† **Electronic Supplementary Information (ESI)**

Quantification of 71 detected elements from Li to U for aqueous samples by simultaneous-inductively coupled plasma-mass spectrometry

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Table S1 Typical si-ICP-MS operating conditions and parameters

Spectrometer	SPECTRO MS	**Elements measured**	71
Nebulizer	SeaSpray	**Preflush [s]**	90-240
Spray chamber	Cyclonic	**Sample aspiration rate [mL/min]**	0.863 - 0.975
Interface	Ni sampler and skimmer cones		
Plasma power [W]	1425 -1475	**Number of replicates**	3
Extractor lens voltage [V]	630 - 880	**Total read time [s]**	20
Coolant flow [L/min]	11.0-12.2	**Replicate read time [s]**	10
Auxiliary flow [L/min]	2.6	**Base interval/dwell time [ms]**	10
Nebulizer flow [L/min]	0.85-0.93		
		Integration mode	Threshold
		Peak pattern	1 point

Text S1:

Cleaning procedure of containers: Containers are fully filled (> 50%) with 1 or 2% (v/v) ultrapure HNO_3 diluted with ultrapure water and left standing for a minimum of 24 h, after which the containers are turned 180° for additional minimum of 24 h, to expose the entire container to ultrapure HNO_3 during the cleaning process. Then, the ultrapure HNO_3 is discharged and the containers rinsed with ultrapure water. The rinse water must be completely discharged, including all droplets, and the cap screwed back on tightly until use. The containers must not be dried on the inside with any towel or wipe.

Table S2 List of calibration standards used. All standards are diluted with ultrapure water, contain 1-2% ultrapure HNO_3 and the internal standard LiRhTh. For the analysis of alcohol containing samples, 0.9% dehydrated alcohol was added to every standard without changing the element concentration.

	Environmental and tap water		**Bottled water**		**Wine, beer, milk**		**Biofluids**	
Mix standards								
ICAL	10, 20, 100 ppb		10, 20, 100 ppb		20, 100, 200 ppb		10, 20, 100 ppb	
Mix1	10 ppb	50 ppb	10 ppb	50 ppb	10 ppb	50 ppb	10 ppb	50 ppb
Mix2	10 ppb	20 ppb	10 ppb	20 ppb	10 ppb	20 ppb	10 ppb	20 ppb
Mix3	10 ppb	20 ppb	10 ppb	20 ppb	10 ppb	20 ppb	10 ppb	20 ppb
Single element standards								
Cl	150 ppm	300 ppm	10 ppm	50 ppm	10 ppm	20 ppm	150 ppm	300 ppm
Br	100 ppb	200 ppb	100 ppb	250 ppb	50 ppb	100 ppb	750 ppb	1500 ppb
K							300 pm	700 ppm
Ti	100 ppb		500 ppb		50 ppb	100 ppb	100 ppb	
Hg	1 ppb	4 ppb	1 ppb	2 ppb	1 ppb	2 ppb	1 ppb	4 ppb
Os	10 ppb	20 ppb	10 ppb	20 ppb	10 ppb	20 ppb	10 ppb	20 ppb
I	5 ppb	10 ppb	5 ppb	10 ppb	2 ppb	5 ppb	100 ppb	400 ppb
Multi standard								
Ca	300 ppm	100 ppm	10 ppm	50 ppm	20 ppm	50 ppm	50 ppm	100 ppm
K	12 ppm	8 ppm	30 ppm	9 ppm	50 ppm	100 ppm	12 ppm	8 ppm
Mg	50 ppm	150 ppm	20 ppm	100 ppm	30 ppm	60 ppm	50 ppm	150 ppm
Na	50 ppm	150 ppm	50 ppm	150 ppm	20 ppm	40 ppm	50 ppm	150 ppm
P	20 ppm	50 ppm	5 ppm	20 ppm	20 ppm	50 ppm	50 ppm	100 ppm
S	20 ppm	50 ppm	5 ppm	20 ppm	30 ppm	60 ppm	20 ppm	50 ppm
Si	12 ppm	8 ppm	8 ppm	14 ppm	4 ppm	8 ppm	12 ppm	8 ppm

Table S3 Isotopes chosen to measure elemental concentration and their potential interferer. Isotopes typically chosen for calculating environmental water samples and bottled waters (W), wine and beer samples (A), milk (M) and biofluid (B) samples. Given are the potential interferer and their factors on isotopes for the respective sample types (n.a.: no interference detected, –: interferer does not apply for the respective sample type).

