



Australian Government

Department of Education, Employment and Workplace Relations

RIIPSM306A Supply molten metal and additives to furnaces

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit covers the supplying of molten metal and additives to furnaces in the metalliferous mining industry. It includes planning and preparing for elements, carrying out crane operations, and carrying out operator maintenance. Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and industry sectors. Relevant information must be sourced prior to application of the unit.

Application of the Unit

This unit is appropriate for those working in an operational role at worksites within:

- Metalliferous mining

Licensing/Regulatory Information

Refer to Unit Descriptor.

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.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan and prepare for operations	1.1. Access, interpret and apply <i>compliance documentation</i> relevant to the work activity 1.2. Obtain and interpret work requirements in the form of shift briefings, handover details or work orders and clarify/confirm before proceeding 1.3. Access and apply <i>safety information and procedures</i> throughout the work 1.4. Identify, address and report potential risks and <i>hazards</i> 1.5. Establish and maintain <i>communications</i> with other personnel using approved communication methods 1.6. Prepare for work in accordance with relevant standards and codes, and manufacturers/site requirements 1.7. Resolve coordination activities with others at the site prior to commencement of, and during, the work activity 1.8. Carry out pre-start checks and record according to site requirements
2. Carry out crane operations	2.1. Prepare <i>load</i> for lift in accordance with crane limitations and rigging requirements 2.2. Ensure no unauthorised entry to operating area 2.3. Select, fit and use auxiliary <i>lifting</i> devices and equipment for designated purpose 2.4. Carry out operations in cooperation with mobile plant and equipment to site procedures 2.5. Perform correct, safe lifting and associated operations, above and with, operating furnaces containing molten metal to site procedures 2.6. Pour molten metal into different size receivers so that spillage is minimised 2.7. Contain molten metal when lifting and setting down to prevent spillage 2.8. Use correct, safe technique to eliminate swing when lifting and transporting molten metal containers at recommended height to

	furnaces/converters 2.9. Maintain communications with other operations personnel
3. Carry out operator maintenance	3.1. Carry out gantry crane inspections and fault finding in accordance with manufacturer's instructions and site requirements 3.2. Carry out housekeeping tasks in accordance with manufacturer's instructions and site authorised procedures and practices 3.3. Provide operator support during preparation for, and conduct of, major operator maintenance tasks in accordance with site requirements 3.4. Process records in accordance with site requirements

Required Skills and Knowledge

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

Required skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for its application in the various circumstances in which this unit may be used. This includes the ability to carry out the following, as required to supply molten metal and additives to furnaces:

- apply legislative, organisation and site requirements and procedures for supplying molten metal and additives to furnaces
- apply personal and operational safety procedures
- troubleshoot
- determine volume/weights prior to lifting
- maintain equipment records
- use hand and power tools
- apply diagnostic techniques
- comply with environmental requirements

Required knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for its application in the various circumstances in which this unit may be used. This includes knowledge of the following, as required to supply molten metal and additives to furnaces:

- Australian standards related to cranes/lifting
- smelting operations and plant
- site and equipment safety requirements
- crane equipment characteristics, technical capabilities and limitations
- crane operational procedures/maintenance systems and procedures
- basic rigging and slinging requirements
- site-specific signals used with crane operations
- determining volume/weights
- site environmental requirements and constraints related to gantry cranes
- hazards associated with working with hot molten metals
- communication methods and protocols

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the performance criteria, required skills and knowledge and the range statement of this unit and include evidence of the following: • knowledge of the requirements, procedures and instructions for supplying molten metal and additives to furnaces • implementation of requirements, procedures and techniques for the safe, effective and efficient completion of supplying of molten metal and additives to furnaces • working with others to undertake and complete the supplying of molten metal and additives to furnaces in a way that meets all of the required outcomes • consistent timely completion of supplying molten metal and additives to furnaces that safely, effectively and efficiently meets the required outcomes
Context of and specific resources for assessment	• This unit must be assessed in the context of the work environment. Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of workplace performance, including task skills, task management skills, contingency management skills and job role environment skills. • Assessment of this competency requires typical resources normally used in a resources and infrastructure sector environment. Selection and use of resources for particular worksites may differ due to the site circumstances. • The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of

	assessment should not be greater than those required on the job. • Customisation of assessment and delivery environment to sensitively accommodate cultural diversity. • Aboriginal people and other people from a non English speaking background may have second language issues. • Where applicable, physical resources should include equipment modified for people with disabilities. Access must be provided to appropriate learning and/or assessment support when required.
Method of assessment	This unit may be assessed in a holistic way with other units of competency. The assessment strategy for this unit must verify required knowledge and skill and practical application using more than one of the following assessment methods: • written and/or oral assessment of the candidate's required knowledge • observed, documented and/or first hand testimonial evidence of the candidate's: • implementation of appropriate requirement, procedures and techniques for the safe, effective and efficient achievement of required outcomes • consistent achievement of required outcomes • first hand testimonial evidence of the candidate's: • working with others to undertake and complete the supplying molten metal and additives to furnaces
Guidance information for assessment	Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.

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.

Relevant compliance documentation may include:	• legislative, organisational and site requirements and procedures • manufacturer's guidelines and specifications • management plans • manager's rules • environmental legislation • OHS policy • code of practice • Australian standards • Employment and workplace relations legislation • Equal Employment Opportunity and Disability Discrimination legislation
Legislation may include Acts and regulations dealing with:	• mining safety and health • mine inspection • OHS • explosives • environment
Work briefings may include:	• crane equipment to be used • nature and scope of tasks • details of load chart/factors • achievement targets • working conditions • site lighting arrangements • defects on equipment • hazards and potential hazards • coordination requirements/issues
Work preparation may include:	• avoidance of hazards • identification of load • identification and selection of lifting equipment • inspection and certification of lifting equipment • management of permits and tags

Specific safety requirements may include:	• control and safety of travelling speed • selection and observance of safe working levels and angles • boarding and disembarking procedures • communications • signaling procedures • lifting and carrying hot molten metal • two-crane operations • working safely with mobile plant and equipment
Hazards may include:	• facilities • other equipment • dangerous materials • hot metal
Communications may be with:	• furnace operators • other cranes • mobile plant operators • supervisors/plant attendants
Signals for load moving are given using methods that may include:	• verbal • hand signals to Australian standards • whistles/hooters to Australian standards • two-way radio/telephones • light signals to Australian standards
Lifting operations associated with operational furnaces may include:	• lifting and transferring molten metal • pouring pots using two hook techniques • bumping hot molten metal pots to dislodge solidified metal • removal of hot molten metal from furnaces/converters • supply of hot molten metal to furnaces/converters • placing pots under hot molten metal vessels • removing metal accretions from furnaces/converters • pouring molten metal to moulds
Gantry cranes may include:	• single girder • double girder • top running • under running • single and double leg • monobox girder • torsional box girder

Operator (operational) maintenance procedures are those established and authorised for the site.	
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Unit Sector(s)

Smelting

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.