PMASMELT266 Deliver molten metal

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Modification History

Release 1. Supersedes and is equivalent to PMASMELT266B Deliver molten metal

Application

This unit of competency covers the skills and knowledge required to transport molten metal, such as used in the aluminium smelting process, using mobile transport equipment and crucibles.

This unit of competency applies to operators who are required to collect filled crucibles for transportation, move the crucible to required location, transfer/siphon molten metal to the destination furnace, and recognise and respond to 'out-of-parameter' issues.

This unit of competency applies to an individual working alone or as part of a team or group and working in liaison with other shift team members and the control room operator, as appropriate. The operator would be part of a team during start-up and shutdown procedures.

This unit of competency does not require the operation of a central control panel.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Operations

Unit Sector

Elements and Performance Criteria

Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.	
1 **Plan and prepare for operations**	1.1	Interpret and confirm work requirements before proceeding
	1.2	Identify and control hazards
	1.3	Ensure appropriate authorisations have been obtained/issued

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2	**Conduct pre-start requirements to procedures**	2.1	Conduct routine pre-start equipment checks
		2.2	Conduct isolation as appropriate for pre-start inspections
		2.3	Prepare equipment for operation
		2.4	Complete routine equipment checklists
		2.5	Complete reports as required for equipment inspections
3	**Conduct metal delivery operations to procedures**	3.1	Start up equipment as required
		3.2	Monitor equipment operation and check operational variables are within parameters
		3.3	Verify equipment performance throughout the process
		3.4	Apply operating principles to resolve identified problems and take action
		3.5	Shut down equipment as required
		3.6	Conduct routine housekeeping activities
		3.7	Recognise and respond to emergencies should one arise
		3.8	Complete records as required for equipment operation and performance
4	**Isolate and de-isolate plant**	4.1	Isolate plant
		4.2	Make safe for required work
		4.3	Check plant is ready to be returned to service
		4.4	De-isolate and prepare plant for return to service

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Regulatory framework	The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used, and include one or more of the following:

- legislative requirements, including work health and safety (WHS)
- industry codes of practice and guidelines
- environmental regulations and guidelines
- Australian and other standards
- licence and certification requirements

All operations to which this unit applies are subject to stringent health, safety and environment (HSE) requirements, which may be imposed through state/territory or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

Equipment and tools	Equipment and tools include one or more of the following:

- crucibles
- siphoning equipment
- mobile transporting equipment
- harnesses and slings
- materials handling equipment
- hand tools

Procedures	All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, include one or more of the following:

- emergency procedures

- work instructions
- standard operating procedures (SOPs)
- safe work method statements (SWMS)
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant.

Hazards

Hazards include one or more of the following:

- heat (e.g. burns, dehydration and heat stress)
- energy sources (e.g. hydraulic, pneumatic and electric)
- electromagnetic effects
- high pressure piping and valves
- pinch and crush points
- moisture
- banned items
- mobile equipment and pedestrian interaction
- suspended loads and roller conveyors
- hazardous materials (e.g. chlorine)
- molten materials
- equipment failures
- industrial (machinery, equipment and product)
- equipment or product mass
- noise, rotational equipment or vibration
- other hazards that might arise

Routine problems

Routine problems must be resolved by applying known solutions.

Routine problems are predictable and include one or more of the following:

- delivery of molten metal from reduction cells to clean crucible
- pipe failures (e.g. cracks and blockages)
- venturi and siphon system failure
- siphoning suction equipment failure
- out-of-parameter operation or product
- fluctuation in temperature, power consumption or product movement
- instruments and equipment requiring cleaning
- equipment mechanical and electrical problems

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- flow path blockages
- out-of-parameter emissions
- unavailability of equipment, personnel or material

Known solutions are drawn from one or more of the following:

- procedures
- training
- remembered experience
- historical data and records of common faults
- troubleshooting lists and directives
- site procedures

Non-routine problems must be reported according to according to relevant procedures.

Instrument/electrical systems	Instrument/electrical systems include one or more of the following: - emergency shutdown systems (ESD) - fire systems - pressure and temperature control systems - communications systems - utility systems
Operate	Operate is to monitor, adjust/make change to the production unit and/or its component items to meet specifications, by one or both of the following: - manually in the plant - using local controller in the plant
Pre-start checks	Pre-start checks will conform to site procedures or equipment pre-start checklist. They must be completed before the equipment is operated unless stated in the procedures.
Reports and records	Reports and records include one or more of the following: - routine inspections (daily readings and monthly checks) - scheduled maintenance activities - computer readouts locally or in the control room - shift log sheet - mandatory or statutory inspections - hazard, accident and incident reports - quality inspection reports of the product

Shutdown procedures	Shutdown procedures must follow equipment and site-authorised checklist and will typically include the following:

- communication to supply and delivery areas
- communication to impacting areas
- obtaining appropriate authorisations
- rescheduling operations
- liaison with maintenance teams

Start-up procedures	Start-up procedures must conform to site procedures and will typically include the following:

- safety and pre-start checks
- accessing shift logs and equipment records
- pre-shift briefing information
- records and reports from the previous shift

Work requirements	Work requirements will be identified from one or more of the following:

- shift briefings
- shift logs
- supervisor or crew leader meetings
- toolbox talks
- handover details

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=9fc2cf53-e570-4e9f-ad6a-b228ffdb6875