

REEF ICP TOTAL TEST



Sample ID: 20031039

Sample type: Seawater

Volume aquarium in Litre: 473

Sample name: Jeremy Horvath DT

Sampling date: 08-10-2024

Date of receipt: 08-16-2024

Method: ICP-OES (inductively coupled plasma with optical emission spectrometry) and further procedures specifically for seawater.

Recommended values are optimized for coral reef aquariums.

You can find detailed information on the elements as well as recommendations for action and precise dosing instructions at:

<https://lab.faunamarin.de/en/home/analysis/155976>

Basic physical-chemical values

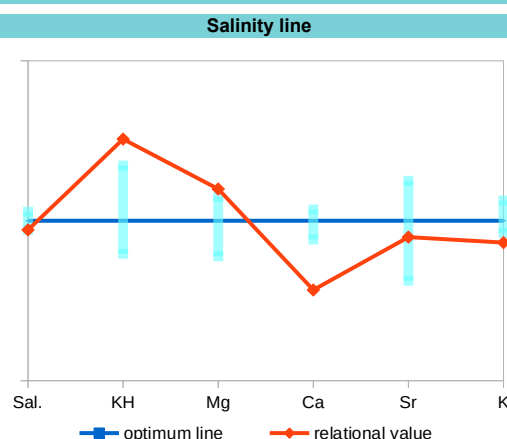
	measured	reference range
Conductivity (mS/cm 25°C)	51.7	51,7 - 53,0 - 54,5
Density (kg/Liter 25°C)	1.023	1,022 - 1,023 - 1,024
Specific density (25°C)	1.026	1,026 - 1,027
Salinity (ppt, psu)	34	34,0 - 35,0 - 36,0
pH level	8.21	7,90 - 8,30 - 8,40
Carbonate hardness (in °dKH)	9.1	6,5 - 7,3 - 8,5
CO ₂ (mg/l)	1.63	0,04 - 2,5
acid binding capacity pH 4,3 (mmol/L)	3.25	2,3 - 2,58 - 3,0
odor	none	none
colour	none	none

Major elements, lime elements and halogens in mg/Litre (1 mg = 0,001 g)

		measured	reference range	rel. 35 psu
Chloride	Cl ⁻	18799	18700 - 19500 - 20300	19374
Sodium	Na	10890	9500 - 10700 - 11500	11223
Sulphur	S	943	850 - 900 - 950	972
Sulphate	SO ₄ ²⁻	2825	2550 - 2700 - 2850	2912
Potassium	K	368	380 - 395 - 420	379
Boron	B	5.01	3,80 - 4,50 - 5,50	5.16
Magnesium	Mg	1484	1200 - 1350 - 1450	1529
Calcium	Ca	333	400 - 425 - 440	343
Strontium	Sr	7.59	6,50 - 8,00 - 9,00	7.82
Bromine	Br	82.6	55,0 - 67,0 - 75,0	85.1
Fluoride	F ⁻	0.88	0,90 - 1,30 - 1,60	0.91
Iodine (total iodine, ICP-OES)	I	0.018	0,055 - 0,065 - 0,080	0.019

Relational values major elements and halogens - graphic representation salinity line

		relational value	reference range
Salinity measured : nominal	Sal.	0.97	0,97 - 1,00 - 1,03
KH measured : nominal	KH	1.26	0,90 - 1,00 - 1,17
Magnesium : Salinity	Mg	43.7	33,3 - 38,6 - 42,6
Calcium : Salinity	Ca	9.8	11,1 - 12,1 - 12,9
Strontium: Salinity	Sr	0.22	0,18 - 0,23 - 0,26
Potassium : Salinity	K	10.8	10,6 - 11,3 - 12,4
Boron : Salinity	B	0.15	0,11 - 0,13 - 0,16
Chloride : Salinity	Cl ⁻	554	519 - 557 - 597
Sulphate : Salinity	SO ₄ ²⁻	83.2	71,0 - 77,0 - 84,0
Chloride : Sulphate	Cl ⁻ /SO ₄ ²⁻	6.65	6,60 - 7,20 - 8,00
Magnesium : Calcium	Mg/Ca	4.46	2,70 - 3,20 - 3,60
Calcium : Strontium	Ca/Sr	43.9	44,0 - 53,0 - 68,0
Bromide : Fluoride	Br ⁻ /F ⁻	93.9	34,0 - 52,0 - 83,0
Fluoride : Iodine	F ⁻ /I	48.9	11,0 - 20,0 - 29,0



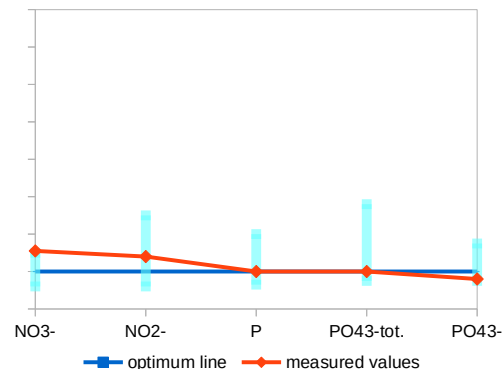
Macronutrients

in mg/Litre (1 mg = 0,001 g)

		measured	reference range		
Nitrate	NO ₃ ⁻	10.5	1,00	-	10,0
Nitrite	NO ₂ ⁻	0.09		<	0,20
Phosphorus (ICP-OES)	P	0.013		<	0,06
Total Phosphate (calculated)	PO ₄ ³⁻ tot.	0.04	0,02	-	0,18
Ortho-Phosphate (photometric)	PO ₄ ³⁻	0.024	0,02	-	0,10
Silicon	Si	0.32	0,10	-	0,20
Silicate (calculated)	SiO ₂	0.68	0,20	-	0,40

