



Australian Government

UEENEEJ184A Apply safety awareness and legal requirements for carbon dioxide refrigerant

Release 3

UEENEEJ184A Apply safety awareness and legal requirements for carbon dioxide refrigerant

Modification History

Not Applicable

Unit Descriptor

Unit Descriptor

1)

1.1) Descriptor

This unit covers the safety and legal requirements to handle, use and store hydrocarbon refrigerants. All safety aspects are covered to Australian and International standards. Legal requirements are covered at local, State&National level.

Application of the Unit

Application of the Unit 4)

This competency standard is suitable for employment-based programs under an approved contract of training at the AQF level of the qualification in which the unit is first packaged or higher.

The unit may be selected as an elective from the relevant schedule (see qualification packaging rules) provided that all prerequisite units are undertaken or addressed through recognition processes.

This unit may be included in a skill set provided that it is listed in the schedule of electives (see Qualification Framework) and all prerequisite units are undertaken or addressed through recognition processes.

Delivery and assessment of this unit should be undertaken within regard to the requirements of License to Practice (1.2 above), Prerequisite Competencies and Literacy and Numeracy skills (2 above) and the recommendations for concurrent assessment and relationship with other units (9.5 below).

Practice in the workplace and during training is also

Application of the Unit 4)

subject to regulations directly related to occupational health and safety and where applicable contracts of training such as apprenticeships.

Note:

1. Compliance with permits may be required in various jurisdictions and typically relates to the operation of plant, machinery and equipment such as elevating work platforms, powder operated fixing tools, power operated tools, vehicles, road signage and traffic control and lifting equipment. Permits may also be required for some work environments such as confined spaces, working aloft, near live electrical apparatus and site rehabilitation.
2. Compliance may be required in various jurisdictions relating to currency in First Aid, confined space, lifting, risk safety measures etc.

Licensing/Regulatory Information

1.2) License to practice

The skills and knowledge described in this unit do not require a licence to practice in the workplace. However, practice in this unit is to regulations directly relating to all OH&S and AS requirements.

Note:

1. Compliance with permits may be required in various jurisdictions and typically relates to the operation of plant, machinery and equipment such as elevating work platforms, powder operated fixing tools, power operated tools, vehicles, road signage and traffic control, lifting equipment. Permits may also be required for some work environments such as confined spaces, working aloft, near live electrical apparatus and site rehabilitation.
2. Compliance may be required in various jurisdictions relating to currency in First Aid, confined space, lifting and risk safety measures.

Pre-Requisites

Prerequisite Unit(s) 2)

2.1) Competencies

Prerequisite Unit(s) 2)

There are no prerequisite competencies for this unit.

Employability Skills Information

Employability Skills 3)

This unit contains Employability Skills

The required outcomes described in this unit of competency contain applicable facets of Employability Skills. The Employability Skills Summary of the qualification in which this unit of competency is packaged will assist in identifying Employability Skill requirements.

Elements and Performance Criteria Pre-Content

6) Elements describe the essential outcomes of a unit of competency	Performance criteria describe the required performance needed to demonstrate achievement of the Element. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT

PERFORMANCE CRITERIA

1 Prepare to work with carbon dioxide refrigerant	1.1 OHS procedures for a given work area are identified, obtained and understood through established routines and procedures
	1.2 Work area access permits are obtained from appropriate personnel according to established procedures.
	1.3 Preparations for electrical and non-electrical isolation are carried out to prevent creation of hazards from loss of machine/system/process control according to established procedures.

ELEMENT	PERFORMANCE CRITERIA
	1.4 Tools and equipment needed for the work are checked for safety and correct functionality according to established procedures and regulatory requirements.
2 Apply safe working practices in using carbon dioxide refrigerant	2.1 Workplace procedures and work instructions for controlling risk are followed accurately.
	2.2 Workplace procedures for dealing with accidents, fires and emergencies are followed according to work procedures and scope of responsibility and competencies.
3 Follow workplace procedures for hazard identification and risk control of carbon dioxide refrigerant	3.1 Hazards are identified and control measures implemented and monitored through active participation in the consultation process with employer and other employees.
	3.2 Hazards in the work area are recognised and reported to appropriate personnel according to established procedures.
	3.3 OHS records of incidents are completed in accordance with regulatory requirements and established procedures.
	3.4 Workplace instructions and training are followed accurately within established procedures.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

7) This describes the essential skills and knowledge and their level, required for this unit.

