

<b>Title</b>	<b>Perform butt fusion jointing on polyethylene pipe for a network</b>		
<b>Level</b>	<b>4</b>	<b>Credits</b>	<b>6</b>

<b>Purpose</b>	People credited with this unit standard are able to: demonstrate knowledge of documentation, company procedures, hazards and equipment for polyethylene pipe butt fusion; and prepare for and perform butt fusion jointing.
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<b>Classification</b>	Plastics Processing Technology > Plastics Fabrication
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<b>Available grade</b>	Achieved
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### Guidance Information

- 1 This unit standard is intended for, but is not limited to, workplace assessment. The range statements relate to enterprise specific equipment, procedures, and processes.
- 2 Evidence presented for assessment against this unit standard must be consistent with safe working practices and be in accordance with applicable manufacturer's specifications, company and legislative requirements. This includes the knowledge and use of suitable tools and equipment.
- 3 Legislation, regulations and/or Industry Standards relevant to this unit standard includes but are not limited to the current version of:  
Health and Safety at Work Act 2015,  
Resource Management Act 1991,  
Plastics Industry Pipe Association of Australia (PIPA) guidelines;  
and any subsequent amendments and replacements.
- 4 Definitions  
*Company requirements* refer to instructions to staff on policy and procedures which are documented in memo or manual format and are available in the workplace. These requirements include but are not limited to – company specifications and procedures, work instructions, manufacturer specifications, product quality specifications and legislative requirements.  
*Semi-automatic (automatic) butt welding equipment* includes machines where the welding parameter, and carriage operations are controlled by a CNC unit within the machine. The heater/facing plate entry/removal may be controlled by the operator. Individual weld records of parameters, and carriage operations attained may be stored within the CNC unit and subsequently downloaded or printed.
- 5 This unit standard is intended for people working with fusion welding plastic piping to transport either gas or water as described in AS/NZS 4130:2018 *Polyethylene (PE) pipes for pressure applications*.

- 6 It is recommended that people intending to gain credit for this unit standard first hold credit for Unit 25610, *Demonstrate knowledge of polyethylene pipe, fittings and fusion jointing for a gas network*.

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## Outcomes and performance criteria

### Outcome 1

Demonstrate knowledge of documentation, company procedures, hazards, and equipment for polyethylene pipe butt fusion.

### Performance criteria

- 1.1 Documentation and company procedures for polyethylene pipe butt fusion are located and interpreted.
- Range may include – network standard, equipment operating manuals, standard operating procedure, safe work procedure, work instruction, job hazard analysis, job risk assessment.
- 1.2 Documentation and instructions for a specified job is obtained.
- Range instructions include – site location, pipe specifications, fittings; semi or fully automatic fusion unit, hazard identification.
- 1.3 Potential environmental and safety hazards and controls are described.
- Range hazards may include – weather, electric shock, excavations, manual handling, personal injury, vehicles and public; controls may include – personal protective equipment, safe access and egress, weather protection, earthing, lifting and handling techniques, temporary traffic control, signage, barriers.
- 1.4 Semi-automatic and fully automatic butt welding equipment are identified, and their main components are described.
- Range components may include – heating element, facing tool, clamp, shoes, control box, power source, residual current device, rollers, cutter.
- 1.5 Potential faults associated with incorrect application and operation of equipment, and the steps to avoid them are described.

### Outcome 2

Prepare for butt fusion jointing.

**Performance criteria**

2.1 Safety and environmental hazards are identified and controlled.

Range hazards may include – weather, electric shock, excavations, manual handling, personal injury, vehicles and public; controls may include– signage, barriers, personal protective equipment, safe access and egress, weather protection, earthing, lifting and handling techniques; temporary traffic control.

2.2 Component parts are prepared for butt fusion jointing.

Range leads, clamps, power source, residual current device.

2.3 Pipe and fittings are quality checked.

Range pipe size, standard dimension ratio, pipe surface damage, ovality, pipe end reversion, pressure rating, fitting package damage, fitting damage.

2.4 Pipe is prepared and positioned for butt fusion jointing.

Range may include – cut to length, cut square, dry, free of contaminants, cleaning agent, weather protection, rollers, pipe movement, alignment.

2.5 Fusion unit is set up.

Range fusion time, voltage level, soak time, cooling time, temperature, drag pressure, verification of settings.

**Outcome 3**

Perform butt fusion jointing.

**Performance criteria**

3.1 Joints are made by butt fusion jointing.

3.2 The cooling period is adhered to before handling and pressurising joint.

3.3 A check is carried out to ensure the integrity of the pipe joint.

Range check may include – visual assessment, on site pressure check, bead test, leak test, physical inspection.

3.4 Identification is assigned to the weld and recorded.

Range may include – weld number, date, weld machine data print out.

<b>Planned review date</b>	31 December 2025
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#### Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	19 June 1997	31 December 2018
Revision	2	3 August 2000	31 December 2018
Review	3	22 October 2002	31 December 2018
Rollover and Revision	4	20 November 2006	31 December 2018
Review	5	20 November 2009	31 December 2020
Review	6	20 October 2016	31 December 2023
Revision	7	30 August 2018	31 December 2023
Review	8	27 May 2021	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0014
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

#### Comments on this unit standard

Please contact MITO New Zealand Incorporated [info@mito.org.nz](mailto:info@mito.org.nz) if you wish to suggest changes to the content of this unit standard.