

Ox-Tox Check (%ZNS, %CNS)

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Diving Tower Esslingen / DE @ www.tauchturm.com,

Sunday, 21.05.2017

Dive Computer Test @ pure oxygen

from left to right,

top row:

Cochran EMC-20H,

RATIO iX3M Deep,

Scubapro /

UWATEC:

TEC 2G,

Aladin [2],

Aladin Sport Matrix

2nd row:

Matrix (*4)



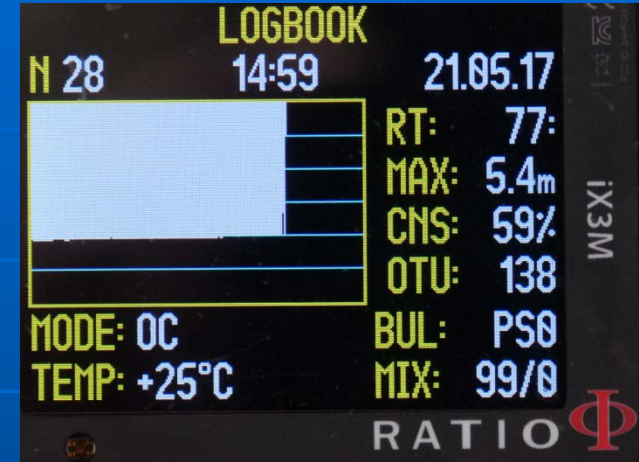
Ox-Tox Check (%ZNS, %CNS)

after ca. 75 min, the END:

EMC-20H:



iX3M Deep:



TEC 2G:



Aladin [2]:









Matrix:



Ox-Tox Check (%ZNS, %CNS)

fO₂: 0,99 - 1.00, dive time: 75 min, Air Pressure:
ca. 998 +/- 2 mBar; geometrical depth: 5,4 (5,2 – 5,6);
Temp.: ca. 26 ° C (24 – 27) @ fresh water; results:

Dive Computer	measured Depth [m]	%CNS (%ZNS)	OTU	NOAA Limits [100%]
EMC-20 H	5,3	72 (+) 	16 % (ca. 136)	
iX3M Deep [#]	5,4	59 (+) 	138	
TEC 2 G	5,4	75 	n. a.	
Aladin [2]	5,5	75 	n. a.	
Matrix	5,3	75 	n. a.	
-----	-----	-----	-----	83 min @ PO ₂ 1.55 atm 75 / 83 = 0,9
DIVE 3_01	5,3 (*, **)	62 (+) 	135	120 min @ PO ₂ 1.50 atm 75 / 120 = 0,625
(*) compensated for Water Temperature & Air Pressure	(**) pls. cf. chart with „Statistics“	(+) EAN 99; i.e.: fO ₂ = 0.99	[#] with APOS 4.0.10/011 from May 2017	

Compartment:

Compartment De-Saturation: N₂ off-loading



original ZH-L 16 system from Buehlmann, A.A., 1990:
 compartment #: 1 2 3 4 5 16
 Half-times [min]: 4 8 12,5 18,5 27,0 635

