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## Overview

This standard identifies the competences you need to carry out preventative planned maintenance activities on instrumentation and control equipment used in food and drink operations, in accordance with approved procedures.

You will be able to carry out the planned maintenance activities on instrumentation and control equipment including pressure, flow, level and temperature instruments; fiscal monitoring equipment; smoke, heat, gas, water, chemical and metal detection and alarm systems; industrial weighing systems; linear and rotational speed measurement and control; vibration monitoring equipment; photo-optic instruments; analysers recorders and indicators; telemetry systems; emergency shutdown systems and other specific instrumentation. This will involve checking and maintaining a range of equipment and components including valves, actuators, sensors, switches, transmitters, transducers, transponders, wires/cables, pipework and hoses, in order to minimise down time, and to ensure that the instrumentation and control equipment perform at optimum level and function to specification. Food and drink operations is a term used in this standard to cover the following sub sectors of Meat, Drinks, Confectionery, Fresh Produce, Bakery, Seafood and Dairy.

You must be able to ensure that all tools, equipment and materials used in the maintenance activities are removed from the work area on completion of the activities, and that all necessary job/task documentation is completed accurately and legibly.

You will be able to work with a minimum of supervision, taking personal responsibility for your own actions, and for the quality and accuracy of the work that you carry out.

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## Performance criteria

### You must be able to:

1. work safely at all times, complying with health and safety, environmental and other relevant food and drink regulations, directives and guidelines
2. obtain and use the correct issue of company and/or manufacturers' drawings and maintenance documentation
3. plan and communicate the maintenance activities so as to minimise any disruption to normal working
4. follow the relevant maintenance schedules to carry out the required work
5. insert or override any relevant system trip defeats (including fire extinguishant, emergency shutdown) in accordance with organisational procedures
6. isolate instruments (including process, electrical, hydraulic, pneumatic, mechanical) in accordance with organisational procedures
7. provide and maintain safe access and working arrangements for the maintenance area
8. carry out the maintenance activities in accordance with organisational procedures within the limits of your personal authority
9. carry out functional tests and adjust equipment to specification
10. re-connect and return the system to service on completion of the maintenance activities
11. report any instances where the maintenance activities cannot be fully met or where there are identified defects outside the planned schedule
12. complete maintenance records and documentation in accordance with organisational requirements
13. dispose of waste materials in accordance with safe working practices and approved procedures

## Knowledge and understanding

### You need to know and understand:

1. the health and safety and environmental requirements of the area in which the maintenance activity is to take place, and the responsibility these requirements place on you not to compromise food safety
2. the isolation and lock-off procedure or permit-to-work procedure that applies to the system, including the critical control points
3. the specific health and safety food and drink precautions to be applied during the maintenance activity, and their effects on others
4. the requirements of the British Retail Consortium (BRC) guidelines and standards in relationship to the maintenance activities
5. the specific requirements of your customer/client specifications in relationship to the maintenance activities
6. your responsibilities in relationship to Hazard Analysis and Critical Control Points (HACCP), Threat Assessment and Critical Control Points (TACCP), Vulnerability Assessment and Critical Control Points (VACCP) during the maintenance activities
7. what constitutes a hazardous voltage and how to recognise victims of electric shock
8. how to reduce the risks of a phase to earth shock (including insulated tools, rubber mating and isolating transformers)
9. the importance of wearing protective clothing and other appropriate safety equipment (PPE) during the maintenance activities
10. hazards associated with carrying out maintenance activities on instrumentation and control systems (including handling fluids, stored pressure/force/temperature, electrical supplies, process controller interface, using damaged or badly maintained tools and equipment, not following laid down maintenance procedures), and how to minimise these and reduce any risks
11. how to make sensory checks (by sight, sound, smell, touch)
12. where to obtain, and how to interpret drawings, schematic and physical diagrams, specifications, flow charts, manufacturers' manuals, maintenance schedules and other documents required for the maintenance activities
13. the various planned maintenance schedules that are generally used (including condition based maintenance, scheduled maintenance and total preventative maintenance (TPM))
14. the schedules and methods to be followed, in compliance with company procedures for planned maintenance on instrumentation and control equipment
15. the basic principles of how the system functions, its operating

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- sequence, the working purpose of individual units/components and how they interact
16. the principles of the equipment's design features for safe operation in a food or drink environment including minimising the chance of contaminants or foreign bodies in the final product
  17. the equipment operating and control procedures, and how to apply them along with the planned maintenance procedures
  18. the reasons for making sure that control systems are isolated or put into manual control, and appropriate trip locks, keys or program overrides are inserted, before removing any sensors or instruments from the system
  19. the identification of instrument sensors (including how to identify their markings, calibration information, operating parameters and working range)
  20. methods of checking and calibrating instruments, and the type and range of equipment that can be used
  21. the testing methods and procedures to be used to check that the system conforms within acceptable limits
  22. the procedure for obtaining consumables and 'lived' or consumable items that will require replacing during the planned maintenance activity
  23. company policy on the repair/replacement of components during the maintenance process
  24. how to make adjustments to components/assemblies to ensure that they function to specification
  25. the processes in place to segregate the tools and equipment used into high or low risk areas
  26. the checks required to ensure that all tools, materials and components are all accountable before operating the equipment
  27. the cleaning requirements/policies in place before returning the equipment into full operational production
  28. how to compile planned maintenance records/logs/reports, which comply with company policy and procedures
  29. the problems that can occur whilst carrying out planned maintenance activities, and how they can be avoided
  30. the organisational procedure to be adopted for the safe disposal of waste of all types of materials including any spoilt food or drink products
  31. the extent of your own authority and to whom you should report if you have problems that you cannot resolve

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