Element	Isotope	Potential interferer	Environmental water	Bottled water	Wine and beer	Milk and Biofluids
Li	7 [WAMB]					
Be	9 [WAMB]					
B	11 [WAMB]					
Na	23 [WAMB]					
Mg	24 [WAMB]					
Al	27 [WAMB]					
Si	28 [WAMB]					
P	31 [WAMB]					
S	34 [WAMB]					
Cl	35 [WAMB]					
K	39 [WAMB]					
Ca	42 [WMB]	no interferer detected	n.a.	n.a.	n.a.	n.a.
	44 [WA]	$^{28}Si^{16}O$	1.0038	1.4602	n.a.	0.25099
		$^{88}Sr^{++}$	n.a.	n.a.	n.a.	0.096465
Sc	45 [WAMB]	$^{44}Ca^{1}H$	n.a.	n.a.	6.14E-05	n.a.
		$^{28}Si^{16}O^{1}H$, $^{28}Si^{17}O$	0.00070754	0.00057863	0.00050494	0.0001338
Ti	49 [WAMB]	$^{37}Cl^{12}C$	2.28E-06		3.70E-06	n.a.
V	51 [WAMB]	$^{40}Ar^{11}B$	n.a.	n.a.	n.a.	n.a.
		$^{39}K^{12}C$	wine		n.a.	6.50E-06
		$^{35}Cl^{16}O$, $^{37}Cli^{14}N$	n.a.	2.01E-05	6.62E-06	1.29E-05
Cr	52 [WMB]	$^{35}Cl^{16}O^{1}H$	3.53E-07	n.a.	n.a.	–
	53 [A]	$^{37}Cl^{16}O$	–	–	–	n.a.
Mn	55 [WAMB]	$^{54}Fe^{1}H$	n.a.	n.a.	n.a.	n.a.
Fe	54 [WAM]	$^{27}Al^{27}Al$	n.a.	n.a.	n.a.	n.a.
		^{54}Cr	n.a.	n.a.	n.a.	0.12481
	57 [B]	$^{40}Ca^{16}O^{1}H$, Cd^{++}	–	–	–	–
Co	59 [WAMB]	$^{42}Ca^{16}O^{1}H$	7.37E-06	7.50E-08	n.a	8.34E-06
Ni	58 [WMB]	^{58}Fe	0.0058935	0.0181	0.0062363	–
	60 [WB]	$^{44}Ca^{16}O$	0.00012302	5.10E-05	0.0001106	–
	62 [A]	no interferer	–	–	–	n.a.
Cu	63 [WA]	$^{31}P^{16}O\ ^{16}O$	n.a.	n.a.	1.79E-06	2.99E-08
	65 [WMB]	$^{48}Ti^{16}O^{1}H$	0.0085677	n.a.	n.a.	–
Zn	66 [WAM]	no interferer	n.a.	n.a.	n.a.	n.a.
	68 [B]	no interferer	–	–	–	–
Ga	69 [B]	$^{52}Cr^{16}O^{1}H$	–	–	–	–
	71 [WAM]	$^{55}Mn^{16}O$	0.00010685	0.00010685	0.00010685	n.a.
		$^{142}Ce^{++}$	0.0011655	0.0011655	0.0011655	0.0086511
		$^{59}Co^{12}C$	n.a.	n.a.	n.a.	0.0010745
		$^{142}Nd^{++}$	0.0013779	0.0013779	0.0013779	0.00094559
Ge	72 [WA]	$^{142}Nd^{++}$	0.0041846	0.0041846	0.0041846	0.019782
		$^{56}Fe1^{16}O$	0.00052711	0.00042575	0.00052711	0.00025268
	74 [MB]	$^{58}Ni^{16}O$, $^{60}Ni^{14}N$	–	–	–	–
As	75 [WAMB]	$^{149/150}Sm^{++}$	0.0059598	0.0059598	0.0059598	n.a.
		$^{150}Nd^{++}$	0.010325	0.010325	0.010325	n.a.
		$^{35}Cl^{40}Ar$	n.a.	1.17E-05	n.a.	n.a.
Se	78 [W]	$^{163/164}Dy^{++}$	0.24917	0.24917	0.24917	–
	82 [WAMB]	$^{164}Er^{++}$	n.a.	n.a.	n.a.	n.a.
Br	79 [WA]	$^{161/162/163}Dy^{++}$	0.0012813	0.0012813	0.0012813	n.a.
		$^{157/158}Gd^{++}$	n.a.	n.a.	n.a.	0.058767
	81 [MB]	$^{162}Er^{++}$	–	–	–	–
		$^{64}Zn^{16}O^{1}H$	–	–	–	–
Rb	85 [WAMB]	$^{170}Er^{++}$	0.0010969	0.0010969	0.0010969	n.a.
		$^{170/171}Yb^{++}$	n.a.	n.a.	n.a.	n.a.

