

## Demonstrate knowledge of working safely in extremes of temperature

**Level** 3

**Credits** 4

**Purpose** People credited with this unit standard are able to: describe how the human body regulates temperature; explain methods of assessing the thermal environment and heat strain; describe methods that eliminate, isolate, or control the hazard of heat and cold stress; plan for a job in hot and cold environments.

**Subfield** Occupational Health and Safety

**Domain** Occupational Health and Safety Practice

**Status** Registered

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**Entry information** Open.

**Accreditation** Evaluation of documentation by NZQA and industry.

**Standard setting body (SSB)** New Zealand Industry Training Organisation – Industrial Health and Safety Advisory Group

**Accreditation and Moderation Action Plan (AMAP) reference** 0171

This AMAP can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

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### Special notes

#### Definitions

*Legislative requirements* include but are not limited to compliance with the – Health and Safety in Employment (HSE) Act 1992 and Health and Safety in Employment (HSE) Regulations 1995, Resource Management Act 1991, the *Guidelines for the Management of Work in Extremes of Temperature* Wellington: Occupational Safety and Health Service, Department of Labour (1990), and subsequent amendments.

*PPE* refers to Personal Protective Equipment.

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## Elements and performance criteria

### Element 1

Describe how the human body regulates temperature.

#### Performance criteria

1.1 The regulation of human core body temperature is described, in terms of factors that influence how hot and cold we feel, and the early symptoms of heat and cold strain.

Range includes but is not limited to – maintaining homeostasis, sweating, shivering, blood flow, heat transfer.

1.2 Factors that influence how we feel heat and cold are described in terms of types of response.

Range includes but is not limited to – air temperature, humidity, radiant heat, air movement, physical activity, clothing, personal factors.

1.3 Potential health effects from exposure to extremes of temperature are explained in terms of mental and physical responses.

Range effects include but are not limited to – muscle cramps, changes in breathing patterns, dizziness, severe headaches, dehydration, heat syncope, heat rashes, heat cramps, heat exhaustion, heat stroke, frostnip, frostbite, immersion foot, shivering, pain, numbness, drowsiness, loss of consciousness, death.

### Element 2

Explain methods of assessing the thermal environment and heat strain.

#### Performance criteria

2.1 The explanation establishes the purpose of the Wet Bulb Globe Temperature measures and how and when they should be used.

Range includes but is not limited to – air temperature, radiant heat, humidity, air speed.

2.2 Methods of assessing heat strain are explained in terms of health and safety requirements.

Range includes but is not limited to – core body temperature, ear monitors, heart rate.

### Element 3

Describe methods that eliminate, isolate, or control the hazard of heat and cold stress.

#### Performance criteria

- 3.1 Control measures for reducing the risk of heat and cold stress are described in terms of prevention and health and safety requirements.
- Range includes but is not limited to – eliminating or controlling the thermal source, work scheduling.
- 3.2 Environmental controls for reducing the risk of heat and cold stress are described in terms of prevention and meeting health and safety requirements.
- Range includes but is not limited to – ventilation, controlling humidity, providing cooling, heating, shielding the work environment.
- 3.3 Process and design controls for reducing the risk of heat and cold stress are described in terms of prevention, and meeting health and safety requirements.
- Range includes but is not limited to – reduce/increase the heat required for the task or process, use of insulating materials.
- 3.4 Administrative controls for reducing the risk of heat and cold stress are described in terms of prevention and meeting health and safety requirements.
- Range includes but is not limited to – minimise workers' exposure times, work and rest schedules, planning work times for best temperatures, training, reduce physical load, suitable clothing, cooling PPE, acclimatisation, emergency support.
- 3.5 Medical controls for reducing the risk of heat and cold stress are described in terms of prevention and meeting health and safety requirements.
- Range includes but is not limited to – regular rehydration, maintain fitness, healthy eating, medical screening and assessments, monitoring, personal hygiene, health questionnaires.

### Element 4

Plan for a job in hot and cold environments.

#### Performance criteria

- 4.1 The plan describes procedures that will minimise the risks when working in hot and cold environments.
- Range includes but is not limited to – assessing the environment, verifying personal knowledge, monitoring personal health, equipment required, support systems.

- 4.2 The planned actions are consistent with health and safety requirements.
- 4.3 The planned actions are consistent with proposed activities in terms of people, responsibilities, resources and exposure in the environment.

Range both hot and cold environments.

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**Please note**

Providers must be accredited by NZQA, or an inter-institutional body with delegated authority for quality assurance, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be accredited by NZQA before they can register credits from assessment against unit standards.

Accredited providers and Industry Training Organisations assessing against unit standards must engage with the moderation system that applies to those standards.

Accreditation requirements and an outline of the moderation system that applies to this standard are outlined in the Accreditation and Moderation Action Plan (AMAP). The AMAP also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

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**Comments on this unit standard**

Please contact the New Zealand Industry Training Organisation [office@nzito.co.nz](mailto:office@nzito.co.nz) if you wish to suggest changes to the content of this unit standard.