24 min / 6 half-times = 4 min, 1st. compartment should be „empty“

24 min / 2 half-times = 12 min, 3rd. compartment should be ca. @ 25 %

60 min / 6 half-times = 10 min, 2nd. compartment should be „empty“

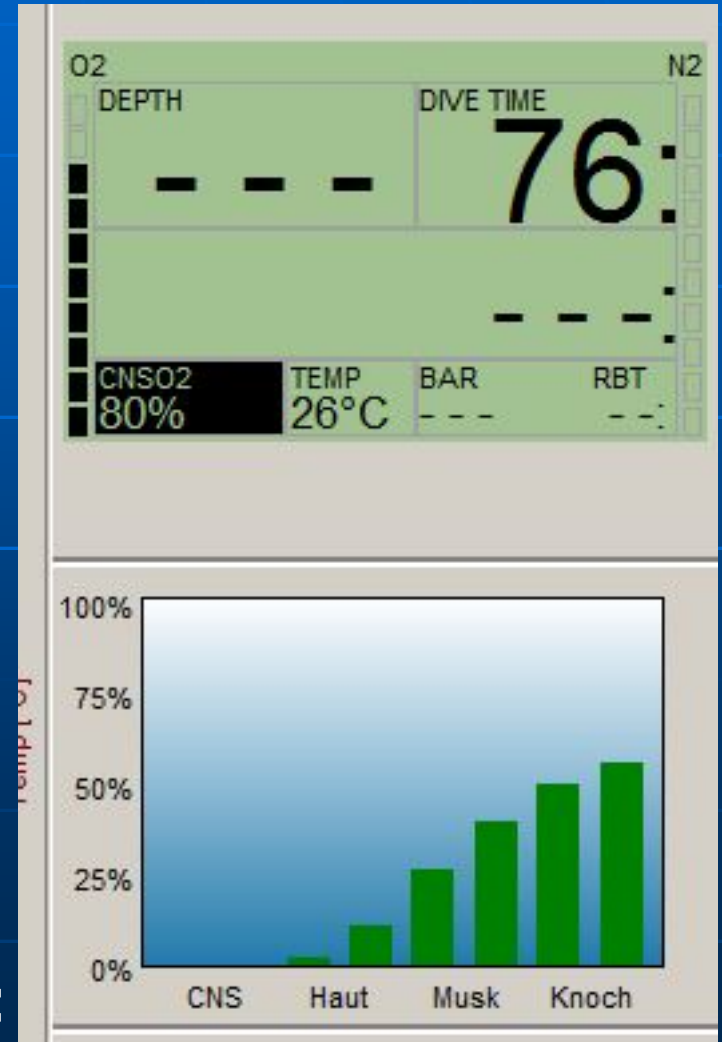
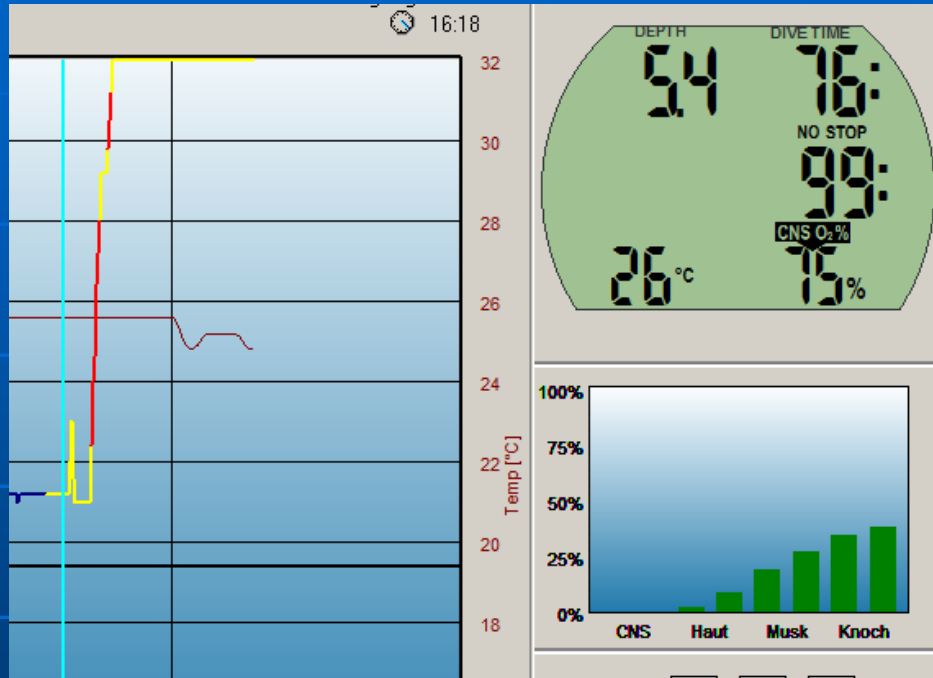
60 min / 3 half-times = 20 min, 4th. compartment should be ca. @ 12,5 %



Log Book:

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Aladin TEC 2 G with Scubapro SmartTRAK 2.0801:



Aladin [2] with Scubapro LogTRAK 1.2.0.1:

Statistics:

Depth Readings [m] (#):

5,2 (4 *) 5,3 (2 *) 5,4 (2 *) 5,5 (1 *)

un-biased mean = $47,7 / 9 = 5,30$ m

**Standard Error of each reading (0,09)
and Standard Deviation (0,11) are close enough for a
(Gaussian) Normal Distribution, so:**

Depth in our pool = $5,3 \pm 0,1$

**i.e.: the next decimal place (5,3x) of the dive computer
depth reading is not valid!**

Statistics:

But this yields as well:
for greater diving depths > 11 m even the first decimal place
is as well not valid!

The CI (confidence interval)
with a ca. 90 % probability is:

$$1,86 * 0,11 / 3 = 0,0682$$

i.e.: ca. 5,23 – 5,37

To put it the other way around;
there is only a ca. 10% probability,
that the real depth in the pool
is < 5,23 or > 5,37