



Australian Government

RIIMCU313 Mix and pump polymeric chemicals in underground coal mining

Release: 1

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Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 7.0.

Application

This unit describes the skills and knowledge required to mix and pump polymeric chemicals in underground coal mining. It includes transferring and storing polymeric chemicals and monitoring pressure and flow of material.

The unit applies to those working in operational roles. They generally work under minimal supervision to undertake a broad range of tasks in varied work contexts, using some discretion and judgement in selecting equipment, services or contingency measures.

Licensing, legislative and certification requirements that apply to this unit can vary between states, territories, and industry sectors. Users must check requirements with relevant body before applying the unit.

Unit Sector

Coal mining (underground)

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Prepare and plan to mix and pump polymeric chemicals	1.1 Obtain, interpret, confirm and clarify work instructions 1.2 Access, interpret and apply documentation required to mix and pump polymeric chemicals in underground coal mining and confirm work activity is compliant 1.3 Select and wear personal protective equipment according to site requirements 1.4 Select equipment and tools required for work activity and check for faults 1.5 Identify potential risks, hazards and environmental issues,

ELEMENT	PERFORMANCE CRITERIA
	implement control measures within scope of own role, and escalate where required 1.6 Obtain and interpret emergency procedures and identify steps required to respond to emergencies 1.7 Confirm adequate ventilation according to site requirements 1.8 Carry out pre-start checks according to site requirements
2. Transfer and store polymeric chemicals	2.1 Coordinate transfer and storage activities with others according to job requirements and within scope of own role 2.2 Transfer polymeric chemicals to pumping location according to site requirements 2.3 Store polymeric chemicals at pumping location according to site requirements 2.4 Confirm required quantities of polymeric chemicals are maintained
3. Prepare pump location	3.1 Coordinate work activities with others according to job requirements and within scope of own role 3.2 Confirm operation zone is designated and marked according to job requirements and site requirements 3.3 Interpret and apply ventilation requirements 3.4 Interpret and apply communication requirements
4. Mix, pump and monitor polymeric chemicals	4.1 Carry out start-up procedures according to manufacturer specifications and site requirements 4.2 Operate equipment according to manufacturer specifications and job requirements 4.3 Monitor equipment performance using indicators according to manufacturer specifications and site requirements 4.4 Coordinate mixing, pumping and monitoring activities with application team at application face according to job requirements and within scope of own role 4.5 Monitor pressure and flow of material according to job and site requirements 4.6 Complete work plan according to job and site requirements 4.7 Carry out shut down procedures according to manufacturer specifications and site requirements
5. Carry out operator maintenance	5.1 Conduct inspection and fault finding according to manufacturer specifications and site requirements 5.2 Conduct routine operational servicing tasks according to manufacturer specifications and site requirements 5.3 Clean, check, perform maintenance on and store machinery, tools and equipment according to manufacturer specifications

ELEMENT	PERFORMANCE CRITERIA
	and site requirements
6. Conduct housekeeping activities	6.1 Clear work area and dispose of materials according to site requirements 6.2 Complete records and reports according to site requirements

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

SKILL	DESCRIPTION
Numeracy	Calculates basic measurements including pressure and flow rates
Oral communication	Conveys information and requirements clearly and listens actively
Reading	Identifies and interprets specific information from workplace documentation
Self-management	Monitors and minimises own exposure to worksite risks and hazards during work activities
Writing	Completes maintenance records using sector-specific vocabulary, grammatical structures and conventions

Unit Mapping Information

No equivalent unit. New unit.

Links

Companion Volume implementation guides is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIIMCU313 Mix and pump polymeric chemicals in underground coal mining

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Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- mix and pump polymeric chemicals in underground coal mining on at least two occasions, using at least one of the following injection resins:
 - phenolic
 - polyurethane (PUR)
 - urea silicate.