Sr	88 WAMB	$^{44}Ca^{44}Ca$	n.a.	0.00019255	n.a.	7.50E-05	3.33E-05
		$^{175/176}Lu^{++}$	n.a.	n.a.	n.a.	n.a.	n.a.
		$^{176}Yb^{++}$	n.a.	n.a.	n.a.	n.a.	n.a.
Y	89 WAMB	$^{75}As^{14}N$	n.a.	n.a.	n.a.	n.a.	n.a.
Zr	90 WAMB	$^{78}Se^{12}C$	n.a.	n.a.	n.a.	n.a.	n.a.
Nb	93 WAMB	$^{79}Br^{14}N$, $^{81}Br^{12}C$	n.a.	n.a.	1.90E-05	0.00071232	2.57E-05
Mo	95 WA	no interferer					
	98 WBM	$^{196}Pt^{++}$	n.a.	n.a.	n.a.	–	0.19759
Ru	101 WA	no interferer	n.a.	n.a.	n.a.	n.a.	n.a.
	102 MB	^{102}Pd	–	–	–	–	n.a.
Pd	105 B	$^{55}Cu^{40}Ar$	–	–	–	–	n.a.
	108 WAM	$^{28}Si^{40}Ar^{40}Ar$	0.0031923	1.02E-05	5.59E-07	n.a.	n.a.
		$Zn^{40}Ar$, $Zni^{14}N$, $Zn^{12}C$	0.0010256	0.00038613	6.42E-05	n.a.	9.25E-05
		^{108}Cd	n.a.	n.a.	n.a.	0.030086	0.022054
		$^{92}Mo^{16}O$, $^{94}Moi^{14}N$	n.a.	n.a.	n.a.	0.001693	n.a.
Ag	107 MB		–	–	–	–	n.a.
	109 WA	$^{93}Nb^{16}O$	0.014735	0.014735	0.010406	0.026288	–
Cd	111 WA	$^{95}Mo^{16}O$, $^{97}Mo^{14}N$	0.030238	0.025462	0.013568	0.046899	–
	114 MB	^{114}Sn	–	–	–	–	0.033904
In	115 WAB	^{115}Sn	n.a.	n.a.	0.00064055	0.0016249	0.0018398
		$^{99}Ru^{16}O$	0.0012395	0.0026111	0.00064055	n.a.	0.0018398
Sn	118 WMA	no interferer	n.a.	n.a.	n.a.	n.a.	–
	120 B	$^{80}Se^{40}Ar$	–	–	–	–	7.11E-05
Sb	121 WAMB	$^{81}Br^{40}Ar$	1.16E-05	1.26E-05	0.00010644	n.a.	n.a.
Te	128 WAMB	no interferer	n.a.	n.a.	n.a.	n.a.	n.a.
I	127 WAMB	$^{115}In^{12}C$	n.a.	n.a.	n.a.	n.a.	n.a.
Cs	133 WAMB	no interferer	n.a.	n.a.	n.a.	n.a.	n.a.
Ba	135 WB	$^{121}Sb^{14}N$, $^{123}Sb^{12}C$	n.a.	n.a.	n.a.	0.023168	0.011186
	138 MA	no interferer	n.a.	n.a.	n.a.	n.a.	n.a.
La	139 WAMB		n.a.	n.a.	n.a.	n.a.	n.a.
Ce	140 WAMB	no interferer	n.a.	n.a.	n.a.	n.a.	n.a.
Pr	141 WAMB	no interferer	n.a.	n.a.	n.a.	n.a.	n.a.
Nd	143 WA	no interferer	n.a.	n.a.	n.a.	n.a.	n.a.
	144 MB	^{144}Sm	–	–	–	–	n.a.
Sm	149 WA	$^{137}Ba^{12}C$	3.72E-05	2.03E-05	8.73E-06	n.a.	–
	152 MB	^{152}Gd	–	–	–	–	n.a.
Eu	151 WAMB	$^{135}Ba^{16}O$, $^{137}Ba^{14}N$	0.00025779	0.00017476	0.00020867	0.0004266	0.0001217
Gd	157 WA	$^{140}Ce^{16}O^{1}H$	0.00090582	0.00090582	0.00090582	0.0020812	–
		$^{141}Pr^{16}O$	0.53715	0.53715	0.53715	0.20308	–
	158 MB	^{158}Dy	–	–	–	–	n.a.
Tb	159 WAMB	$^{141}Pr^{18}O$, $^{141}Pr^{17}O^{1}H$	6.9645E-05	6.9645E-05	6.9645E-05	4.18E-05	n.a.
		$^{142}Nd^{16}O^{1}H$, $^{143}Nd^{16}O$, $^{145}Ndi^{14}N$	0.0054743	0.0054743	0.0054743	0.0046425	n.a.
		$^{147}Sm^{12}C$	wine	wine	wine	2.64E-06	n.a.
		$^{142}Ce^{16}O^{1}H$	n.a.	n.a.	n.a.	n.a.	n.a.
Dy	163 WAMB	$^{147}Sm^{16}O$, $^{151}Sm^{12}C$	0.00053291	0.00053291	0.00053291	0.0058942	n.a.
		$^{146}Nd^{16}O^{1}H$	n.a.	n.a.	n.a.	n.a.	n.a.
Ho	165 WAMB	$^{149}Sm^{16}O$, $^{148}Sm^{16}O^{1}H$	0.00010718	0.00010718	0.00010718	0.0012732	n.a.
Er	166 WAMB	$^{154}Eu12C$, $^{152}Eui^{14}N$	0.00011268	0.00011268	0.00011268	n.a.	n.a.
		$^{150}Nd^{16}O$	0.0009506	0.0009506	0.0009506	0.0088777	n.a.
		$^{152}Smi^{14}N$, $^{154}Sm^{12}C$, $^{150}Sm^{16}O$	0.00023296	0.00023296	0.00023296	0.002286	n.a.
Tm	169 WAMB	$^{153}Eu^{16}O$	5.60E-05	5.60E-05	5.60E-05	0.00058091	n.a.
Yb	171 WAMB	$^{155}Gd^{16}O$, $^{157}Gdi^{14}N$	0.025551	0.025551	0.025551	0.027136	n.a.
Lu	175 WAMB	$^{159}Tb^{16}O$	0.026376	0.026376	0.026376	0.027726	n.a.
Hf	178 WA	$^{164}Dyi^{14}N$, $^{162}Dy^{16}O$, $^{161}Dy^{16}O^{1}H$	0.013156	0.013156	0.013156	0.02871	–
	179 MB	$^{162}Dy^{16}O$	–	–	–	–	0.0064464
		$^{163}Er^{16}O$	–	–	–	–	0.0064464
Ta	181 WAMB	$^{175}Ho^{16}O$	0.017276	0.017276	0.017276	0.034161	0.0071818
W	182 WA	$^{166}Er^{16}O$, $^{168}Eri^{14}N$, $^{170}Er^{12}C$	0.021975	0.021975	0.021975	0.036192	–

