



Australian Government

Department of Education, Employment and Workplace Relations

CPPFES2049A Conduct recovery, reclaim and fill operations for scheduled gaseous fire-extinguishing agents

Release: 1

CPPFES2049A Conduct recovery, reclaim and fill operations for scheduled gaseous fire-extinguishing agents

Modification History

Revised unit

Unit updated and equivalent to PRMPFES49A Recover, reclaim and fill operations for ozone depleting substances and synthetic greenhouse gases

Unit Descriptor

This unit of competency specifies the outcomes required to conduct operations to recover, reclaim and fill ozone depleting substances (ODS) and synthetic greenhouse gases (SGG) using appropriate processing equipment.

Application of the Unit

This unit of competency supports individuals responsible for safe and emission-free recovery and reclamation of ODS and SGG from containers used in fire suppression; and for the safe, emission-free assembly and filling of appropriate containers with ODS and SGG.

Licensing/Regulatory Information

Work in this area must be completed according to relevant legislative, industry, customer and organisational requirements; and ODS, SGG and occupational health and safety (OHS) policies and procedures.

The unit supports one or more extinguishing agent handling licences (EAHL) prescribed under the Ozone Protection and Synthetic Greenhouse Gas Management Act 1989.

Different states and territories may have regulatory mechanisms that apply to this unit.

Candidates are advised to check for regulatory limitations.

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

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| 1 | Apply rules and regulations to ODS and SGG recover, reclaim and fill operations. | 1.1 | Requirements of relevant <i>rules and regulations</i> are <i>confirmed</i> and applied to <i>work procedures</i> . |
| | | 1.2 | Knowledge of <i>ODS and SGG extinguishing agent</i> legislative and industry requirements is applied to recover, reclaim and fill operations. |
| | | 1.3 | Compliance requirements are checked and <i>action</i> is taken according to <i>organisational policies and procedures</i> , ODS, SGG and OHS requirements. |
| 2 | Prepare processing equipment for operation. | 2.1 | Processing equipment is set up. |
| | | 2.2 | Processing equipment is <i>pressurised</i> and checked to ensure line holds pressure. |
| | | 2.3 | <i>Leak detection test</i> is performed on processing equipment and connections. |
| | | 2.4 | <i>Components</i> are replaced or recycled as required before starting processing. |
| | | 2.5 | Set up of processing equipment is checked and <i>defects</i> are rectified. |
| 3 | Recover and reclaim ODS and SGG materials. | 3.1 | Container type and label are checked and confirmed, and <i>method of recovery</i> is identified. |
| | | 3.2 | Mass of container is weighed and recorded before processing. |
| | | 3.3 | Container's connections to processing equipment are checked. |

- 3.4 Processing equipment is monitored and recovery processing is completed according to manufacturer and organisational operating instructions.
 - 3.5 Sample of recovered material is taken for **analysis**, if required.
 - 3.6 Reclamation processing equipment is activated if quality control analysis results are acceptable.
 - 3.7 Processing equipment is monitored and reclamation processing is completed according to manufacturer and organisational operating instructions.
 - 3.8 Mass of container is weighed and recorded after processing.
 - 3.9 **Documentation** is completed according to work procedures.
- 4 Prepare container and assemble valve.
 - 4.1 Correct container and valve components are selected and gathered to suit ODS and SGG extinguishing agent.
 - 4.2 Valve components are assembled.
 - 4.3 Assembled valve is connected to container.
 - 4.4 Containers and labels for fill processing are checked and confirmed as correct.
- 5 Fill containers.
 - 5.1 Container's connections to processing equipment are checked.
 - 5.2 Processing equipment is monitored and fill process is completed according to manufacturer and organisational operating instructions.
 - 5.3 Container is weighed to verify fill processing and container mass is recorded.
 - 5.4 Container is pressurised, as necessary.
 - 5.5 Transfer equipment lines are evacuated.
 - 5.6 Container is removed from processing equipment and leak detection test is performed on container.

- 5.7 ***Containers are prepared for service*** and filled containers are packed according to work procedures.
- 5.8 Documentation is completed according to work procedures.

Required Skills and Knowledge

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

Required skills

- customer service skills
- language, literacy and numeracy skills to:
 - communicate with others clearly and concisely, verbally and in writing
 - interpret data and select action
 - read and comply with work instructions and specifications
 - read and record measurements
 - record and report information neatly and legibly
 - select and use relevant communications records when storing ODS and SGG containers
 - weigh and determine mass of container contents
- planning and organising skills to:
 - estimate time to complete activities
 - prioritise tasks
- interpersonal skills to relate to people from a range of social and cultural backgrounds
- skills to work safely when:
 - applying manual-handling techniques
 - applying workplace housekeeping procedures
 - identifying hazards in work area related to recovery, reclamation and fill processing
 - selecting and using relevant personal protective equipment (PPE)
 - selecting and using tools, equipment and materials for specific tasks
- problem-solving skills to resolve problems in practical and safe ways
- technical skills to:
 - assemble new ODS and SGG containers and valves using components and labels, and prepare for service
 - clear processing equipment and pressurising lines
 - interpret temperature and pressure graphs for different agents to determine pressure at a given temperature
 - interpret quality control analysis data
 - perform leak detection testing of recovery, reclamation and fill containers, and processing equipment
 - rectify defects when preparing processing equipment for operation
 - replace or recycle processing equipment components
 - sample recovered ODS and SGG materials