During the above, the candidate must:

- locate and apply required legislation, documentation, policies and procedures, and confirm work activity is compliant
- implement the requirements, techniques and procedures to mix and pump polymeric chemicals in underground coal mining, including:
 - identifying, addressing and reporting potential hazards, risks and environmental issues
 - inspecting plant and equipment and identifying defects
 - labelling, transporting and using hazardous substances
 - selecting and applying required personal protective equipment
 - selecting, mixing and adding polymeric chemicals to required parameters and dosages
 - transferring and storing polymeric chemicals
- work with others to mix and pump polymeric chemicals in a way that meets required outcomes, including:
 - using communication techniques and equipment to convey information to others
 - completing reporting requirements and procedures
 - clarifying and confirming work plans and specifications
 - communicating end of shift information.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- legislative requirements relating to mixing and pumping polymeric chemicals in underground coal mining
- policies, procedures and documentation required to mix and pump polymeric chemicals in underground coal mining, including those relating to:
 - application requirements and procedures
 - equipment maintenance systems
 - first aid requirements for exposure to hazardous materials
 - operational and exclusion zones including isolation requirements
 - safety and health documentation relating to polymeric chemical exposure
 - safety data sheets (SDS) requirements
 - statutory compliance
 - site health monitoring requirements
 - site environmental and monitoring requirements
 - transportation and storage
 - ventilation requirements
 - work health and safety
- polymeric chemical types, characteristics, technical capabilities and limitations, risks and hazards
- techniques for mixing and pumping polymeric chemicals
- polymeric chemical handling procedures
- types, characteristics, technical capabilities and limitations of plant and equipment required to mix and pump polymeric chemicals in underground coal mining, including
 - pre-start, start-up, shutdown and isolation procedures
 - monitoring and maintenance systems and procedures
 - compatibility with polymeric chemicals being utilised
- techniques for interpreting and applying mine plans and environmental data
- techniques for measuring, sampling and identifying sample characteristics
- techniques for identifying, preventing and responding to relevant hazards and emergencies, including those relating to:
 - positioning of equipment and work locations
 - ventilation quantity and arrangements to remove airborne contaminants
 - uncontrolled release of chemicals including spills, ruptured hoses, ruptured containers
 - unplanned or undesired outcomes including generation of excessive heat or ignition of products
- techniques for housekeeping and reporting
- techniques for coordinating and communicating job activities with others.

Assessment Conditions

Mandatory conditions for assessment of this unit are stipulated below. The assessment must:

- include access to:
 - personal protective equipment
 - equipment required to mix and pump polymeric chemicals
- be conducted in a safe environment; and,
- be assessed in the context of this sector's work environment; and,
- be assessed in compliance with relevant legislation/regulation and using policies, procedures and processes directly related to the industry sector for which it is being assessed; and,
- confirm consistent performance can be applied in a range of relevant workplace circumstances.

Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated work environment* provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.

Assessor requirements

Assessors must be able to clearly demonstrate current and relevant industry knowledge and experience to satisfy the mandatory regulatory standards as set out in the Standards for Registered Training Organisations (RTOs) 2015/Australian Quality Training Framework mandatory requirements for assessors current at the time of assessment and any relevant licensing and certification requirements. This includes:

- vocational competencies at least to the level being delivered and assessed
- current industry skills directly relevant to the training and assessment being provided
- current knowledge and skills in vocational training and learning that informs their training and assessment
- formal relevant qualifications in training and assessment
- having knowledge of and/or experience using the latest techniques and processes
- possessing the required level of RII training product knowledge
- having an understanding and knowledge of legislation and regulations relevant to the industry and to employment and workplaces
- demonstrating the performance evidence, and knowledge evidence outlined in this unit of competency, and
- the minimum years of current** work experience after competency has been obtained as specified below in an industry sector relevant to the outcomes of the unit.

It is also acceptable for the appropriately qualified assessor to work with an industry expert to conduct assessment together and for the industry expert to be involved in the assessment judgement. The industry expert must have current industry skills directly relevant to the training and assessment being provided. This means the industry subject matter expert must demonstrate skills and knowledge from the minimum years of current work experience after competency has been obtained as specified below, including time spent in roles related to the unit being assessed:

Industry sector	AQF indicator level***	Required assessor or industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Infrastructure	1	1 year
	2	2 years
Drilling, Coal Mining, Extractive (Quarrying), Metalliferous Mining and Civil Infrastructure	3-6	3 years
Other sectors	Where this unit is being assessed outside of the resources and infrastructure sectors assessor and/or industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no industry standard is specified should comply with any relevant regulation.	

*Guidance on simulated environments has been stipulated in the RII Companion Volume Implementation Guide located on VETNet.

**Assessors can demonstrate current work experience through employment within industry in a role relevant to the outcomes of the unit; or, for external assessors this can be demonstrated through exposure to industry by conducting a minimum number of site assessments as determined by the relevant industry sector, across various locations.

***While a unit of competency does not have an AQF level, where a unit is being delivered outside of a qualification the first numeric character in the unit code should be considered as the AQF indicator level for assessment purposes.

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