



**Australian Government**

**MTMP405B Conduct and validate  
pH/temperature declines to Meat Standards  
Australia standards**

**Release: 1**

## MTMP405B Conduct and validate pH/temperature declines to Meat Standards Australia standards

### Modification History

Not applicable.

### Unit Descriptor

<b>Unit descriptor</b>	<p>This unit covers the skills and knowledge required to accurately calibrate and maintain pH equipment, conduct pH and temperature declines and weekly monitoring, as well as to validate results to ensure conformance to the pH and temperature window.</p> <p>It is a licence requirement for Meat Standards Australia (MSA) enterprises to achieve the pH and temperature window.</p>
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### Application of the Unit

<b>Application of the unit</b>	<p>The skills and knowledge gained from this unit allow operatives to monitor pH or temperature window to AUS-MEAT and MSA standards. This unit is suitable for people working in Quality Assurance (QA) or a company grading role.</p>
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### Licensing/Regulatory Information

Not Applicable

### Pre-Requisites

<b>Prerequisite units</b>	

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<b>Prerequisite units</b>	

## Employability Skills Information

<b>Employability skills</b>	This unit contains employability skills.
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## Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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## Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. <i>Operate</i> and calibrate <i>pH equipment</i>	1.1. Temperature calibrations are conducted. 1.2. pH calibrations are conducted.
2. Conduct monthly and weekly monitoring of the pH or temperature window	2.1. Correct technique for pH and temperature measurement is demonstrated. 2.2. Necessary information for validating monitoring is collected. 2.3. Valid and sufficient readings are collected. 2.4. Results are recorded and reported.
3. Analyse results of pH and temperature monitoring	3.1. Effects of heat shortening and cold shortening are recognised. 3.2. pH and temperature window is identified.
4. Suggest corrective action plans if window conformance is not achieved	4.1. Factors impacting on pH or temperature window conformance are identified and evaluated. 4.2. Reasons for non-conformance are identified. 4.3. Trials to achieve window conformance are conducted.

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

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

#### Required skills

Ability to:

- collect information on live animals to be used in pH and temperature monitoring
- conduct monthly and weekly monitoring of the pH and temperature window
- observe, time and follow carcasses through the slaughter floor recording the following:
  - carcase information
  - chiller number
  - immobiliser information (if applicable)
  - rigidity probe information (if applicable)
  - stimulation information (if applicable)
  - time into the chiller

## REQUIRED SKILLS AND KNOWLEDGE

- time stunned
- analyse results to verify conformance
- apply relevant *communication* and *mathematical skills*
- work effectively as an individual and as part of a team
- generate individual and lot average graphs to show pH and temperature window conformance
- identify and apply relevant *Occupational Health and Safety (OH&S)*, *regulatory* and *workplace requirements*
- Improve own work performance as a result of self-evaluation, feedback from others, or in response to changed work practices or technology
- maintain currency of knowledge through professional development or self-directed research
- operate and calibrate pH and temperature readings
- suggest corrective action procedures

### Required knowledge

Knowledge of:

- the scope and nature of *MSA standards*
- how electrical stimulation impacts on pH decline
- impact chilling factors have on the *rate of pH and temperature decline*
- how the time it takes a carcass to reach the chiller can impact on the rate of pH decline
- pH and temperature window
- how cold shortening occurs and the characteristics of cold shortened product
- how heat shortening occurs and the characteristics of heat shortened product
- how other electrical inputs can impact on the rate of pH decline
- the impact the temperature of the slaughter floor can have on the rate of the pH and temperature decline
- what glycogen is and the relationship between stress and pH
- what pH is and why pH is important for eating quality

## Evidence Guide

### EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

#### Overview of assessment

The meat industry has specific and clear requirements for evidence. A minimum of three forms of evidence is required to demonstrate competency in the meat industry. This is specifically designed to provide evidence that covers the demonstration in the workplace of all aspects of competency over time.

These requirements are in addition to the requirements for valid, current, authentic and sufficient evidence.

Three forms of evidence means three different kinds of evidence - not three pieces of the same kind. In practice it will mean that most of the unit is covered twice. This increases the legitimacy of the evidence.

All assessment must be conducted against Australian meat industry standards and regulations.

#### Critical aspects for assessment and evidence required to demonstrate competency in this unit

Competency must be demonstrated over time and under typical operating and production conditions for the enterprise.

#### Context of and specific resources for assessment

The application of competency is to be assessed in the workplace. Assessment is to occur under standard and authorised work practices, safety requirements and regulatory requirements.

