

SAA NITROX GAS BLENDER COURSE

1. INTRODUCTION

1.1 Course Schedule

Minimum duration:

1. Theory 3 hours
2. Practical workshop 2 hours

2. LEARNING OBJECTIVES

By the end of the course the student will:-

- Be able to list the hazards encountered when blending Nitrox.
- Be able to mix the 4 common Nitrox blends.
- Be able to assemble and operate Nitrox Blending equipment.
- Be able to correctly analyse a Nitrox Mixture and calculate the correct gas amounts required to produce a given mix.

3. COURSE INSTRUCTORS

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.

This course may be taught by any active SAA Regional Instructor, who holds the SAA Nitrox Blender Instructor Endorsement.

4. STUDENT/INSTRUCTOR RATIO

Instructor / Student ratio

For the Theory and Practical sessions Instructor /students ratio. 1:6

For the Theory and Practical sessions Instructor and an Assistant Instructor / students ratio 1:10

Classroom

Unlimited, so long as adequate facility, supplies, and additional time is provided to ensure comprehensive and complete training.

5. STUDENT PRE-REQUISITES

Minimum age 18 years old

SAA / CMAS Nitrox Diver or equivalent

6. COURSE SYLLABUS**6.1 Theory****Introductions and Administration [15 – 30 mins]****T1 The Pure Gases [15 - 30 mins]**

- Physical and chemical properties of pure gases
- Utilisation of the different technical gases according to their purity

T2 Mixing the Gases [60 - 90 mins]

- *Review* different gas mixing methods, their advantages and disadvantages
- Filling calculations for empty and partly empty gas cylinders
- Practical gas mixing. Security measures and gas mixing log book
- Problems regarding storing the mixed gases

T3 Oxygen Handling [30 - 60 mins]

- *Review* Oxygen and its reactivity
- *Review* the meaning of oxygen clean, oxygen design and oxygen service
- *Review* Oxygen compatible and non compatible materials
- Cleaning agents and methods for pressure cylinder and regulator
- Control methods and cleaning intervals

T4 Rules and Legislation [15 – 30 mins]

- National legislation regarding the handling of gases
- Rules regarding gas mixing and rules regarding cleaning and maintenance of equipment
 - For your own use
 - For others in your club
 - Re-enforce no commercial blending covered by SAA Insurance

6.2 Practical

P1 Gas Mixing [60 – 90 mins]

- Analysis of gas mixture and measurement of pressure in partly empty cylinder
- Calculation of how to make the desired gas mix by calculator and by table
- Filling in the right sequence and with correct gas flow and final pressure
- Documentation and administrative procedures
- Storage and final control

P2 Equipment Cleaning and Maintenance [60 – 90 mins]

- Disassembly of the equipment
- Cleaning
- Drying
- Final control
- Assembly with the use of oxygen compatible grease

7. KNOWLEDGE REVIEW & SKILLS ASSESSMENT

7.1 Theory:

Final Assessment [60 mins]

- 25 question multiple choice. Pass mark 80%
- Allowed support material for participants: pocket calculator and tables

7.2 Practical:

- Assemble correctly Nitrox Blending equipment
- Produce one of the following Nitrox mixtures (28%, 32%, 36%, 40%)
- Correctly analyze and record the gas
- Clean the equipment after use

7.3 Certification

May be given to successful course participants at the end of the course. Only course participants who have absolved the whole course and have successfully passed the examination may receive the corresponding

Recognition Material

- CMAS CARD
- SAA STICKER
- WALL CERTIFICATE

7.4 Support Materials

SAA Student Record Folder

SAA Gas Blending Overheads / Power Point Presentation

8. EQUIPMENT REQUIREMENTS

- Premixed Nitrox 40%.
- Nitrox Compatible decanting whip with two din fittings, bleeds and High resolution contents gauge.
- Oxygen Analyser
- Gas mixing tables