

REEF ICP TOTAL TEST



Sample ID: 20479435

Sample type: Seawater

Volume aquarium in Litre: 425

Sample name: Redsea 425 G2

Sampling date: 04-12-2024

Date of receipt: 04-18-2024

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/130795>

Basic physical-chemical values

	measured	reference range
Conductivity (mS/cm 25°C)	52.7	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)	34.7	34,0 - 35,0 - 36,0
pH level	8.3	7,90 - 8,30 - 8,40
Carbonate hardness (in °dKH)	8.2	6,5 - 7,3 - 8,5
CO ₂ (mg/l)	1.19	0,04 - - 2,5
acid binding capacity pH 4,3 (mmol/L)	2.93	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)

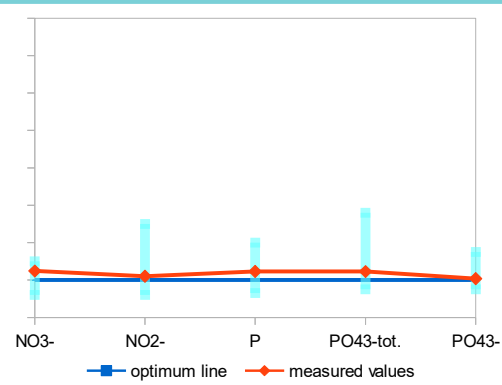
	measured	reference range	rel. 35 psu
Chloride Cl ⁻	19207	18700 - 19500 - 20300	19374
Sodium Na	10413	9500 - 10700 - 11500	10504
Sulphur S	756	850 - 900 - 950	763
Sulphate SO ₄ ²⁻	2265	2550 - 2700 - 2850	2285
Potassium K	407	380 - 395 - 420	411
Boron B	5.88	3,80 - 4,50 - 5,50	5.93
Magnesium Mg	1273	1200 - 1350 - 1450	1284
Calcium Ca	433	400 - 425 - 440	437
Strontium Sr	6.16	6,50 - 8,00 - 9,00	6.21
Bromine Br	65.4	55,0 - 67,0 - 75,0	66
Fluoride F ⁻	1.07	0,90 - 1,30 - 1,60	1.08
Iodine (total iodine, ICP-OES) I	0.106	0,055 - 0,065 - 0,080	0.107

Relational values major elements and halogens - graphic representation salinity line

	relational value	reference range	Salinity line
Salinity measured : nominal Sal.	0.99	0,97 - 1,00 - 1,03	
KH measured : nominal KH	1.13	0,90 - 1,00 - 1,17	
Magnesium : Salinity Mg	36.7	33,3 - 38,6 - 42,6	
Calcium : Salinity Ca	12.5	11,1 - 12,1 - 12,9	
Strontium: Salinity Sr	0.18	0,18 - 0,23 - 0,26	
Potassium : Salinity K	11.7	10,6 - 11,3 - 12,4	
Boron : Salinity B	0.17	0,11 - 0,13 - 0,16	
Chloride : Salinity Cl ⁻	554	519 - 557 - 597	
Sulphate : Salinity SO ₄ ²⁻	65.3	71,0 - 77,0 - 84,0	
Chloride : Sulphate Cl ⁻ /SO ₄ ²⁻	8.48	6,60 - 7,20 - 8,00	
Magnesium : Calcium Mg/Ca	2.94	2,70 - 3,20 - 3,60	
Calcium : Strontium Ca/Sr	70.3	44,0 - 53,0 - 68,0	
Bromide : Fluoride Br ⁻ /F ⁻	61.1	34,0 - 52,0 - 83,0	
Fluoride : Iodine F ⁻ /I	10.1	11,0 - 20,0 - 29,0	

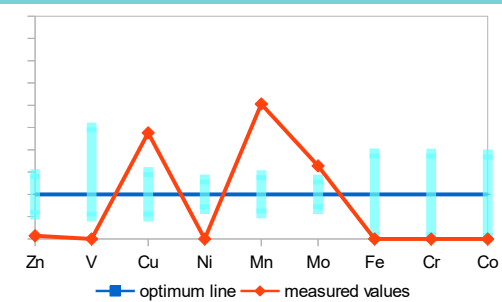
Macronutrients in mg/Litre (1 mg = 0,001 g)			Nutrients	
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		measured	reference range		
Nitrate	NO ₃ ⁻	7.4	1,00	-	10,0
Nitrite	NO ₂ ⁻	0.06	< 0,20		
Phosphorus (ICP-OES)	P	0.019	< 0,06		
Total Phosphate (calculated)	PO ₄ ³⁻ _{tot.}	0.058	0,02	-	0,18
Ortho-Phosphate (photometric)	PO ₄ ³⁻	0.043	0,02	-	0,10
Silicon	Si	0.1	0,10	-	0,20
Silicate (calculated)	SiO ₂	0.21	0,20	-	0,40
Relational values					
Total Phosphate : Nitrate		127	90	-	110
Total Phosphate : Ortho-Phosphate		1.349	~ 1,00		
Total Phosphate : Iodine		0.55	0,13	-	1,67



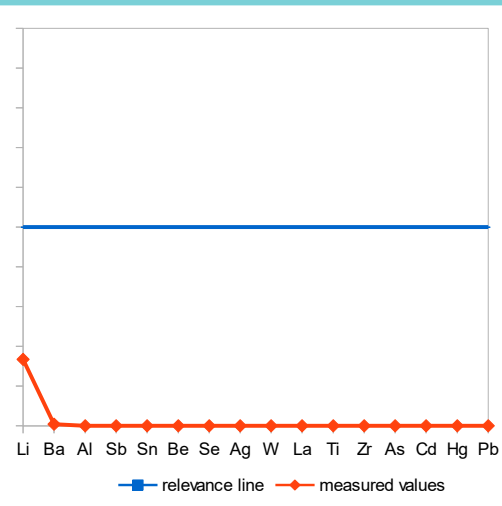
Physiologically relevant trace elements and color-relevant micronutrients in µg/Litre (1 µg = 0,000001 g)			Dynamic Elements	
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		measured	reference range		
Zinc	Zn	0.38	3,00	-	8,00
Vanadium	V	n.n.	2,00	-	10,0
Copper	Cu	9.53	2,00	-	6,00
Nickel	Ni	n.n.	3,00	-	6,00
Manganese	Mn	0.53	0,10	-	0,25
Molybdenum	Mo	24.6	10,0	-	20,0
Iron	Fe	n.n.	0,05	-	2,50
Chrome	Cr	n.n.	0,05	-	2,30
Cobalt	Co	n.n.	0,02	-	1,90



Other trace elements and potential harmful substances in µg/Litre (1 µg = 0,000001 g)			Relevance line	
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		measured	reference range		
Lithium	Li	167	180	-	350
Barium	Ba	1.8	5,00	-	50,0
Aluminium	Al	n.n.	5,00	-	30,0
Antimony	Sb	n.n.	< 10,0		
Tin	Sn	n.n.	< 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		



Osmosis water in mg/Liter (1 mg = 0,001 g)		
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		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	n.n.	n.n.
Silicate (calculated)	SiO ₂	n.n.	n.n.

in µg/Liter (1 µg = 0,000001 g)		
Aluminium	Al	n.n.
Lead	Pb	n.n.
Cadmium	Cd	n.n.
Chrome	Cr	n.n.
Iron	Fe	n.n.
Copper	Cu	n.n.
Lithium	Li	n.n.
Nickel	Ni	n.n.
Mercury	Hg	n.n.
Tin	Sn	n.n.
Zinc	Zn	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).