor temperature of thermal operations (e.g., cooking, canning, pasteurization, irradiation, infrared heating) and cold storage rooms.
- **Scales**
Scales ensure ingredients are weighted consistently. Inaccurately measured ingredients can be a source of food safety issues (e.g., variation in product content of a preservative such as nitrates can allow bacterial growth).
- **Water Activity Meters (a_w)**
The use of an inaccurate a_w meter may lead to the growth of bacteria, yeasts and mold in food products.
- **pH Meters**
These are used to ensure accurate pH measurements on foods; inaccuracies may allow the growth of food-borne and food spoilage microorganisms.
- **Other Instrumentation**
Other specialized instrumentation may be necessary to control critical factors, e.g., chlorine injectors, chlorine concentration test equipment, gas pressure, etc.