#### Method of assessment

Recommended methods of assessment are:

- evidence log book
- examination of results of monitoring she or he has conducted
- observation of the applicant working
- written tests and/or questioning.

Assessment practices should take into account any relevant language or cultural issues related to Aboriginality or Torres Strait Islander, gender, or language backgrounds other than English. Language and

<b>EVIDENCE GUIDE</b>	
	literacy demands of the assessment task should not be higher than those of the work role.
<b>Guidance information for assessment</b>	A current list of resources for this unit of competency is available from MINTRAC <a href="http://www.mintrac.com.au">www.mintrac.com.au</a> or telephone 1800 817 462.

## Range Statement

<b>RANGE STATEMENT</b>	
<p>The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.</p>	
Essential <i>operating</i> conditions include:	<ul style="list-style-type: none"> <li>calibrated pH equipment</li> <li>carcasses to be used must be followed across slaughter floor and into chiller.</li> </ul>
<i>pH equipment</i> will include:	<ul style="list-style-type: none"> <li>buffer solutions of a known pH (one at 6.88 and one at 4.00)</li> <li>certified mercury in a glass thermometer</li> <li>icy water (approximately 0°C)</li> <li>pH meters and probes</li> <li>potassium chloride solution or gel</li> <li>water (approximately 40°C).</li> </ul>
<i>Communication skills</i> may include:	<ul style="list-style-type: none"> <li>listening and understanding</li> <li>speaking clearly and directly</li> <li>reading and interpreting workplace-related documentation</li> <li>sharing information</li> <li>using negotiation, persuasion and assertiveness skills</li> <li>writing to audience needs.</li> </ul>
<i>Mathematical skills</i> may include:	<ul style="list-style-type: none"> <li>collection, estimation, calculation and interpretation of deviations within cycle, internal temperature, humidity, ambient temperature, weights.</li> </ul>

<b>RANGE STATEMENT</b>	
<i>OH&amp;S</i> requirements may include:	<ul style="list-style-type: none"> <li>• enterprise OH&amp;S policies, procedures and programs</li> <li>• OH&amp;S legal requirements</li> <li>• Personal Protective Equipment (PPE) which may include:                             <ul style="list-style-type: none"> <li>• coat and apron</li> <li>• ear plugs or muffs</li> <li>• eye and facial protection</li> <li>• head-wear</li> <li>• lifting assistance</li> <li>• mesh apron</li> <li>• protective boot covers</li> <li>• protective hand and arm covering</li> <li>• protective head and hair covering</li> <li>• uniforms</li> <li>• waterproof clothing</li> <li>• work, safety or waterproof footwear</li> </ul> </li> <li>• requirements set out in standards and codes of practice.</li> </ul>
<i>Regulatory</i> requirements may include:	<ul style="list-style-type: none"> <li>• Export Control Act</li> <li>• hygiene and sanitation requirements</li> <li>• relevant regulations and Australian Standards requirements set out in AS 4696:2007 Australian Standard for Hygienic Production and Transportation of Meat and Meat Products for Human Consumption</li> <li>• state and territory regulations regarding meat processing.</li> </ul>
<i>Workplace requirements</i> may include:	<ul style="list-style-type: none"> <li>• enterprise-specific requirements</li> <li>• OH&amp;S requirements</li> <li>• QA requirements</li> <li>• Standard Operating Procedures (SOPs)</li> <li>• the ability to perform the task to production requirements</li> <li>• work instructions.</li> </ul>
<i>MSA standards</i> include:	<ul style="list-style-type: none"> <li>• MSA Standards Manual for Saleyards Consignment</li> <li>• MSA Standards Manual for Grading</li> <li>• MSA Standards Manual for Trade Mark Usage</li> <li>• AUS-MEAT procedure 'Controlled pH</li> </ul>



<b>RANGE STATEMENT</b>	
	Decline System - pH temperature window conformance monitoring'.
Factors impacting on the <i>rate of pH and temperature decline</i> include:	<ul style="list-style-type: none"> <li>• carcass weight and fat coverage</li> <li>• chilling cycle</li> <li>• electrical stimulation and other electrical inputs</li> <li>• feed type of live animal</li> <li>• glycogen levels in the live animal</li> <li>• lairage duration</li> <li>• length of the processing chain</li> <li>• seasonal effect</li> <li>• sources of cattle - direct consignment/saleyard</li> <li>• temperature of the slaughter floor</li> <li>• transit type of live animal.</li> </ul>

### Unit Sector(s)

<b>Unit sector</b>	
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### Co-requisite units

<b>Co-requisite units</b>	

### Competency field

<b>Competency field</b>	
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