Australian Government

Department of Education, Employment and Workplace Relations

FDFFST5001A Monitor refrigeration and air conditioning systems in food processing

Release: 2

FDFFST5001A Monitor refrigeration and air conditioning systems in food processing

Modification History

April 2012: Minor typographical corrections.

Unit Descriptor

This unit covers the skills and knowledge required to coordinate the monitoring of refrigeration and air conditioning systems in food processing and storage.

Application of the Unit

This unit applies to production, quality and technical staff in food processing who are required to monitor cold storage or a temperature controlled environment. The unit typically applies to staff who have responsibility for maintaining product safety and quality in food processing. The unit can apply to all sectors of food production including general food production, meat and seafood industries. The unit does not cover the design of equipment or undertaking engineering related analyses of refrigeration and air conditioning systems. Depending on the workplace application, liaison may be required with engineering and maintenance specialists.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Coordinate a refrigeration system in the production of food products	1.1 Refrigerants and their required properties are identified 1.2 Performance of the refrigeration system in the production process is monitored 1.3 Ways to improve the performance of the refrigeration system are appraised 1.4 Performance of a refrigeration system is analysed 1.5 Problems are reported to the designated person according to company policies and procedures
2. Coordinate an air conditioning system in the production of food products	2.1 Common forms of air conditioning systems used in the production of food products are identified 2.2 Air conditioning requirements for a given situation in the production process are assessed 2.3 Variables on a psychrometric chart are identified 2.4 Psychrometric charts for the analysis of air conditioning systems in the production process are applied 2.5 The performance of the air conditioning system in the production process in monitored 2.6 Energy efficiency is monitored to reduce costs and environmental impacts 2.7 Problems are reported to the designated person according to company policies and procedures

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills include:

Ability to:

- identify characteristics of a refrigeration system in the production of food products
- interpret the function of key components in a refrigeration system
- appraise the performance of a refrigeration system
- identify refrigerants and their required properties
- monitor the performance of the refrigeration system in the production process
- report problems to the designated person according to company policies and procedures
- identify the common forms of air conditioning system used in the production of food products
- identify the variables on a psychrometric chart
- apply psychrometric charts for the analysis of air conditioning systems in the production process
- monitor the performance of the air conditioning system in the production process.

Required knowledge includes:

Knowledge of:

- refrigeration systems in the production of food products
- function of key components in a refrigeration system
- common forms of air conditioning systems used in the production of food products
- psychrometric charts
- energy efficiency and environmental impacts of refrigeration and air-conditioning systems.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	A person who demonstrates competency in this unit must be able to monitor the effectiveness and efficiency of refrigeration and air conditioning systems in food processing, and the impact on energy costs and environment.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Critical aspects of assessment must include evidence of the ability to assess refrigeration and air conditioning system requirements, and monitor the performance of refrigeration and air conditioning and the potential impacts on food safety and quality.
Context of and specific resources for assessment	Assessment of performance requirements in this unit should be undertaken within the context of food technology. Competency is demonstrated by performance of all stated criteria, including the critical aspects and knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statements applicable to the workplace environment. Assessment must occur in a real or simulated workplace where the assessee has access to: • Production process and related equipment, manufacturers' advice and operating procedures • Methods and related software systems as required for collecting data and calculating yields, efficiencies and material variances appropriate to production environment • Tests used to report relevant product/process information and recorded results.
Method of assessment	The following assessment methods are suggested: • Observation of candidate conducting a range of tests and procedures • Written and/or oral questioning to assess knowledge and understanding • Completing workplace documentation • Third party reports from experienced practitioner • Case studies • Field Reports.

Guidance information for assessment	Evidence should be gathered over a period of time in a range of actual or simulated environments.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Occupational health and safety requirements	• Codes of practice, regulations, safety data sheets (SDSs) • Enterprise and process specific occupational health and safety requirements.
Regulations	• Australian and international standards • Legislative requirements are typically reflected in procedures and specifications. Legislation relevant to this industry includes the Food Standards Code including labelling, weights and measures legislation and legislation covering food safety, environmental management, occupational health and safety, anti-discrimination and equal opportunity.
Air conditioning plant and equipment	Air conditioning systems, plant and/or equipment may include electrical supply switchboard(s) and transformers; air conditioner compressors; chillers and associated cooling plant; air fans; humidifiers; heaters and filters; electrical motors; valves, actuators and dampers (electric, hydraulic, pneumatic and manual); supervisory, alarm, protection and control equipment; and chemical dosing equipment.
Refrigeration plant and equipment	Refrigeration equipment may include air conditioning (refrigerated and evaporative), water coolers, packaged air conditioners and refrigerators.
System controls	Controls for both systems may be mechanical, pneumatic, electric, and electronic and may be sequenced/controlled by programmable controllers or computer systems.
Psychrometric variables	Psychrometric variables may include temperature, relative humidity, dew-point temperature, and wet-bulb temperature.

Unit Sector(s)

Technical.