

PERFORM SUBMERGED ARC WELDING

UNIT CODE: ENG/OS/WEF/CR/07/6/A

UNIT DESCRIPTION

This unit specifies competencies required to prepare materials, set up for submerged arc welding equipment and application of safety in submerged arc welding. It also includes competencies for welding with an electric arc beneath a bed of granulated flux.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA <i>(Bold and italicized terms are elaborated in the Range)</i>
1. Set up submerged arc welding equipment and materials	1.1 Interpreted drawings as per job specifications 1.2 Materials, tools and equipment are selected as per job specifications 1.3 Joints are prepared as per working drawings 1.4 Set up <i>submerged arc welding equipment</i> as per job specifications
2. Carry out submerged arc welding	2.1 Observed safety as per workplace procedures and OSHA 2.2 Cut workpieces using submerged arc process as per job specifications and ISO 9606-1 2.3 Examined the weld joint as per ISO 17637 standard 2.4 Housekeeping is conducted as per workplace procedures
3. Set up electro-slag arc welding equipment and materials	3.1 Interpreted drawings as per job specifications 3.2 Materials, tools and equipment are selected as per job specifications 3.3 Joints are prepared as per working drawings 3.4 Set up <i>electro-slag arc welding equipment</i> as per job specifications
4. Carry out electro-slag arc welding	4.1 Safety and health is observed as per Workplace procedures and OSHA 4.2 Welded workpieces using electro-slag arc process as per job specifications and ISO 9606-1 4.3 Examined weld joint as per ISO 17637 standards 4.4 Housekeeping is conducted in accordance with workplace procedures as workplace procedures

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Submerged arc welding equipment may include but is not limited to:	<ul style="list-style-type: none">• Submerged arc welding PPE• Submerged arc welding machine• Submerged arc welding accessories
2. Electro-slag arc welding equipment may include but is not limited to:	<ul style="list-style-type: none">• Electro-slag arc welding PPE• Electro-slag arc welding machine• Electro-slag arc welding accessories
3. Materials may include but is not limited to:	<ul style="list-style-type: none">• Metal tubing• Metal sheets• Metal plates• Metal bars

REQUIRED KNOWLEDGE

The individual needs to demonstrate knowledge of:

- Workplace procedures and OSHA
- Submerged arc welding equipment and accessories
- Electro-slag arc welding equipment and accessories
- Joint preparation techniques
- Submerged welding techniques and specification procedure
- Electro-slag welding techniques and specification procedure
- BS and ISO welding standards
- Submerged arc welding workplace housekeeping procedures
- Submerged arc welding safety procedures
- Electro-slag arc welding safety procedures
- Applications of submerged and electro-slag arc welding

- Electro-slag arc welding workplace housekeeping procedures

Required skills

The individual needs to demonstrate the following skills:

- Interpreting working drawings
- Preparing joints for submerged arc welding
- Preparing joints for electro-slag arc welding
- Product assessment
- Submerged arc welding workplace housekeeping procedures
- Electro-slag arc welding workplace housekeeping procedures
- Electrode manipulation
- Observation of safety

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

<p>1. Critical Aspects of Competency</p>	<p><i>Assessment requires evidence that the candidate:</i></p> <ul style="list-style-type: none"> 1.1 Observed safety and health as per Workplace procedures and OSHA 1.2 Selected materials, tools and equipment 1.3 Prepared joints as per working drawings 1.4 Set up submerged arc welding equipment in accordance with job specifications 1.5 Set up electro-slag arc welding equipment in accordance with job specifications 1.6 Welded workpieces using submerged arc welding process as per job specifications and ISO 9606-1 standard 1.7 Welded workpieces using electro-slag arc welding process as per job specifications and ISO 9606-2 standard 1.8 Welded work pieces are examined as per ISO 17637 standard 1.9 Housekeeping is conducted as per workplace procedures
<p>2. Resource</p>	<p><i>The following resources must be provided:</i></p>

Implications	<p>2.1 Fully equipped welding workshop meeting OSHA standards</p> <p>2.2 Submerged arc welding consumables and equipment</p> <p>2.3 Electro-slag arc welding consumables and equipment</p> <p>2.4 Personal Protective Equipment</p> <p>2.5 Simulated environment for submerged and electro-slag arc welding processes</p> <p>2.6 Housekeeping is conducted as per workplace procedures</p>
3. Methods of Assessment.	<p>Competency may be assessed through:</p> <p>3.1 Observation</p> <p>3.2 Oral questioning</p> <p>3.3 Written tests</p> <p>3.4 Projects</p>
4. Context of Assessment.	<p>Trainee will be assessed</p> <p>4.1 On job</p> <p>4.2 Off job</p> <p>4.3 During industrial attachment.</p> <p>4.4</p>
5. Guidance information for assessment.	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.</p>