Title	**Describe heat transfer and temperature profile in a seafood operation**		
Level	**4**	**Credits**	**5**

Purpose	This unit standard is for people working in a seafood operation. People credited with this unit standard are able to describe: the mechanisms and principles of heat transfer in relation to seafood operations; and a temperature profile for a seafood operation.

Classification	Seafood > Seafood Processing

Available grade	Achieved

Guidance Information

1 All evidence presented in this unit standard must be in accordance with:
- Workplace procedures;
- Animal Products Act 1999;
- Food Act 2014;
- Health and Safety at Work 2015;
  and any subsequent amendments.

2 Definitions
Quality is the totality of the characteristics of products and services that bear on their ability to satisfy stated and implied needs of customers and other stakeholders.
Latent heat refers to the heat required to change, at constant temperature, the physical state of materials from solid to liquid, liquid to gas, and solid to gas.
Radiation refers to the transfer of heat energy by electromagnetic waves. Examples of radiation include infrared cooking.
Sensible heat refers to heat that when added to or subtracted from food materials results in a temperature change that can be sensed.
Workplace procedures refer to the policies and procedures set out in a verbal or written form by the employer or organisation. Procedures must be consistent with current legislative requirements and manufacturer's recommendations or instructions where relevant.

Outcomes and performance criteria

Outcome 1

Describe the mechanisms and principles of heat transfer in relation to seafood operations.

Performance criteria

1.1 Describe the mechanisms and principles of heat transfer.

Range mechanisms – conduction, convection, radiation, microwave; – evidence of three is required;
principles – thermal conductivity, heat capacity, latent heat, sensible heat.

1.2 Describe factors that affect heat transfer in a seafood operation in terms of their impacts and control mechanisms.

Range evidence of two factors is required for two of the following seafood operations – chilling, freezing, thawing, cooking, heat shocking, infrared heat treatment, drying.

Outcome 2

Describe a temperature profile for a seafood operation.

Performance criteria

2.1 Describe the temperature profile in terms of heat transfer features that affect the seafood operation.

Range includes but is not limited to – effects on yield, recovery, food safety, product quality, productivity.

Planned review date	31 December 2028

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	27 August 2001	31 December 2020
Review	2	23 January 2009	31 December 2020
Review	3	24 January 2019	N/A
Rollover	4	29 February 2024	N/A

Consent and Moderation Requirements (CMR) reference	0123

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

Comments on this unit standard

Please contact the Muka Tangata - People, Food and Fibre Workforce Development Council qualifications@mukatangata.nz if you wish to suggest changes to the content of this unit standard.