Required knowledge

- action to be taken when a breach of OHS, ODS, SGG or other policy occurs
- documentation used during recovery, reclamation and fill processing of ODS and SGG containers
- EAHM requirements
- fill density requirements for different agents per unit of volume of container
- key features of legislation, regulations and codes applicable to recovery, reclamation and fill processing of ODS and SGG containers, including Ozone Protection and Synthetic Greenhouse Gas Management Act 1989
- implications of ignoring safety precautions used in recovery, reclamation and fill processing
- manual-handling techniques and aids to move gaseous fire-extinguishing agent containers
- maximum working pressure and water capacity of containers to determine container fill requirements
- methods for:
 - leak detection testing
 - selecting correct valve and components to suit container and agent requirements
 - preventing ODS and SGG emissions in the workplace
 - recovering and reclaiming ODS and SGG materials from containers
- reasons for preventing ODS and SGG emissions in the workplace
- types of:
 - containers used for ODS and SGG materials
 - materials found in ODS and SGG containers
 - sealants suitable for different gaseous agents
 - transport caps, labels, numbers and codes used on containers containing ODS and SGG materials
- relevant federal, state or territory legislation that affects organisational operations, including:
 - anti-discrimination and diversity
 - equal employment opportunity

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	This unit of competency could be assessed by observation of practical demonstration of recovery, reclaim and fill operations for ODS and SGG.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	A person who demonstrates competency in this unit must be able to provide evidence of the required skills and knowledge specified in this unit. In particular the person should demonstrate the ability to: • communicate and work effectively and safely with others • comply with: • OHS regulations • ODS and SGG regulations (where required) • state and territory legislation applicable to workplace operations • organisational policies and procedures, including quality requirements • conduct recover, reclaim and fill operations on a minimum of two different occasions, including: • identifying types of ODS and SGG containers, valves, labels and transport caps • using tools, equipment and materials effectively to complete recovery, reclamation and fill processing • preparing processing equipment for operation • preparing and assembling correct container and valve components • recovering and reclaiming ODS and SGG materials from different types of containers • filling different types of containers with ODS and SGG materials • pressurising filled containers • clearing fill and pressurising lines • sampling for analysis • interpreting quality control analysis data • performing leak detection tests on processing equipment and connections, and on recovered, reclaimed and filled containers • verifying by weight the recovery and reclamation processing of ODS and SGG materials

	• verifying by weight the correct filling of containers • labelling and filling different types of containers with ODS and SGG materials • preparing containers for service, fitting transport caps, and attaching labels, container numbers and codes to containers • packing filled containers according to work procedures • create and modify documentation according to work procedures • locate, interpret and apply relevant information, standards and specifications • identify hazards and risks at work site • select and use workplace communication technologies and language in the workplace, including technical language • use safety techniques and PPE.
Context of and specific resources for assessment	Assessment of essential underpinning knowledge may be conducted in an off-site context. It is to comply with relevant regulatory or Australian standards' requirements. Resource implications for assessment include: • actual or simulated work environment • range of containers to be used to recover and reclaim different ODS and SGG materials • range of containers and valve components to be filled with different ODS and SGG materials • assessment documentation, including training and assessment record books • necessary tools, equipment and materials • relevant procedure manuals and receiving documentation • necessary safety equipment and PPE.
Method of assessment	Assessment methods must: • satisfy the endorsed Assessment Guidelines of the Property Services Training Package • include direct observation of tasks in real or simulated work conditions, with questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application • reinforce the integration of employability skills with workplace tasks and job roles • confirm that competency is verified and able to be transferred to other circumstances and environments.
Guidance information for assessment	Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support. Assessment processes and techniques should as far as is practical

	take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed. This unit could be assessed on its own or in combination with other units relevant to the job function.
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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.

