
Overview

This standard identifies the competences you need to carry out corrective maintenance activities on industrial refrigeration equipment used in food and drink operations, in accordance with approved procedures. This will involve dismantling, removing and maintaining faulty or damaged components, including motors, compressors, evaporative condensers, evaporators, safety control devices, valves, refrigerant metering devices, sensors, switches, thermostats, meters, thermocouples, timers, interlocks, electrical components and wiring, electronic boards and components, controller units, computer systems and peripheral devices. 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 will be able to purge the system with the designated gases, to charge the system with the specified refrigerant and lubricant, and to bring the system back on line following the recognised and safe procedures.

You will be able to comply with organisational policy and procedures for the maintenance activities undertaken, and to report any problems with the maintenance activities, or the tools and equipment used that you cannot personally resolve, or that are outside your permitted authority, to the relevant people. You must 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 minimal supervision, taking personal responsibility for your own actions, and for the quality and accuracy of the work that you carry out.

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 to cause minimal disruption to normal working
4. follow the relevant maintenance schedules to carry out the required work
5. carry out the maintenance activities in accordance with organisational procedures within the limits of your personal authority
6. isolate equipment (including mechanical, electricity, refrigerations) in accordance with organisational procedures
7. provide and maintain safe access and working arrangements for the maintenance area in accordance with organisational procedures
8. re-connect and return the system to service on completion of the maintenance activities
9. report any instances where the maintenance activities cannot be fully met or where there are identified defects outside the planned schedule
10. complete maintenance records and documentation in accordance with organisational requirements
11. 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. handling and storing of gas cylinders and equipment; the safe handling, storing and disposal of refrigerants; methods of determining contents in cylinders to allow complete charging
8. the importance of wearing protective clothing and other appropriate safety equipment (PPE) during the maintenance process
9. hazards associated with carrying out maintenance activities on refrigeration equipment/systems (including stored pressure/force, lack of good ventilation, live electrical connections, handling liquid or vapour refrigerants, using damaged or badly maintained tools and equipment, not following laid-down maintenance procedures), and how to minimise them to reduce any risks
10. how to obtain and interpret drawings, specifications, manufacturers' manuals and other documents needed in the maintenance process
11. the basic principles of how compression type refrigeration systems function, their operation sequence, the working purpose of individual units/components and how they interact
12. types of compressor, condenser, expansion valves and evaporators, and methods of stopping compressor prime movers
13. the system operating pressures and temperatures, and the relationship

between refrigerant gas pressures and temperatures

14. the procedure for obtaining replacement parts, materials and other consumables necessary for the maintenance activities, including their safe/hygienic storage before use

15. company policy on the repair/replacement of components during the maintenance process

16. the sequence to be adopted for the dismantling/reassembly of various types of assembly

17. the methods and techniques used to dismantle/assemble refrigeration equipment (including unplugging, de-soldering removal of screwed, clamped and crimped connections, removing bolted components and assemblies)

18. methods of checking that components are fit for purpose, how to identify defects and wear characteristics, and the need to replace 'lived' or consumable items (including batteries, lamps, seals and gaskets)

19. how to make adjustments to components/assemblies to ensure they function correctly

20. methods of removing and replacing components and units without damaging the system and infrastructure

21. methods of testing equipment and systems for leaks (including liquid bubble testing, treated paper, halide torch, sulphur candles, electronic instruments or automatic detection equipment), and the tools and equipment that can be used

22. types and application of primary and secondary refrigerants, and methods of purging and charging the system using liquid and vapour refrigerants

23. the use of vacuum pumps, pressure gauges, compound gauges, flow gauges and indicators

24. how to check that tools and equipment are free from damage or defects, are in a safe and usable condition, and are configured correctly for their intended purpose

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. the generation of maintenance documentation and/or reports following the maintenance activity

29. the equipment operating and control procedures to be applied during the maintenance activity

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30. how to use lifting and handling equipment correctly and safely in the maintenance activity
 31. the problems associated with the maintenance activity, and how they can be overcome
 32. the organisational procedure to be adopted for the safe disposal of waste of all types of materials including any spoilt food or drink products
 33. the extent of your own authority and to whom you should report if you have problems that you cannot resolve

IMPEM155

Maintain industrial refrigeration equipment used in food and drink operations



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