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## **12. TDI – Nitrox Gas Blender Course**

### **12.1 Introduction**

This course provides the training required to allow candidates to competently and safely blend Nitrox gas. The objective of this course is to train candidates in the proper techniques, equipment requirements and hazards involved in blending Nitrox gases for recreational scuba.

### **12.2 Qualifications of Graduates**

Upon successful completion of this course, graduates may engage in the blending of Nitrox gases, without direct supervision.

### **12.3 Who May Teach**

Who may teach this course:

1. Any active TDI Nitrox Gas Blender Instructor may teach this course.

### **12.4 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. N/A.

### **12.5 Student Pre-Requisites**

The student must:

1. Be a minimum age of eighteen (18).

### **12.6 Course Structure and Duration**

Open Water Execution:

1. N/A



Course Structure:

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

Duration:

1. The minimum number of classroom and briefing hours is two (2).

## **12.7 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.

## **12.8 Required Equipment**

The following are required for this course:

11. TDI Nitrox Gas Blending Manual.
12. TDI Nitrox Gas Blending Overheads / Power Point Presentation. (optional)
13. O<sub>2</sub> Analyzer (instructor may provide)

## **12.9 Required Subject Areas**

The TDI Nitrox Gas Blending Manual is mandatory for use during this course but instructors may use any additional text or materials that they feel help present these topics.

14. The Responsibility of the Gas Blender.
15. Gases of Diving
  - A. Air.
  - B. Oxygen.
  - C. Nitrogen.
16. Oxygen Handling
  - A. Oxygen hazards.
  - B. Causes and prevention of oxygen fire.
  - C. Oxygen system design.
  - D. Local regulations for gas blending and handling.
17. Gas Production Equipment
  - A. Compressors.
  - B. Cylinders.



- C. Filtration systems.
- D. Analog gauges.
- 18. Mixing Techniques
  - A. General Considerations.
  - B. Continuous blending systems.
  - C. De-nitrogenated air systems.
  - D. Pre-mix systems.
  - E. Partial pressure blending mathematics.
- 19. Oxygen Analysis
  - A. Procedures.
  - B. Oxygen analyzers.
- 20. Cylinder Handling and Sign Out.

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

In order to complete this course, students must:

1. Candidates must successfully blend and analyze five (5) cylinders of Nitrox gas.
2. Satisfactorily complete the TDI Nitrox Gas Blender written examination.
3. Demonstrate understanding of Nitrox blending and oxygen analysis