



Australian Government

DEFEO002 Apply knowledge of explosive ordnance physics

Release: 1

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Modification History

Release	TP version	Comments
1	DEF12 V2	First release.

Unit Descriptor

This unit covers the competency required to analyse and apply knowledge of the physics of explosive ordnance.

The application of the knowledge of explosive ordnance 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.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication. In a Defence context, this means that there is no civilian need to hold this unit in order to meet licensing, legislative, regulatory or certification requirements.

Application of the Unit

This competency applies to individuals who are required to analyse the physics of explosive ordnance in the context of their work environment and in relation to their workplace functions.

The unit requires the application of high level, fully independent, complex judgements with a detailed knowledge of the physics of explosive ordnance, analysis of complex data and the production of specific documents detailing the outcomes of highly specialised technical functions in specialised contexts. All activities are carried out in accordance with relevant organisational policy and procedures.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a Unit of Competency.

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Access and analyse relevant explosive ordnance physics information	1.1 The purpose of the analysis, including the relevance of the physics of explosive ordnance, is identified. 1.2 Relevant explosive ordnance <i>safety, legislative and statutory requirements</i> are identified and obtained. 1.3 Information obtained is analysed to determine the relevance within its application and in the context of the organisation. 1.4 Outcomes of the analysis are formulated and recommendations relevant to safety, legislative and statutory requirements and application are provided.
2. Implement recommendations specific to explosive ordnance physics	2.1 Work health and safety requirements relevant to explosive ordnance physics are applied in accordance with the organisation requirements. 2.2 Work being undertaken is established and the relevant recommendations are applied in accordance with <i>organisation</i> requirements. 2.3 Effectiveness of the recommendations is assessed, reviewed and recorded. 2.4 Recommendations are adjusted if required and documented for future application.

Required Skills and Knowledge

This describes the essential skills and knowledge and their level, required for this unit.

Required Skills

- apply explosive ordnance physics knowledge relevant to work being performed

- apply safety, legislative and statutory requirements relevant to explosive ordnance chemistry
- interpret organisation role relevant to explosive ordnance chemistry
- use appropriate information technology and software
- identify information
- conduct research
- analyse and evaluate information

Required Knowledge

- explosive ordnance knowledge relevant to work being performed
- comparative measures of an explosive, including:
 - compatibility
 - stability
 - sensitivity
 - sensitiveness
 - explosiveness
 - figure of insensitivity
 - TNT equivalence
 - critical diameter
 - velocity of detonation
 - heat of explosion
 - temperature of explosion
 - gas volume
 - power index
 - rate of burning
 - detonation pressure
- weapons design cycle
- generic design principles to the design and selection of a weapon system, including:
 - propulsion systems
 - warheads
 - guidance and seeker systems
 - aerodynamics
 - hydrodynamics
 - ballistics
 - fuze systems
 - gun systems
 - bombs
 - pyrotechnics
 - electronic protection measures
 - platform integration

- egress systems
- electro explosive hazards (EEH) protection
- software

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.

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

Assessment must confirm the ability to apply knowledge of the physics of explosive ordnance to assist in work and to guide problem solving. Adherence to relevant work health and safety requirements and operational safety must be demonstrated.

Consistency in performance

Competency should be demonstrated in a range of actual or simulated explosive ordnance contexts.

Context of and specific resources for assessment

Context of assessment

Competency should be assessed in the workplace or under conditions that accurately simulate a realistic workplace in accordance with all relevant legislation and organisation requirements.

Specific resources for assessment

Access to information related to the properties of explosive ordnance physics.

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. Bold italicised wording in the Performance Criteria is detailed below.

Safety, legislative and statutory requirements may include:

- Australian and international standards
- Australian explosives code
- Commonwealth explosives regulations
- organisation explosive classification listing
- organisation policy

Organisations may include:

- defence organisation
- enterprises that work with explosive ordnance
- other government departments or instrumentalities that work with explosive ordnance

Unit Sector(s)

Not applicable.