



Australian Government

PMBTECH508 Develop a new compound

Release: 1

PMBTECH508 Develop a new compound

Modification History

Release 1. Supersedes and is equivalent to PMBTECH508A Develop a new compound

Application

This unit of competency covers the skills and knowledge required to develop a new compound/formulation or make major modification to an existing compound requiring examination of all components of the compound.

Where modification is being made the aims of the modification may be broad (e.g. reduce cost, improve performance, improve manufacturing) or specific (e.g. meet a particular specification).

A compound is a mixture of materials which is undertaken to a set formula and in specified proportions.

This unit of competency applies to experienced technicians or those in similar roles who are required to apply in-depth knowledge of materials, process, equipment and problem solving in order to determine the appropriate base polymer/polymer blend; determine the appropriate additives; determine the appropriate mixing methods and order; and verify that compound and methods are acceptable in the factory.

The technician will take the lead role in this development project which may contribute to a larger/more complex project being undertaken by a more senior technician.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Technical

Unit Sector

Not applicable

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

- | | | | |
|---|--|-----|---|
| 1 | Confirm required properties of compound | 1.1 | Communicate with stakeholders regarding technical and aesthetic specification |
| | | 1.2 | Identify project constraints, such as timelines and cost |
| | | 1.3 | Draft compound specification and project plan |
| | | 1.4 | Identify required tests to verify compound meets specification |
| | | 1.5 | Confirm with stakeholders and modify as appropriate |
| | | | |
| 2 | Develop base formulation | 2.1 | Identify appropriate base polymer/polymer blend |
| | | 2.2 | Select appropriate fillers/reinforcers and estimate required proportions |
| | | 2.3 | Select appropriate plasticisers and related materials and estimate required proportions |
| | | 2.4 | Select appropriate other materials and estimate required proportions |
| | | 2.5 | Draft initial formulation |
| | | 2.6 | Draft trial mixing procedure and order of addition |
| | | 2.7 | Identify any health, safety and environment (HSE) issues and modify as appropriate |
| | | | |
| 3 | Mix, test and modify formulation | 3.1 | Identify and control all hazards for laboratory development program |
| | | 3.2 | Obtain all required materials and tools/equipment |
| | | 3.3 | Produce the trial compound following the draft procedures |
| | | 3.4 | Evaluate the compound compliance with the specification |

- | | | | |
|---|--------------------------------------|-----|---|
| | | 3.5 | Modify formulation and procedure as required |
| | | 3.6 | Draft factory trial formula and procedure |
| 4 | Monitor factory trials | 4.1 | Identify and control all HSE issues for factory trials |
| | | 4.2 | Ensure all required materials and tools/equipment are available |
| | | 4.3 | Organise trials at an appropriate time |
| | | 4.4 | Ensure trial is monitored and required data collected |
| | | 4.5 | Evaluate factory trial compound and procedure |
| | | 4.6 | Modify formulation and procedure as required |
| 5 | Complete compound development | 5.1 | Ensure final formulation 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 |

Foundation Skills

This section describes those required skills (language, literacy and numeracy) that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Regulatory framework The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used.

Applicable legislation, regulations, standards and codes of practice include:

- health, safety and environmental (HSE) legislation, regulations and codes of practice relevant to the workplace, materials and processes being used and products being made
- Australian/international standards relevant to the materials being used and products being made
- any relevant licence and certification requirements.

All operations to which this unit applies are subject to stringent HSE requirements, which may be imposed through state/territory or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and such requirements the legislative requirements take precedence.

Procedures All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, and include one or any combination of:

- test procedures
- technical specifications
- technical drawings
- emergency procedures
- work instructions
- standard operating procedures (SOPs)
- safe work method statements (SWMS)
- formulae/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant.

Unit Mapping Information

Release 1. Supersedes and is equivalent to PMBTECH508A Develop a new compound

Links

MSA Training Package Implementation Guides - <http://mskills.org.au/training-packages/info/>