



Australian Government

AMPQUA403 Utilise refrigeration index

Release: 1

AMPQUA403 Utilise refrigeration index

Modification History

Release	Comments
Release 1	This version released with AMP Australian Meat Processing Training Package Version 8.0.

Application

This unit describes the skills and knowledge required to use the refrigeration index (RI) to validate compliance of a chilling and freezing process.

This unit applies to individuals who work in quality assurance roles and who utilise the RI to validate compliance of a chilling or freezing process.

This unit references the Export Control Rules for meat and meat products, which came into effect in March 2021 and require the validation of all chilling processes using the refrigeration index.

The RI refers to the value obtained by using a recognised predictive model to calculate the potential growth of E. coli at a site of microbiological concern.

All work must be carried out to comply with workplace procedures, according to state/territory health and safety, food and meat safety regulations, legislation and standards that apply to the workplace.

Legislative and regulatory requirements apply to meat inspection and meat safety and are enforced through state/territory jurisdictions. Users must check with the relevant regulatory authority before delivery.

Pre-requisite Unit

Nil

Unit Sector

Quality Assurance (QUA)

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>

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<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Identify requirements for using the RI	1.1 Identify workplace health and safety hazards of site, assess risks and implement control measures 1.2 Identify regulatory requirements for process compliance using the refrigeration index 1.3 Identify the RI measure and the uses of predictive microbiological model 1.4 Identify factors affecting microbial growth 1.5 Identify RI model parameters
2. Collect temperature data	2.1 Set up data logger to effectively record data 2.2 Place temperature sensor in product, taking into account the point of microbiological concern and recommended placement 2.3 Process time-temperature data into correct format for RI calculator
3. Select and define process to be validated	3.1 Define process to be validated in terms of output 3.2 Define production lot for validation 3.3 Identify variables in the process being validated 3.4 Identify number of measurements required for validation 3.5 Identify when and where data collection should occur 3.6 Identify RI criteria
4. Calculate RI	4.1 Load and open RI calculator software 4.2 Select correct RI calculator options for process being validated 4.3 Calculate RI for process to be validated
5. Utilise RI to validate process	5.1 Compare RI with requirements of Expert Control Rules 5.2 Assess appropriateness of the data where RI does not comply 5.3 Take action to correct a non-conforming process 5.4 Make decisions on production disposition for a refrigeration breakdown
6. Document a RI validation process	6.1 Record the purpose, process and arrangements for RI validation 6.2 Document data collection methods and calculation options used, and summarise data collected 6.3 Record validation decision according to workplace requirements

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential for performance in this unit of competency but are not explicit in the performance criteria.

Skill	Description
Reading	Interpret detailed requirements of RI to validate compliance of a chilling and freezing process
Numeracy	- Use log units as a measurement of potential growth of E. coli - Monitor and interpret process control indicators and data, including temperature (°C)

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
AMPQUA403 Utilise refrigeration index	AMPA400 Utilise refrigeration index	Unit sector code updated Performance Criteria clarified Foundation Skills added Performance Evidence, Knowledge Evidence and Assessment Conditions reworded for clarity	Equivalent

Links

Companion Volumes, including Implementation Guides, are available at VETNet: - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5e2e56b7-698f-4822-84bb-25adbb8443a7>

Assessment Requirements for AMPQUA403 Utilise refrigeration index

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Performance Evidence

An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit.

There must be evidence that the individual has utilised the refrigeration index (RI) to validate compliance of at least one chilling and freezing process, including:

- utilised the RI calculator
- identified and resolved data inconsistencies.

Knowledge Evidence

An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:

- key requirements of Export Control (Meat and Meat Products) Rules 2021, including the control measures to achieve the RI criteria
- chilling requirements specified in the Australian Meat Standard
- regulatory requirements underpinning use of the RI
- the parameters of a refrigeration process
- the parameters to control sites of microbiological concern
- purpose of predictive microbiological models
- growth phases of microbes
- factors affecting the growth of microbes
- product disposition using the RI
- requirements for data collection
- RI calculator options
- documentation requirements for process validation using the RI
- lag and log phases.

Assessment Conditions

Assessment of the skills in this unit of competency must take place under the following conditions:

- physical conditions:
 - skills must be demonstrated in a meat chilling and freezing workplace or an environment that accurately represents workplace conditions
- resources, equipment and materials:
 - workplace procedures, including advice on safe work practices
 - RI calculator
 - meat carcasses and/or meat products for chilling and freezing
- specifications:
 - Export Control (Meat and Meat Products) Rules and guidelines for using the refrigeration index
 - system for recording data.

Assessment for this unit must include at least three forms of evidence.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

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