



Australian Government

SISOSCB008 SCUBA dive using Enriched Air Nitrox

Release: 1

SISOSCB008 SCUBA dive using Enriched Air Nitrox

Modification History

Not applicable.

Application

This unit describes the performance outcomes, skills and knowledge required to plan and complete recreational SCUBA dives using Enriched Air Nitrox (EANx). It also requires the ability to assemble and disassemble equipment and to complete basic maintenance at the water's edge.

EANx diving can be completed using dives tables but contemporary diving is usually completed using computerised equipment, and this is a requirement for this unit.

It applies to dive leaders, usually known as divemasters, or instructors and to assistant instructors who use these skills when leading participants in SCUBA diving activities. Leadership skills are provided in complementary units.

This unit applies to any type of organisation that delivers SCUBA diving activities and dive instruction including commercial, not-for-profit and government organisations.

In order to procure gas mixes, enriched air equipment, and other services to engage in recreational Enriched Air Nitrox diving without supervision, divers must hold certification (C-Card) issued by an industry authorised organisation. That industry certification may or may not be issued concurrently with an Australian Qualification Framework (AQF) qualification or Statement of Attainment identifying achievement of competency in this unit. C-Card certification would be required to gain employment as a divemaster or instructor.

Those delivering training and assessment to support this unit should consult the relevant industry bodies to determine any partnership arrangements for courses, trainers and assessors that can lead to joint AQF and industry regulated C-Card certification.

Pre-requisite Unit

SISOSCB001 SCUBA dive in open water to a maximum depth of 18 metres

Competency Field

SCUBA Diving

Unit Sector

Outdoor Recreation

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential outcomes

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

- | | |
|--|---|
| 1. Plan EANx dives. | 1.1. Determine site, depth and duration of dives.
1.2. Identify hazards and assess risks associated with use of EANx equipment, blend, site, depth and duration of dives.
1.3. Prepare EANx dive plans according to industry technical and safety criteria.
1.4. Use dive computer or dive tables, as required, to plan requirements.
1.5. Select and order EANx blend to meet dive requirements. |
| 2. Analyse blend, select and assemble equipment. | 2.1. Analyse supplied EANx blend using equipment according to manufacturers' calibration and analysis recommendations.
2.2. Complete all required pre-dive analysis logs.
2.3. Select and assemble dive equipment suitable for use with EANx gas blend.
2.4. Utilise EANx compatible dive computers to finalise details of dive, according to industry technical and safety criteria. |
| 3. Dive using EANx. | 3.1. Complete EANx dive according to dive plan and EANx industry technical and safety criteria.
3.2. Monitor depth and time throughout dive, according to dive plan using dive computer data.
3.3. Take remedial action to avoid hazards. |
| 4. Disassemble and maintain equipment. | 4.1. Maintain positive pressure in cylinder to avoid entry of atmospheric air.
4.2. Disassemble regulators and gauges according to industry technical and safety criteria.
4.3. Complete basic post dive maintenance of equipment compatible with elevated oxygen mix according to industry technical and safety criteria. |

Foundation Skills

Foundation skills essential to performance in this unit, but not explicit in the performance criteria are listed here, along with a brief context statement.

SKILLS

DESCRIPTION

Oral communication skills • use clear and unambiguous verbal and non-verbal

- to: communications to make intent known.
- Numeracy skills to:
- interpret and calculate complex and changeable numerical data involving pressures, percentages and depths.
- Teamwork skills to:
- work in harmony with a buddy diver to complete safe dives.
- Planning and organising skills to:
- manage own timing to complete activities within planned timeframes.

Unit Mapping Information

No equivalent unit.

Links

Companion Volume Implementation Guides -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1ca50016-24d2-4161-a044-d3faa200268b>

Assessment Requirements for SISOSCB008 SCUBA dive using Enriched Air Nitrox

Modification History

Not applicable.

Performance Evidence

Evidence of the ability to complete tasks outlined in elements and performance criteria of this unit in the context of the job role, and:

- plan and complete two EANx SCUBA dives, each for different parameters
- prior to each dive:
 - select a supplier and order a blend of EANx suitable for dive requirements
 - analyse and confirm blend requirements and complete required log documents
 - safely and accurately assemble all equipment in line with the particular requirements of EANx use
- during each dive, use effective techniques to control:
 - entry and exit
 - buoyancy
 - underwater swimming
 - ascent and descent
 - buddy management
- after each dive, disassemble equipment and complete basic maintenance tasks, at water's edge, in line with elevated oxygen mix effects on equipment.

