

REEF ICP

Methodology: ICP-OES specific for seawater. Further methods possible via upgrades.

Recommended values are optimized for coral reef aquariums.

Sample ID: 01181906
Analysis ID: 267434
Booked upgrades: non

Sampling Point: Display
 Volume in Liters: 284
 Sampling Date: 12-14-2025
 Sample Arrival: 01-05-2026

[To the dosing and action recommendations](#)



MACROELEMENTS, CALCIUM BALANCE ELEMENTS, AND HALOGENS in mg/Liter

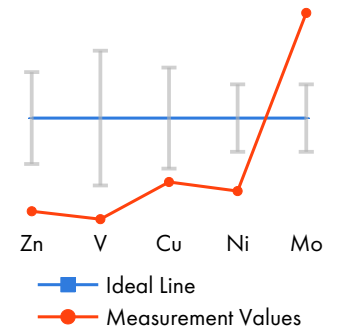
		measured	Reference Range
Sodium	Na	10638	9500 - 10700 - 11500
Sulfur	S	730	850 - 900 - 950
Sulfate	SO ₄ ²⁻	2187	2550 - 2700 - 2850
Potassium	K	423	380 - 395 - 420
Boron	B	5,9	3,8 - 4,5 - 5,5
Magnesium	Mg	1387	1200 - 1350 - 1450
Calcium	Ca	422	400 - 425 - 440
Strontium	Sr	9,74	6,5 - 8,0 - 9,0
Bromine (total bromine, ICP-OES)	Br	43,8	55 - 67 - 75
Iodine (Total Iodine, ICP-OES)	I	0,018	0,055 - 0,065 - 0,080

MACRO NUTRIENTS in mg/Liter

		measured	Reference Range
Phosphorus (ICP-OES)	P	0,004	0,006 - max. 0,060
Total Phosphate (calculated)	PO ₄ ³⁻ _{tot.}	0,012	0,02 - 0,18
Silicon	Si	0,14	0,1 - 0,2
Silicate (calculated)	SiO ₂	0,31	0,2 - 0,4

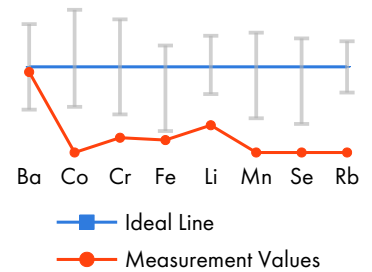
Dynamic Elements in µg/Liter

		measured	Reference Range
Zinc	Zn	0,43	3 - 5,5 - 8
Vanadium	V	n.d.	2 - 6 - 10
Copper	Cu	1,47	2 - 4 - 6
Nickel	Ni	1,25	3 - 4,5 - 6
Molybdenum	Mo	30,6	10 - 15 - 20



PHYSIOLOGICALLY RELEVANT TRACE ELEMENTS in µg/Liter

		measured	Reference Range
Barium	Ba	9,4	5 - max. 50
Cobalt	Co	n.d.	n.d. - max. 1,9
Chromium	Cr	0,31	n.d. - max. 2,3
Iron	Fe	0,29	n.d. - max. 2,5
Lithium	Li	70	180 - max. 350
Manganese	Mn	n.d.	n.d. - max. 0,25
Selenium	Se	n.d.	n.d. - max. 2

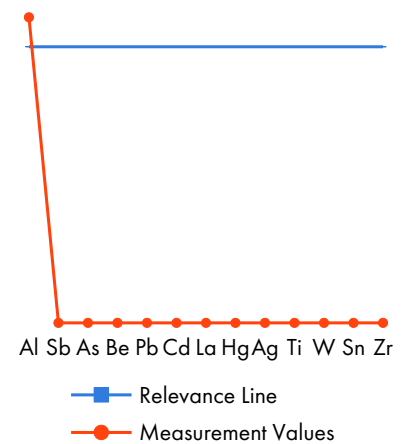


only with ICP-MS upgrade:

