

# Control of Measuring & Monitoring Devices

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# GFSI Intermediate Requirements

- The company shall identify measuring and monitoring devices critical to food safety, ensure that they are calibrated and traceable to a recognized standard.



# The Importance of Measuring and Monitoring Devices

- Devices that monitor process control or measure at critical control points should be controlled and managed with extreme care
- These devices must be work within defined limits of accuracy and be totally reliable at all times
- If these devices are mismanaged then the whole control system is flawed and product safety cannot be guaranteed

# Examples of Measuring and Monitoring Devices

- Thermometers
- Pressure Gauges
- Metal Detector
- Colour Sorters
- Flow meters
- pH meters
- Weigh Scales
- Water Activity Meters



# Calibration

## Definition:

**‘the checking of a measuring instrument against an accurate standard to determine any deviation and correct for errors’**

Where possible ‘an accurate standard’ should be an ‘international Standard’ retained by an authoritative body.

Need to consider if the company has access to an ‘international standard’ or there is other alternatives. Whatever the option the calibration service must be competent and reliable; seek accredited service providers

Some equipment may not be possible to calibrate against an international standard , but you must demonstrate the basis by which ‘standardisation’ is carried out

# Identification of Devices

- The need to identify devices that are important to be calibrated and controlled
  - critical for process control; for example thermometer on an in line pasteuriser or retort
  - used to monitor measurement at critical control points i.e. hand held thermometer to test the centre temperature of a meat product post cooking



# The Control of Devices

- Need for documented procedures , programmes and records
- Use the why, what, who, how and when principles
- Record and retain information about service providers
- Within the operating procedures there must be reference to the security of the device, for example the named operators who can use the device.

# The Register of Devices

- Each controlled device must be identified by a unique reference number and marked
- Each controlled device must have known 'limits of operation', for example a thermometer has limits operation of  $\pm 0.1C$
- The food safety team leader must hold a register of all controlled devices, which will include the unique reference number, its location, the calibration schedule and any other information concerning the device for example if it was damaged or repaired or was found not to be operating to specified limits.



# Equipment Register

Equipment	Ref No	Location	Monitoring Dept	Calibration Date	Comment
Master Digital Thermometer	QA/ R/Master 1	Raw material intake	QA	14 /2 14/8	Send to manufacturer for calibration
Master Digital Thermometer	QA/ R/Master 2	Raw material intake	QA	14 /3 14/9	Send to manufacturer for calibration
Master Digital Thermometer	QA/ P/Master1	Production area	QA	15 /4 15/10	Send to manufacturer for calibration
Retort Thermometer	P/Retort 1	In Line Retort 1	Production	16/6	Calibrate during shut down
Retort Thermometer	P/Retort 2	In Line Retort 2	Production	16/6	Calibrate during shut down
Retort Thermometer	P/Retort 3	In Line Retort 3	Production	16/6	Calibrate during shut down
pH meter	QA/L/1	QA Lab	QA	17/6	
pH meter	Production	Production area Syrup make up	Production	17/6	Calibrate during shut down

# Disciplines

- All controlled devices shall be protected from damage, deterioration or misuse
- All controlled devices shall only be used by authorised trained staff
- Procedures should be in place to prevent the adjustment of by unauthorised staff
- Ensure the department responsible for the use of the devices takes 'ownership'

# Non Controlled Devices

These are devices that are used to monitor, however the measurements are not 'critical' to food safety, but are an indicator of product characteristics

For example there are a number of digital thermometers used in a factory which are used to 'monitor temperature' , which are not critical temperatures. These are not regarded as controlled devices but they can be calibrated against the 'Master' devices

These can be assessed for accuracy on a more frequent basis using simple assessment techniques.

# Example :Thermometer Calibration Record

Department thermometers shall be calibrated each month to ensure the accuracy of  $\pm 1C$

Measurements are taken by placing the tip of the probe into melting ice. The reading should be  $-1C$  and  $+1C$  with two minutes of submersion.

On the same day the probe must be placed into a stream of steam from a boiling kettle. The reading should be between  $99C$  and  $101C$ .

Any thermometers with readings outside this range shall not be used and must be returned to the Food Safety Manager and a replacement obtained.

Thermometer Ref no	Date	Temp Ice	Temp Steam	Signature	Action

Supervisor..... Date.....



# Controlled Devices Corrective Action

- As these devices provide the parameters to ensure product safety, the procedure shall include actions required to be taken if the device is found to be working outside specified limits.
- Corrective actions shall be agreed by the food safety team leader and undertaken immediately.

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