

## MARSHALLING DIVES WHERE DIFFERENT BREATHING GAS MIXES ARE USED.

The BSAC now permits the use of Enriched Air Nitrox (EANX or Nitrox) mixes by appropriately qualified members on Branch dives. Where some members choose to use Nitrox mixes, the Dive Marshal should have a clear understanding of the implications of using EANX. Ideally, the Dive Marshal should hold the appropriate level of Nitrox Diver qualification him/herself - ***or appoint a Deputy Marshal who does.***

The Marshal should know the percentage oxygen mix to be used and its maximum operating depth limit. **The maximum operating depth limit for EANX 27 is 42m: for EANX 32 it is 35m: and for EANX 36 it is 30m.** These depth limits for EANX 32 and 36 are *for no-stop dives only*. If decompression stops are to be carded out in any sequence of dives, the maximum depth *must* be reduced to within the 1.4 bar **P<sub>02</sub>** limit (see **P<sub>02</sub>** Look-up Chart overseas).

For all gas mixes, the **P<sub>02</sub>** for any given depth must not exceed 1.4 bar absolute. To work out the **P<sub>02</sub>** of any given mix, multiply the oxygen percentage of the mix at the surface by the absolute pressure at the target depth.

### ***For example:***

Divers wish to use EANX 38 for a dive to 20m. Is this a safe mix?

EANX 38 means 38% oxygen. Absolute pressure at 20m is 3 bars.

Therefore, the **P<sub>02</sub>** in this mix is:  $0.38 \text{ bar} \times 3 \text{ bars} = 1.14 \text{ bar}$  - safely within the 1.4 bar limit.

The process of determining safe **P<sub>02</sub>** is simplified by using a **P<sub>02</sub>** Look-Up Chart.

When recording dive details for Nitrox divers, the Dive Marshal needs three extra pieces of information:

1. Oxygen percentage of mix.
2. Maximum operating depth.
3. Means of monitoring decompression.

The BSAC '88 Nitrox Tables give easy look-up access to decompression information for EANX 27, 32 and 36. Alternatively, the divers may carry out decompression as if they had been diving on air and not Nitrox, thus giving themselves an additional safety margin. They may use Nitrox or air dive computers. The Dive Marshal needs to know which of these methods is to be used, and must be satisfied that the divers have calculated and planned their dive safely - *and hold the appropriate Nitrox Diver qualification!*

Divers using Nitrox **must** analyse their gas at the dive site to check that the oxygen content are as expected and planned. The Dive Marshal should ensure that this process has been carried out.

**Depth limits are critical when using Nitrox** and site selection needs to be undertaken with care and some exactitude. A miscalculation by a few metres in depths of 30m+ could mean that divers who have provided themselves only with Nitrox as a breathing gas may have to abort their dive - or not dive at all.

When working with mixed groups of divers, the Dive Marshal **must** consider the following:

1. Air divers should be paired according to qualifications and experience.
2. EANX divers should be paired according to qualifications and experience - **and similar mixes.**
3. If pairing nitrox divers with air divers, the Dive Marshal must consider the safest dive profile and decompression for both divers. The pair should therefore observe the **maximum operating depth of the Nitrox diver** and limit their dive time to the **maximum dive time of the air diver**. These considerations allow the greatest safety margin for both divers.

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