Rubidium	Rb	not measured
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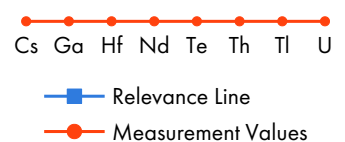
OTHER TRACE ELEMENTS AND POTENTIAL POLLUTANTS in µg/Liter

		measured	Reference Range
Aluminum	Al	33,2	5 - 30
Antimony	Sb	n.d.	n.d. - max. 10
Arsenic	As	n.d.	n.d.
Beryllium	Be	n.d.	n.d.
Lead	Pb	n.d.	n.d.
Cadmium	Cd	n.d.	n.d.
Lanthanum	La	n.d.	2 - 10
Mercury	Hg	n.d.	n.d.
Silver	Ag	n.d.	n.d. - max. 10
Titanium	Ti	n.d.	n.d. - 3,5
Tungsten	W	n.d.	n.d. - max. 30
Tin	Sn	n.d.	n.d. - max. 10
Zirconium	Zr	n.d.	n.d. - 2,2



only with ICP-MS upgrade:

Cesium	Cs	not measured
Gallium	Ga	not measured
Hafnium	Hf	not measured
Neodymium	Nd	not measured
Tellurium	Te	not measured
Thorium	Th	not measured
Thallium	Tl	not measured
Uranium	U	not measured



ORGANIC FACTORS

		measured	Reference Range
SAK254 (m ⁻¹)		not measured	only with SAK254 upgrade
NPOC (mg/l)	C	not measured	only with organic upgrade
TNb (mg/l)	N	not measured	only with organic upgrade

Overview of dosages

Product	Total quantity	spread over ...	corresponds	Priority	Checkbox
SALINITY	no need for action				
ELEMENTALS S	689,7 ml	9 days	76,6 ml/day	1	not displayable
ELEMENTALS K	Water change			1	
ELEMENTALS B	Water change			1	
ELEMENTALS MG	No dosage				
ELEMENTALS SR	No dosage				
ELEMENTALS BR	60,2 ml	3 days	20,1 ml/day	2	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
TRACE I	13,3 ml	2 days	6,7 ml/day	2	<input type="checkbox"/> <input type="checkbox"/>
ELEMENTALS N	only with organic upgrade				
ELEMENTALS P	No dosage				
TRACE ZN	1,4 ml	2 days	0,7 ml/day	3	<input type="checkbox"/> <input type="checkbox"/>
TRACE V	3,4 ml	4 days	0,9 ml/day	3	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
TRACE CU	7,2 ml	2 days	3,6 ml/day	3	<input type="checkbox"/> <input type="checkbox"/>
TRACE NI	2,3 ml	1 day	2,3 ml/day	3	<input type="checkbox"/>
TRACE MO	No dosage				
TRACE BA	No dosage				
TRACE CO	0,7 ml	1 day	0,7 ml/day	4	<input type="checkbox"/>
TRACE CR	No dosage				
TRACE FE	No dosage				
TRACE LI	37,0 ml	7 days	5,3 ml/day	4	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
TRACE MN	0,1 ml	1 day	0,1 ml/day	4	<input type="checkbox"/>
TRACE SE	18,2 ml	4 days	4,6 ml/day	4	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
TRACE RB	only with ICP-MS upgrade				

Upgrade options for a Reef ICP:

ICP-MS upgrade: Analysis of all trace elements (except aluminum and lithium) by ICP-MS with up to 1000x higher sensitivity compared to ICP-OES and analysis of exclusive elements. ICP-MS exclusive elements cannot be determined by ICP-OES, or not with sufficient sensitivity.

Organic upgrade: Determination of the concentrations of organic carbon (NPOC) and total nitrogen (TNb).

SAK254 upgrade: Determination of the indicator value for the concentration of unsaturated organic compounds.

Detection limits

Time-averaged detection limits for all relevant values are published regularly on lab.fauamarin.de.

Abbreviations:

ICP-OES (inductively coupled plasma with optical emission spectrometry), ICP-MS (inductively coupled plasma with mass spectrometry), SAK254 (spectral absorption coefficient at 254 nm), NPOC (not easily expelled organic carbon), TNb (total bound nitrogen), n.d. (not detectable).