



Australian Government

DEFEXO085 Apply knowledge of explosive physics

Release: 2

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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 DEFEO002 Apply knowledge of explosive ordnance physics.

- Unit code updated
- Content and formatting updated to comply with the new standards
- All PC transitioned from passive to active voice
- PC 2.1 removed

Application

This unit describes the skills required to analyse and apply knowledge of the physics of explosives. The application of the knowledge of explosive physics is specific to the work being undertaken by individuals involved within a variety of applications including manufacturing, policy development, technical manual development, platform integration, configuration, staff processes, transport, disposal, trials and inter-operability.

This unit applies to those required to analyse the physics of explosives in the context of their work environment and in relation to their workplace functions.

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 make high level, fully independent judgements, applying a detailed knowledge of the physics of explosives, analysing complex data and producing specific documents detailing the outcomes of highly specialised technical functions. They would perform sophisticated tasks in a broad range of specialised 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

Elements describe the essential outcomes.

1 Access and analyse relevant explosive physics information

2 Implement recommendations specific to explosive physics

PERFORMANCE CRITERIA

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

- 1.1** Identify the purpose of the required analysis, including the relevance of the physics of explosives
- 1.2** Identify and obtain explosives safety, legislative and statutory requirements
- 1.3** Analyse the information obtained to determine the relevance within its application and in the context of the organisation
- 1.4** Formulate outcomes of the analysis and provide recommendations
- 2.1** Establish work being undertaken and apply the relevant recommendations
- 2.2** Assess, review and record effectiveness of the recommendations
- 2.3** Adjust recommendations if required and document for future application

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 DEFEO002 Apply knowledge of explosive ordnance physics.

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 DEFEXO085 Apply knowledge of explosive physics

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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:

- adhering to relevant work health and safety requirements and operational safety
- analysing and evaluating information
- applying safety, legislative and statutory requirements relevant to explosive physics
- conducting research
- identifying relevant information
- interpreting organisation role relevant to explosive physics
- using appropriate information technology and software
- writing research reports including recommendations

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:

- comparative measures of an explosive, including:
 - brisance
 - compatibility
 - critical diameter
 - detonation pressure
 - figure of insensitivity

- gas volume
- heat of explosion
- power index
- power of explosive
- rate of burning
- sensitiveness
- sensitivity
- stability
- temperature of explosion
- TNT equivalence
- velocity of detonation
- electro explosive hazards (EEH) protection
- generic design principles to the design and selection of a weapon system, including:
 - aerodynamics
 - ballistics
 - bombs
 - egress systems
 - electronic protection measures
 - fuze systems
 - guidance and seeker systems
 - gun systems
 - hydrodynamics
 - platform integration
 - propulsion systems
 - pyrotechnics
 - warheads

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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