<i>Rules and regulations</i> may include:	• environmental regulations, including ODS and SGG legislation, codes and regulations, such as Ozone Protection and Synthetic Greenhouse Gas Management Act 1989 • fire protection industry codes of practice • licensing arrangements • OHS legislation, codes and regulations • regulations and codes of practice for the handling and transport of dangerous goods and hazardous substances • relevant Australian standards, including: • AS 1210 Pressure vessels • AS 2030 Gas cylinders • AS 3873 Pressure equipment • note: Australian standards are frequently revised and users must always check for currency and amendments • relevant federal, state and territory building Acts, regulations and codes • other relevant legislation relating to fire protection equipment, including: • international shipping codes • marine codes for different Australian States.
Requirements may be <i>confirmed</i> with:	• colleagues • managers • supervisors • team leaders.
<i>Work procedures</i> may include:	• assignment instructions • equipment manufacturers' requirements • instructions from colleagues, supervisor or manager • manual-handling techniques

	• ODS, SGG and OHS requirements • PPE requirements • reporting and documentation requirements • specific customer requirements.
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ODS and SGG extinguishing agents may include: Note: Listed using the format: product name (other names); use. Check the latest amendments to the Ozone Protection and Synthetic Greenhouse Gas Management Act for the current list of ODS and SGG extinguishing agents.	• Blitz III (HCFC Blend D); used in flooding systems • CFC 11 (trichlorofluoromethane, CCl₃F); may be found as a propellant in some powder fire extinguishers (this product is banned in Australia) • FC 2 1 8 (CEA 308, CF₃CF₂CF₃); used in flooding systems • FC 3 1 10 (CEA 410, C₄F₁₀); used in flooding systems • FC 5 1 14 (CEA 614, C₆F₁₄); used as a streaming agent • FE 227 (heptafluoropropane, HFC 227ea); used as a total flooding extinguishing agent – is a replacement for Halon 1301 • FE 25 (pentafluoroethane, HFC 125); used in inerting and explosion suppression applications and retro fit to existing Halon 1301 systems • FE 36 (hexafluoropropane, HFC 236fa); used in portable fire extinguishers – is a replacement for Halon 1211 and Halon 1301 • FE 13 (trifluoromethane, HFC 23); used as a total flooding agent • FE 241 (chlorotetrafluoroethane, HCFC 124); used as a total flooding agent for non-occupied spaces and as a streaming agent • FM100 (HBFC 22B1); used in portable fire extinguishers • FM200 (heptafluoropropane, HFC 227ea); used in chemical storage areas, clean rooms, communications facilities, laboratories, museums, robotics and emergency power facilities • Halotron (HCFC Blend B); used as a total flooding agent and streaming agent • Halon 1211 (BCF); used as a streaming agent – requires a special permit in Australia • Halon 1301 (BTM); used as a total flooding agent – requires a special permit in Australia • Halon 2402 (dibromotetrafluoroethane, C₂Br₂F₄); limited use in military systems – requires a special permit in Australia • HCFC 22 (chlorodifluoromethane, CHClF₂); used as a propellant in some powder fire extinguishers (this product is banned in Australia) • HFC 134a (unsymmetric tetrafluoroethane, CH₂FCF₃); used as a propellant in some powder fire extinguishers • NAF S III (HCFC Blend A); used as a total flooding agent – is a replacement for Halon 1301 • NAF P III (HCFC Blend C); used as a streaming agent – is a replacement for Halon 1211 • NAF P IV (HCFC Blend E); used as a streaming agent • SF₆ (sulfurhexafluoride, SF₆); used as an inerting agent for sealed high voltage switchgear.
Action may include:	• advising customer • documenting non-compliance • making equipment safe

	• reporting, as required.
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Organisational policies and procedures may include:	• job scheduling systems and communication devices • personnel practices and guidelines outlining work roles, responsibilities and delegations • recording and reporting documentation and systems • relevant OHS policies, procedures and programs • relevant rules and regulations • standard operating procedures, work instructions and manuals.
Pressurising may include use of:	• compressed air • nitrogen.
Leak detection tests:	• must be performed according to: • relevant current Australian standards • organisational requirements • environmental regulations, such as those relating to ODS and SGG • may be performed using: • ultrasonic liquid level indicator devices • scales to weigh cylinders • electronic leak detection devices • leak detection solution • may be performed on: • container connections, valves and gauges • recovery and reclamation processing equipment pipework, connections and valves • fill processing equipment pipework, connections and valves.
Components may include:	• connections • filters • hoses.
Defects may include:	• faulty gauges • leaking: • gaskets • seals • seams • physical damage • rust or corrosion.
Method of recovery may include:	• recovery via: • container head • container piercing.
Analysis may include:	• full analysis required if recovered material is for an end user • no analysis required if recovered material is for destruction.

Documentation may include:	• Australian and international regulations and codes of practice for handling and transporting dangerous goods and hazardous substances • codes of practice and regulations relevant to the receiving of goods • condemned container reports • container classification reports • corrective action reports • customer and supplier instructions • dangerous goods declarations • emergency procedures • equipment manufacturers' specifications • goods identification numbers and codes • job cards • material safety data sheets (MSDS) • quality assurance procedures • receiving documentation • record management system • service agreements • workplace procedures and policies.
Preparing containers for service may include:	• applying container numbers and codes to containers • attaching labels to containers • fitting transport caps.

Unit Sector(s)

Fire protection equipment

Custom Content Section

Not applicable.