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## **4. TDI – Nitrox Diver Course**

### **4.1 Introduction**

This is the entry-level certification course for recreational divers wishing to utilize enriched air Nitrox (EAN) as a breathing gas. The objective of this course is to train divers in the benefits, hazards, and proper procedures for using Nitrox mixes from twenty two (22) to forty (40) percent oxygen content.

### **4.2 Qualifications of Graduates**

Upon successful completion of this course:

1. Graduates may engage in diving activities utilizing EAN-22 to EAN-40 without direct supervision.

Graduates would be qualified to enroll in:

1. TDI Advanced Nitrox Course.
2. TDI Decompression Procedures Course.
3. TDI Semi-closed Rebreather Course.

### **4.3 Who May Teach**

Who may teach this course:

1. Any active TDI Nitrox Instructor.

### **4.4 Student – Instructor Ratio**

Academic:

1. Unlimited, so long as adequate facility, supplies and time are provided to insure comprehensive and complete training.

Confined Water (Swimming pool-like conditions):

1. N/A.

Open Water (Ocean, lake, quarry, spring, river or estuary):

1. Since entry level Nitrox is essentially an information and academic based course, no dives are specifically required as there are no skills to evaluate.
2. However, optional dives are desirable to effectively demonstrate the advantages of EAN use in practical field use. If scheduled, no direct instructor supervision is required but dives should not be conducted in environments that may exceed the existing skill or depth levels of the student.



## **4.5 Student Pre-Requisites**

The student must:

1. Be a minimum age of fifteen (15).
2. Have a Minimum certification of Open Water Diver or a current enrollment in an Open Water Diver course.

## **4.6 Course Structure and Duration**

Open Water Execution:

1. Two (2) Nitrox dives are recommended but are not required.

Course Structure:

1. TDI allows instructors to structure courses according to the number of students participating and their skill level.

Duration:

1. The suggested number of classroom hours is three (3).

## **4.7 Administrative Requirements**

The following is the administrative tasks:

1. Collect the course fees from all the students.
2. Ensure that the students have the required equipment.
3. Communicate the training schedule to the students.
4. Have the students complete the Liability Release and Medical history forms.
5. The instructor must review the liability Release and Medical Forms before starting on the course.

Upon successful completion of the course the Instructor must:

1. Complete the Student Registration Form and send the Registration Form to TDI HQ.
2. Award Card.

## **4.8 Training Material**

Required material

1. TDI Understanding Nitrox diver manual

Optional Material

1. TDI Plastic EAD table
2. TDI Understanding Nitrox power point

## **4.9 Required Equipment**



## **4.10 Required Subject Areas**

The TDI Nitrox Manual is mandatory for use during this course but instructors may use any additional text or materials that they feel help present these topics. The following topics must be covered during this course:

1. History of Enriched Air Nitrox (EAN)
2. Physiology
  - A. Oxygen.
  - B. Nitrogen.
3. Physics
  - A. Pressure review.
  - B. Partial pressures.
4. Equipment Considerations
  - A. Forty (40) percent oxygen content and less.
  - B. Above forty (40) percent oxygen content.
5. Dive Tables
  - A. Equivalent Air Depth (introduction of concept only for demonstration).
  - B. EAN Tables.
  - C. Switching mixes on repetitive dives.
6. Dive Computers
  - A. Mix adjustable.
  - B. O<sub>2</sub> integrated.
7. Advantages and Disadvantages of EAN
  - A. Use as air for physiological advantage with air tables or computers.
  - B. Use to extend no-decompression bottom times or shorten surface intervals.
  - C. Oxygen toxicity hazards and depth limits.
  - D. Discussion of myths and facts regarding EAN mixtures.
8. Procedures
  - A. Use and theory of oxygen analyzer.
  - B. Gas analysis and logging.
9. Common Mixing Procedures
  - A. Partial pressure blending.
  - B. Continuous blending.
  - C. Membrane separation system.

## **4.11 Required Skill Performance And Graduation Requirements**

Pre-dive

1. Use TDI tables to plan a nitrox dive taking advantage of EAD calculations
2. Create a simple written dive plan for a nitrox dive to an appropriate depth (MOD calculated with pO<sub>2</sub> between 1.3 and 1.6 depending on environmental conditions)
3. Demonstrate correct use of oxygen analyzer
4. Demonstrate correct tank management and labeling
5. Conduct simple pre-dive briefing (may be simulated if dives are not part of program)
6. Program nitrox computer – if used -- with appropriate oxygen percentage if used



In order to complete this course, students must:

1. Satisfactorily complete the TDI Nitrox Course written examination.
2. Demonstrate understanding of oxygen analysis for Nitrox mixtures.