



Australian Government

Assessment Requirements for MEM48018 Monitor primary steel making process

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MSATCM507A Monitor primary steelmaking process.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- identifying and interpreting specifications, safety procedures and other reference material to monitor primary steel making process
- adjusting production and/or process in response to Supervisory Control and Data Acquisition (SCADA) information to meet specifications for furnace output on at least two occasions
- communicating within the workplace
- maintaining accurate records.

Note: Where a volume and/or frequency is not specified, demonstration must be provided at least once.

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- safe work practices and procedures and use of personal protective equipment (PPE)
- plant layout of the basic oxygen steel making (BOS) furnace and identification of the processing units
- SCADA system
- process sequence of operations
- scrap charging, hot metal composition and charging and oxygen lancing
- slag formation, effect of slag and metal, gas emulsion and effect of stirring with inert gas
- chemistry and thermodynamics of process including sequence of impurity element removal
- influence of lance height, slagging practice including single or double number of re-blows and additions of coolant
- conditions for specification to end points of carbon and temperature including importance of elements C, Si, Mn, P, S, residual elements, oxygen content, temperature and type of steel

- conditions for final specification from end points including control of oxygen content, alloy additions and alloy recoveries, tapping of vessel, slag removal, selection of alloys, argon bubbling and temperature control of ladles
- ladle transfer
- metallurgical analysis in steel making
- importance of composition of steel properties
- effects of C, Si, Mn, P, S and alloys including Ni, Cr, Mo, Nb, Ti, V, Pb
- effects of residual elements including Cu, Sn, Al, AS
- effects of gases in steels including N₂, O₂, H₂.
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Assessment Conditions

- Assessors must:
 - have vocational competency in monitoring primary steel making process at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015* or its replacement and comply with the *National Vocational Education and Training Regulator Act 2011*, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires.
- Where possible, assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions that cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required including relevant workplace procedures, product and manufacturing specifications.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>