Evidence shall show that knowledge has been acquired of safe working practices and applying OHS practices in relation to hydrocarbon refrigerants.

All knowledge and skills detailed in this unit should be contextualised to current industry practices and technologies.

KS01-EJ184 Safe working practices with carbon dioxide refrigerant

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Evidence shall show an understanding of safe working practices with carbon dioxide refrigerant and relevant Standards, Codes and Regulations an extent indicated by the following aspects:

T1 Introduction to Carbon Dioxide refrigerant

- Refrigerants and CFC/HFC phase out
- Introduction to Carbon Dioxide – CO₂
- Benefits of using Carbon Dioxide as a Refrigerant (R744)

T2 Introduction to HAZCHEM Codes and Material Safety Data Sheets (MSDS)

- Classification of Dangerous Goods
- HAZCHEM CODE
- Refrigerant 2RE Hazchem Codes
- UN (United Nations) Number
- Material Safety Data Sheets (MSDS)
- Personal Protection Equipment (PPE)

REQUIRED SKILLS AND KNOWLEDGE

T3 Carbon Dioxide Plant Safety

- Carbon Dioxide CO2 R744 Detectors
 - Appropriate Type
 - Care ,Maintenance and Installation
- Cylinder Regulators CO2
 - All currently available regulators provide vapour feed only
 - Pressure readings (bottle and line)
- Refrigerant Cylinders CO2
- Refrigerant conditions
 - Hazards and related safe working practices (dangerous system pressures)
 - Pressure to temperature conversion (Saturated P/T is only between 430 kPa and 4399kPa)
- Carbon Dioxide Relief Valves AS1894-1997

T4 Emergency Management

- Planning for emergencies
- The emergency plan
- Risk Assessment

T5 First Aid for CO2 Exposure

- Type of exposure
 - Acute
 - Chronic
 - Swallowed
 - Eye
 - Skin
 - Inhaled
- Carbon Dioxide CO2 R744 is a narcotic and an asphyxiant in large concentrations in air. Concentrations above 10% in air may lead to death very quickly.
- First Aid Facilities
 - Ensure plenty of drinking water
 - Safety shower
 - Eye wash station eye wash bottle available
 - Oxygen for resuscitation
- Always seek urgent medical attention when an incident occurs with Carbon Dioxide CO2 R744 refrigerant.
- DRABC – steps or procedures that must be carried out if a first aid person or emergency personnel come across a person who is unconscious

REQUIRED SKILLS AND KNOWLEDGE

- SCBA – Self contained breathing apparatus. Compressed air comes in bottles strapped to the user’s body. Note all personnel who may be required to use SCBA type equipment require specialised training

T6 Applicable Standards and Codes

- Hazards associated with Carbon Dioxide (MSDS)
- AS1894 – 1997
- New South Wales OH&S Act 2000 No40
- Storage and handling of workplace Dangerous Goods National Code of Practice (NOHSC:2017 – 2001)
- Dangerous Goods Act
- AS1940-2004 The storage and handling of flammable and combustible liquids
- AS/NZS 1677
- AS/NZS 1571
- IIR Bulletins
- ANSI/ASHRAE Standards
- IOR Safety code for Refrigerating Systems utilising Carbon Dioxide

Evidence Guide

EVIDENCE GUIDE

9) The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package..

The Evidence Guide forms an integral part of this unit. It must be used in conjunction with all parts of this unit and performed in accordance with the Assessment Guidelines of this Training Package.

Overview of Assessment

9.1)

Longitudinal competency development approaches to assessment, such as Profiling, require data to be reliably gathered in a form that can be consistently interpreted over time. This approach is best utilised in Apprenticeship programs and reduces assessment intervention. It is the Industry's preferred model for apprenticeships. However, where summative (or final) assessment is used it is to include the application of the competency in the normal work environment or, at a minimum, the application of the competency in a realistically simulated work environment. It is recognised that,

EVIDENCE GUIDE

in some circumstances, assessment in part or full can occur outside the workplace. However, it must be in accordance with industry and regulatory policy.

Methods chosen for a particular assessment will be influenced by various factors. These include the extent of the assessment, the most effective locations for the assessment activities to take place, access to physical resources, additional safety measures that may be required and the critical nature of the competencies being assessed.

