



Australian Government

Department of Education, Employment and Workplace Relations

PMBTECH509A Modify an existing product

Revision Number: 1

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Modification History

Not applicable.

Unit Descriptor

Unit descriptor

This competency covers the major modification of an existing product. The aims of the modification may be broad (eg reduce cost, improve performance, improve manufacturing) or specific (eg meet a particular specification). Typically the brief will be broad enough to require examination of a broad range of design features.

This technician would typically take the lead in this development project, although they may be working with a more senior technician as part of a larger project.

Application of the Unit

Application of this unit

This competency applies to technicians who are required to develop modified products and demonstrate that an appropriate product and manufacturing method have been developed.

It includes:

- determining the appropriate product specification
- confirming the appropriate compound
- identifying equipment/tooling requirements
- monitoring trials
- checking the modified product meets its requirements
- ensuring the factory is able to make this product as a routine product.

This competency may be used to complement *PMBTECH508A Develop a new compound*.

While TECH508 concentrates on developing a compound, this unit concentrates on the modification of a product, which may include a change of compound. Where choice of compound is obvious/restricted/trivial then this unit stands alone from TECH508.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisites

This unit has **no** prerequisites.

Employability Skills Information

Employability Skills

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

ELEMENT	PERFORMANCE CRITERIA
Elements describe the essential outcomes of a unit of competency	Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT ELEMENT	PERFORMANCE CRITERIA
1. Confirm required product specification/requirements.	<p>Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.</p> <p>1.1 Communicate with stakeholders regarding technical and aesthetic specification and other requirements.</p> <p>1.2 Identify project constraints such as timelines and cost.</p> <p>1.3 Draft product specification and project plan.</p> <p>1.4 Identify required tests to verify product meets specification.</p> <p>1.5 Confirm with stakeholders and modify as appropriate.</p>
2. Determine requirements for manufacture.	<p>2.1 Identify appropriate compound.</p> <p>2.2 Select process, equipment and tooling.</p> <p>2.3 Select appropriate process conditions.</p> <p>2.4 Determine other requirements for manufacture.</p> <p>2.5 Draft trial manufacturing procedure.</p> <p>2.6 Identify any HSE issues and modify as appropriate.</p>
3. Make trial/prototype products.	<p>3.1 Identify and control all hazards for laboratory development program.</p> <p>3.2 Obtain all required materials and tools/equipment.</p> <p>3.3 Produce the trial product following the draft procedures.</p> <p>3.4 Evaluate the product's compliance with requirements.</p> <p>3.5 Modify design and procedure as appropriate.</p> <p>3.6 Draft factory trial procedure.</p>
4. Monitor factory trials.	<p>4.1 Identify and control all HSE issues for factory trials.</p> <p>4.2 Ensure all required materials and tools/equipment are available.</p> <p>4.3 Organise trial(s) at an appropriate time.</p> <p>4.4 Ensure trial is monitored and required data collected.</p>

ELEMENT ELEMENT	PERFORMANCE CRITERIA Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.
	4.5 Evaluate factory trial product and procedure. 4.6 Modify specification procedure as appropriate.
5. Complete product modification.	5.1 Ensure final specification and procedures are recorded in standard procedures. 5.2 Ensure all required materials and tools and equipment will be routinely available as required. 5.3 Ensure HSE controls are standardised. 5.4 Ensure skill needs of operators have been addressed. 5.5 Complete all required reports and records. 5.6 Advise stakeholders of the outcome of the project.

Required Skills and Knowledge

This describes the essential skills and knowledge and their level required for this unit. Competence in this unit requires:

- an understanding of product design to a level necessary to select appropriate design components from a range of similar, competing components
- an understanding of making processes to a level necessary to select an appropriate set of process, equipment, tools and conditions and develop procedures
- appropriate tests so as to select the tests needed to check for compliance with the specification, and interpret test results
- HSE issues related to various products, processes, equipment, tools and process conditions.

Language, literacy and numeracy requirements

This unit requires the ability to communicate at all levels about technical issues and bring agreement as to requirements from the different parties.

Reading is required to the level of interpreting technical information, and writing technical specifications, procedures and reports.

Numeracy is required to the level of interpreting technical information and test results, calculations related to design and scaling up to a factory sized trial.

Evidence Guide

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

A holistic approach should be taken to the assessment.

Assessors must be satisfied that the person can consistently perform the unit as a whole, as defined by the Elements, Performance Criteria and skills and knowledge.

This competency should be assessed by examining a number of product modification projects where that development has resulted in a modified product being introduced into the factory.

Critical aspects

It is essential that competence is demonstrated in the knowledge and skills defined in this unit. These may include the ability to:

- interpret the requirements of the modified product and express this in suitable form
- make appropriate choices of process, equipment, tools and conditions and justify those choices
- develop appropriate manufacturing procedures and design specifications and justify those choices
- introduce the modified product into the factory successfully.

Consistent performance should be demonstrated. For example, look to see that:

- a range of products meeting different types of specifications are developed
- a range of products requiring different process/equipment/tools/conditions are developed.

Context of assessment

Competence in this unit may be assessed:

- on the plant
- using questions to assess knowledge
- in a laboratory/pilot plant
- using suitable simulation and/or a range of case studies/scenarios
- through a combination of these techniques.

Method of assessment

In all cases it is expected that practical assessment will be combined with targeted questioning to assess the underpinning knowledge and theoretical assessment will be combined with appropriate practical/simulation or similar assessment. Assessors need to be aware of any cultural issues that may affect responses to questions.

Assessment processes and techniques must be culturally appropriate and appropriate to the oracy, language and literacy capacity of the assessee and the work being performed.

Specific resources for assessment

This section should be read in conjunction with the Range Statement for this unit of competency. Resources required include suitable access to an operating plant or equipment that allows for appropriate and realistic simulation. A bank of case studies/scenarios and questions will also be required to the extent that they form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunchroom. No other special resources are required.

Access must be provided to appropriate learning and/or assessment support when required. Where applicable, physical resources should include equipment modified for people with disabilities.

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Add any 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.

Where reference is made to industry codes of practice and/or Australian/international standards, the latest version must be used.

Context

This competency applies to technicians who make significant modifications to existing products. They will typically be based in a laboratory/office or similar and will also have responsibility for ensuring the new product works in the factory.

A technician working at this level would typically take the lead responsibility for the product modification, but may work with other technicians of similar or greater responsibility for large or complex projects or as part of the development of a new product

Compound

Compound is used to mean any mixture of materials which is undertaken to a set formula and in specified proportions.

Tests

Tests includes the normal range of physical, chemical and environmental (weathering) tests which might be applied to the product.

Identify compound

Identification of compound is a necessary starting point for any product, but this competency does not necessarily require the choosing of a compound from an understanding of its characteristics. Identification may be done in liaison with others, or by choosing the compound used in other products with similar requirements.

Select process

Selecting process, equipment and tooling to be used should be done from a knowledge of a wide range of possible processes equipment and tooling, the properties each would bring to the product, the relative advantages and disadvantages of each and the change in product properties with process, equipment and tooling changes.

Procedures

All operations are performed in accordance with procedures.

Procedures means all relevant workplace procedures, work instructions, temporary instructions and relevant industry and government codes and standards.

Health, Safety and Environment (HSE)

All operations are subject to stringent health, safety and environment requirements, which may be imposed through State or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the technician needs to ensure the HSE requirements take precedence.

Unit Sector(s)

Not applicable.