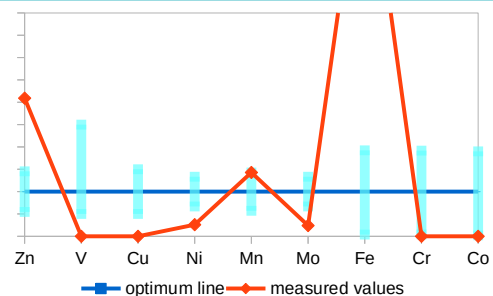
Relational values

Total Phosphate : Nitrate	263.18	90	-	110
Total Phosphate : Ortho-Phosphate	1.667		~	1,00
Total Phosphate : Iodine	2.21	0,13	-	1,67

Nutrients**Physiologically relevant trace elements and color-relevant micronutrients**

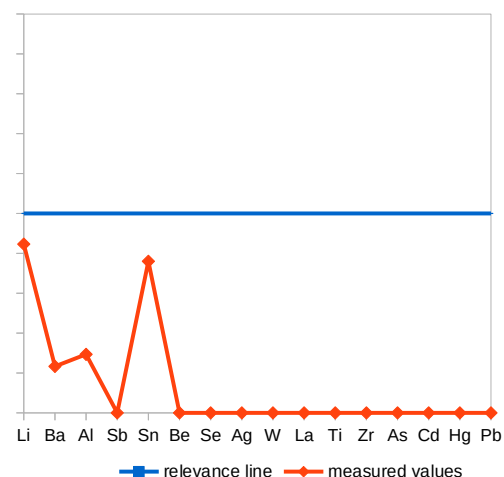
in µg/Litre (1 µg = 0,000001 g)

		measured	reference range		
Zinc	Zn	17	3,00	-	8,00
Vanadium	V	n.n.	2,00	-	10,0
Copper	Cu	n.n.	2,00	-	6,00
Nickel	Ni	1.17	3,00	-	6,00
Manganese	Mn	0.25	0,10	-	0,25
Molybdenum	Mo	3.6	10,0	-	20,0
Iron	Fe	12	0,05	-	2,50
Chrome	Cr	n.n.	0,05	-	2,30
Cobalt	Co	n.n.	0,02	-	1,90

Dynamic Elements**Other trace elements and potential harmful substances**

in µg/Litre (1 µg = 0,000001 g)

		measured	reference range		
Lithium	Li	423	180	-	350
Barium	Ba	46.6	5,00	-	50,0
Aluminium	Al	8.8	5,00	-	30,0
Antimony	Sb	n.n.		<	10,0
Tin	Sn	7.6		<	10,0
Beryllium	Be	n.n.	0,05	-	1,40
Selenium	Se	n.n.	0,90	-	5,50
Silver	Ag	n.n.		<	10,0
Tungsten	W	n.n.		<	30,0
Lanthanum	La	n.n.	2,00	-	10,0
Titanium	Ti	n.n.	0,50	-	3,50
Zirconium	Zr	n.n.	1,00	-	2,20
Arsenic	As	n.n.		<	1,00
Cadmium	Cd	n.n.		<	1,00
Mercury	Hg	n.n.		<	1,00
Lead	Pb	n.n.		<	1,00

Relevance line**Osmosis water**

in mg/Liter (1 mg = 0,001 g)

		measured	reference range
Calcium	Ca	n.n.	n.n.
Potassium	K	n.n.	n.n.
Magnesium	Mg	n.n.	n.n.
Sodium	Na	n.n.	n.n.
Sulphur	S	n.n.	n.n.
Phosphorus (ICP-OES)	P	n.n.	n.n.
Total Phosphate (calculated)	PO ₄ ³⁻ tot.	n.n.	n.n.
Silicon	Si	0.51	n.n.
Silicate (calculated)	SiO ₂	1.1	n.n.

in µg/Liter (1 µg = 0,000001 g)

Aluminium	Al	n.n.	n.n.
Lead	Pb	n.n.	n.n.
Cadmium	Cd	n.n.	n.n.
Chrome	Cr	n.n.	n.n.
Iron	Fe	n.n.	n.n.
Copper	Cu	n.n.	n.n.
Lithium	Li	n.n.	n.n.
Nickel	Ni	n.n.	n.n.
Mercury	Hg	n.n.	n.n.
Tin	Sn	n.n.	n.n.
Zinc	Zn	n.n.	n.n.

Measured values of type "> 24" indicate that the concentration is above the calibrated range and therefore cannot be determined definitively. In these cases it is indicated how much at least is present (e.g. 24 µg/l). Abbreviations: n.g. (not measured), n.n. (not detectable).