The critical safety nature of working with electricity, electrical equipment, gas or any other hazardous substance/material carries risk in deeming a person competent. Sources of evidence need to be 'rich' in nature to minimise error in judgment.

Activities associated with normal every day work have a bearing on the decision as to how much and how detailed the data gathered will contribute to its 'richness'. Some skills are more critical to safety and operational requirements while the same skills may be more or less frequently practised. These points are raised for the assessors to consider when choosing an assessment method and developing assessment instruments. Sample assessment instruments are included for Assessors in the Assessment Guidelines of this Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

9.2)

Before the critical aspects of evidence are considered all prerequisites shall be met.

Evidence for competence in this unit shall be considered holistically. Each element and associated performance criteria shall be demonstrated on at least two occasions in accordance with the 'Assessment Guidelines - UEE07'. Evidence shall also comprise:

- A representative body of work performance demonstrated within the timeframes typically expected of the discipline, work function and industrial environment. In particular this shall incorporate evidence that shows a candidate is able to:

EVIDENCE GUIDE

- Implement Occupational Health and Safety workplace procedures and practices including the use of risk control measures as specified in the performance criteria and range statement
- Apply sustainable energy principles and practices as specified in the performance criteria and range statement
- Demonstrate an understanding of the essential knowledge and associated skills as described in this unit. It may be required by some jurisdictions that RTOs provide a percentile graded result for the purpose of regulatory or licensing requirements.
- Demonstrate an appropriate level of skills enabling employment
- Conduct work observing the relevant Anti Discrimination legislation, regulations, polices and workplace procedures
- Demonstrated consistent performance across a representative range of contexts from the prescribed items below:
 - A Preparing to enter the workplace including, the use of work permits and clearances and isolation permissions.
 - B Applying work procedures and instructions as they apply to risk control measures.
 - C Dealing with accidents and emergencies within the scope of responsibility.
 - D Participation in consultation processes, identifying hazards and implementing and monitoring control measures.
 - E Dealing with unplanned events by drawing on essential knowledge and skills to provide appropriate solutions incorporated in the holistic assessment with the above listed items.

EVIDENCE GUIDE

Context of and specific resources for assessment

9.3)

This unit should be assessed as it relates to normal work practice using procedures, information and resources typical of a workplace. This should include:

- OHS policy and work procedures and instructions.
- Suitable work environment, facilities, equipment and materials to undertake actual work as prescribed by this unit.

These should be part of the formal learning/assessment environment.

Note:

Where simulation is considered a suitable strategy for assessment, conditions must be authentic and as far as possible reproduce and replicate the workplace and be consistent with the approved industry simulation policy.

In addition to the resources listed above, evidence should show demonstrated competency in applying specific hydrocarbon OHS practices in the workplace.

Method of assessment

9.4)

This unit shall be assessed by methods given in Volume 1, Part 3 'Assessment Guidelines'.

Note:

Competent performance with inherent safe working practices is expected in the industry to which this unit applies. This requires assessment in a structured environment which is primarily intended for learning/assessment and incorporates all necessary equipment and facilities for learners to develop and demonstrate the essential knowledge and skills described in this unit.

Concurrent Assessment and relationship with other units

9.5)

This unit shall be assessed concurrently, as it relates to other units undertaken in a possible skill clusters or qualification.

Components of this unit are included in the critical aspects of evidence of all units to help ensure the appropriate level of responsibility for safety has been acquired.

Range Statement

RANGE STATEMENT

8) This relates to the unit as a whole providing the range of contexts and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

- a) Relevant Occupational Health and Safety legislation, regulations and codes of practice related to hazards presented by the use of carbon dioxide refrigerant in refrigeration and air conditioning systems.
- b) Accepted industry work procedures and the specific safety procedures and work instructions related to working with refrigeration and air conditioning systems containing a carbon dioxide refrigerant.

Generic terms used throughout this Vocational Standard shall be regarded as part of the Range Statement in which competency is demonstrated. The definition of these and other terms that apply are given in Volume 2, Part 2.1.

Unit Sector(s)

Not Applicable

Competency Field

2.2) Literacy and numeracy skills

Participants are best equipped to achieve competency in this unit if they have reading, writing and numeracy skills indicated by the following scales. Description of each scale is given in Volume 2, Part 3 'Literacy and Numeracy'

Reading	4	Writing	4	Numeracy	4
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2.2) Literacy and numeracy skills

Competency Field 5)

Refrigeration and Air Conditioning

