

PERFORM SOLDERING AND GAS WELDING

UNIT CODE: ENG/OS/WEF/CR/01/6/A

UNIT DESCRIPTION

This unit specifies competencies required for setting up equipment and materials, carrying out soldering process, setting up gas welding equipment and materials, carrying out gas welding, setting up gas cutting equipment and materials and carrying out gas cutting operation.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements <i>(Bold and italicized terms are elaborated in the Range)</i>
1. Set up soldering equipment and materials	1.1 Safety and health is observed as per Workplace procedures and OSHA 1.2 Working drawings are interpreted as per job specifications 1.3 Materials, tools and equipment are selected as per job specifications 1.4 Joints are prepared as per working drawings 1.5 Soldering equipment is set up as per job specifications
2. Carry out soldering process	2.1 Work pieces are soldered as per job specifications 2.2 Soldered joints are examined as per ISO 12224 standards 2.3 Housekeeping is conducted as per workplace procedures
3. Set up gas welding equipment and materials	3.1 Safety and health is observed as per Workplace procedures and OSHA 3.2 Working drawings are interpreted as per job specifications 3.3 Materials, tools and equipment are selected as per job specifications 3.4 Joints are prepared as per working drawings 3.5 Gas welding equipment is set up as per job specifications
4. Carry out gas welding process	4.1 Safety and health is observed as per Workplace procedures and OSHA 4.2 Work pieces are gas welded as per job

	specifications and ISO 9606-1 4.3 Welded joints as examined per ISO 17637 standard 4.4 Housekeeping is conducted in accordance with workplace procedures
5. Set up gas cutting equipment and materials	5.1 Safety and health is observed as per Workplace procedures and OSHA 5.2 Working drawings are interpreted as per job specifications 5.3 Materials, tools and equipment are selected as per job specifications 5.4 Gas cutting torch is set up as per job specifications
6. Carry out gas cutting operation	6.1 Safety and health is observed as per Workplace procedures and OSHA 6.2 Work pieces are gas cut as per job specifications and ISO 9606-1 6.3 Kerf is examined as per standard operating procedures 6.4 Housekeeping is conducted in accordance with 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. Soldering equipment may include but not limited to:	<ul style="list-style-type: none"> • Soldering safety gear • Soldering bits/ iron • Solder • Heat source • Soldering fluxes • Brazing fluxes • Brazing rods (Spelter)
2. Gas welding equipment may include but not limited to:	<ul style="list-style-type: none"> • Gas welding PPE • Gas cylinders • Gas welding torch • Gas cutting torch • Regulators

Variable	Range
	<ul style="list-style-type: none"> • Hoses • Spark lighter/ gas lighter
3. Materials may include but not limited to:	<ul style="list-style-type: none"> • Metal tubing • Metal sheets • Metal plates • Metal bars

REQUIRED SKILLS AND KNOWLEDGE

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

Required knowledge

The individual needs to demonstrate knowledge of:

- Workplace procedures and OSHA
- Gas welding equipment
- Joint preparation techniques
- Welding positions
- Soldering techniques and specification procedure
- Gas welding techniques and specification procedure
- BS and ISO welded joint standards
- Workplace housekeeping procedures
- Gas cutting techniques
- Gas cutting equipment
- Gas cutting safety

Required skills

The individual needs to demonstrate the following skills:

- Interpreting working drawings
- Preparing joints
- Soldering
- Gas welding
- Gas cutting
- Product assessment
- Workplace housekeeping procedures

EVIDENCE GUIDE

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

1. Critical aspects of competency	Assessment requires evidence that the candidate: <ul style="list-style-type: none">1.1 Observed safety and health as per Workplace procedures and OSHA1.2 Selected materials, tools and equipment as per job specifications1.3 Prepared joints as per working drawings1.4 Set up soldering equipment in accordance with job specifications1.5 Soldered work as per job specifications and ISO 9006-1 standard1.6 Set up gas welding equipment in accordance with job specifications1.7 Gas welded workpieces as per job specifications and ISO 9006-1 standard1.8 Gas welded work pieces are examined as per ISO 176371.9 Set up gas cutting equipment as per job specifications1.10 Gas cut workpieces as per job specifications
2. Resource implications	The following resources must be provided: <ul style="list-style-type: none">2.1 Fully equipped soldering and gas welding workshop meeting OSHA standards2.2 Soldering, gas welding and gas cutting consumables and equipment2.3 Personal Protective Equipment
3. Methods of assessment	Competency may be assessed through: <ul style="list-style-type: none">3.1 Observation3.2 Oral questioning3.3 Written tests3.4 Projects
4. Context of assessment	Candidate will be assessed <ul style="list-style-type: none">4.1 On job4.2 Of job4.3 During industrial attachment
5. Guidance	Holistic assessment with other units relevant to the industry

information for assessment	sector, workplace and job role is recommended.
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