



**Australian Government**

# **DEFEXO129 Develop unique explosives**

**Release: 2**

# DEFEXO129 Develop unique explosives

## Modification History

Release 2. Modifications made to Foundation Skills and Assessment Conditions.

Release 1. This unit was released in DEF Defence Training Package release 1.0 and meets the Standards for Training Packages.

This unit supersedes and is equivalent to DEFEO606D Develop unique explosives.

- Unit code updated
- Content and formatting updated to comply with the new standards
- All PC transitioned from passive to active voice
- PC 1.4 removed
- PC 1.6 and 1.7 merged

## Application

This unit describes the skills required to develop unique explosives within the research environment. Unique explosives are explosives that may be required for a specific function, they are developed when explosives that are commonly available do not meet this requirement and are generally produced to client specifications.

This unit applies to those required to develop, test and manufacture unique explosives within the research environment.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Those undertaking this unit would work individually or as part of a team, using discretion and judgement and taking responsibility for the quality of their outputs. They would conduct complex tasks in a range of contexts.

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

## Pre-requisite Unit

Not applicable

## Competency Field

Explosive Ordnance

## Unit Sector

Not applicable

## Elements and Performance Criteria

| ELEMENTS                                             | PERFORMANCE CRITERIA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Elements describe the essential outcomes.            | Performance criteria describe the performance needed to demonstrate achievement of the element.                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>1 Plan and prepare for explosives development</b> | <p><b>1.1</b> Identify and clarify development requirements and specifications in consultation with the customer</p> <p><b>1.2</b> Identify, clarify and incorporate into the plan constraints on development</p> <p><b>1.3</b> Conduct research and analysis on explosives requirements and specifications</p> <p><b>1.4</b> Prepare and review development plan</p> <p><b>1.5</b> Identify, calculate, and apply net explosive quantities and compatibility throughout the operation</p> <p><b>1.6</b> Monitor and maintain environmental conditions</p> |
| <b>2 Develop unique explosives</b>                   | <p><b>2.1</b> Test and validate explosive models, simulation and/or prototypes in accordance with established scientific principles</p> <p><b>2.2</b> Produce a sample of unique explosives in accordance with specifications</p> <p><b>2.3</b> Incorporate modifications or alterations into development processes based on validation results</p>                                                                                                                                                                                                        |
| <b>3 Conduct qualitative analysis</b>                | <p><b>3.1</b> Perform established qualitative tests to observe explosive properties</p> <p><b>3.2</b> Compare data with specifications, standards, charts, knowledge/experience, tables, and spectra in order to confirm explosive properties</p> <p><b>3.3</b> Perform tests or analyses efficiently and within the required timeframe</p>                                                                                                                                                                                                                |
| <b>4 Conduct quantitative analysis</b>               | <p><b>4.1</b> Perform quantitative tests to measure properties</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

- 4.2 Use available computer technology to control instruments or acquire/translate/convert data to optimise test accuracy
  - 4.3 Check samples and analyses when non-standard results are obtained
  - 4.4 Complete tests or analyses within the required timeframe
- 5 **Produce explosives**
  - 5.1 Manufacture unique explosives in accordance with specifications
  - 5.2 Establish compliance and compatibility with requirements
  - 5.3 Provide unique explosives to client in accordance with requirements
  - 5.4 Complete supporting documentation on the development of unique explosives

## Foundation Skills

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

## Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

## Unit Mapping Information

This unit supersedes and is equivalent to DEFEO606D Develop unique explosives.

## Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6bdbab1e-11ed-4bc9-9cba-9e1a55d4e4a9>

# Assessment Requirements for DEFEXO129 Develop unique explosives

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## Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least one occasion and includes:

- accessing, interpreting and applying technical information related to explosives
- applying computer modelling
- applying diagnostic techniques
- commissioning unique explosives
- maintaining documentation and records
- planning development processes
- conducting research and analysis
- testing unique explosives and analysing results
- identifying design requirements and constraints

## Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and includes:

- Operational knowledge of:
  - analysis processes and techniques
  - characteristics and properties of chemicals used in explosives
  - characteristics, technical capabilities and limitations of explosives
  - computer modelling relevant to explosives
  - reporting and documentation requirements

- testing protocols and techniques
- validation processes

## Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations. Where this is not appropriate, assessment must occur in simulated workplace operational situations that reflect workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or simulations
- acceptable means of simulation assessment
- applicable documentation, including workplace procedures, regulations, codes of practice and operation manuals
- relevant materials, tools, equipment and PPE currently used in industry.

## Links

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