Knowledge Evidence

Demonstrated knowledge required to complete the tasks outlined in elements and performance criteria of this unit:

- compositions and recreational uses of:
 - standard air
 - Enriched Air Nitrox (EANx) within the range of 22% to 40% oxygen
 - EANx above 40% oxygen at a fundamental level of understanding
- different terminology and abbreviations used to describe enriched air and composition, e.g. Enriched Air Nitrox, EANx22, Enriched Air 22, Enriched Air Nitrox 22, Nitrox 22
- primary benefits of using EANx, commonly used blends and benefits of different blends
- how use of EANx of different composition affects, or has no particular effect on:
 - no stop limits (no decompression limits)
 - decompression illness (DCI)
 - narcosis

- the primary medical hazard of central nervous system oxygen toxicity (CNS toxicity) associated with use of EANx when diving:
 - causes
 - prevention
 - signs and symptoms
 - first aid treatments
- for Enriched Air Nitrox (EANx) cylinders:
 - why cylinders are dedicated for use with EANx, and hazards associated with mixing use of dedicated and standard compressed air cylinders
 - identifying features and their purpose including:
 - colours, colour bands, wording
 - visual inspection stickers (decals)
 - oxygen service standard stickers (decals)
 - contents stickers or tags
 - any unique markings required by local regulations
- for obtaining EANx and equipment:
 - quality standards that apply to provision of EANx
 - quality standards that apply to servicing cylinders
 - how to choose a quality provider for renting, filling, and servicing cylinders and other equipment to avoid risks to divers
- special usage, maintenance, service considerations and manufacturer's recommendations that can apply to the use of EANx with other equipment:
 - regulators
 - buoyancy control devices (BCD)
 - submersible pressure gauges (SPG)
- primary equipment related hazards associated with use of EANx and precautions taken to avoid risks:
 - fire and combustion when filling and analysing content of mixed gases
 - deterioration of equipment when exposed to high levels of oxygen
- processes to personally analyse and log the EANx blend in filled cylinders before use:
 - how to calibrate an oxygen analyser between uses using manufacturer's recommendations
 - how to use an oxygen analyser to determine the oxygen content using manufacturers' recommendations
 - how to complete logs
- how to use dive computers for use with EANx to:
 - determine no-decompression limits for single and repetitive dives
 - properly plan and execute a dive
 - determine PO₂ and how to establish equivalent air depth mix
 - determine maximum operating depth (MOD)
- the advantages of dive computers over dive tables when planning and completing dives.

Assessment Conditions

Skills must be demonstrated in an open water site suitable for EANx diving. Dives can be completed from either boats or from the shore.

During assessment:

- direct vertical access to the surface must be possible; aquatic plants are not considered an overhead obstruction
- the following resources must be available to replicate industry conditions of operation:
 - first aid equipment
 - oxygen equipment
 - communication equipment for emergency response
 - diver flags of a type and size that meet local maritime regulator requirements.

Assessment must ensure use of:

- a diving buddy with whom the candidate can dive
- fins
- masks
- snorkels
- clearly marked and designated Enriched Air Nitrox cylinders and valves, including stickers and tags which comply with local regulations
- buoyancy control devices with low-pressure inflators
- regulators suitable for use with enriched air
- submersible pressure gauges
- alternate air source
- weight ballast systems
- exposure suits suitable for conditions
- timing devices
- depth gauges
- oxygen analysers
- dive computers compatible for use with EANx defined as a dive computers that calculate adjusted no stop (no decompression limits) and oxygen exposure for differing blends of enriched air
- Enriched Air fill log pages.

Assessors must satisfy the Standards for Registered Training Organisations requirements for assessors, and:

- be an individual who is currently certified and sanctioned by an industry authorised organisation to teach and assess enriched air nitrox SCUBA diving and to authorise the issuance of enriched air certification (C-Card).

Links

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1ca50016-24d2-4161-a044-d3faa200268b>