	184 MB	^{184}Os	–	–	–	–	n.a.
Re	185 WMA	$^{169}Tm^{16}O$	0.018189	0.018189	0.018189	0.022191	0.0096486
	187 B	^{187}Os	–	–	–	–	0.026043
Os	189 WA						
	192 MB						
Ir	193 WAMB						
Pt	195 WAMB						
Au	197 WAMB						
Hg	200 MB						
	202 WA						
Tl	205 WAMB						
Pb	208 WAMB						
Bi	209 WAMB						
U	238 WAMB						

S4) Environmental Water Samples

Table S4.1 Elemental concentrations [µg/L] of environmental water samples (tap, well, rain and sea waters, snow 2 and lake 1). Given are the detection limit (DL) [µg/L], mean [µg/L] and relative standard deviation (rsd) [%] for each element in each sample. Elements marked with * indicate that the respective element is either not in the sample, or that its concentration is below the respective detection limit.

	all	Tap 0 min.		Tap 5 min.		Well: Mecca		Well: Karachi		Snow: Otzi the Iceman		Lake: Zurich		Rain: Porto Allegre		Rain: Karachi		Seawater: Fukuoka		Seawater: Copacanana Beach	
	DL *[µg/L]*	mean [µg/L]	rsd [%]	mean [µg/L]	rsd [%]	mean [µg/L]	rsd [%]	mean [µg/L]	rsd [%]	mean [µg/L]	rsd [%]	mean [µg/L]	rsd [%]	mean [µg/L]	rsd [%]	mean [µg/L]	rsd [%]	mean [µg/L]	rsd [%]	mean [µg/L]	rsd [%]
Li	0.328	*	*	*	*	0.971	0.827	223	0.424	*	*	1.46	2.04	*	*	2.75	0.98	190	0.916	187	0.184
Be	0.982	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
B	1.01	1.6	37.2	1.19	61.1	233	0.278	2143	2.63	*	*	2	12.9	*	*	6.96	7.53	3579	0.573	3868	0.614
Na	0.313	14503	0.207	14530	0.323	106807	0.266	512800	0.398	93.1	0.905	3532	0.27	144	5.67	2604	0.264	6567869	0.49	6036363	1.38
Mg	0.735	1568	0.208	1542	0.252	9939	0.407	211438	2.79	637	1.97	5480	0.588	87.3	5.25	6526	0.266	1280158	0.511	1428239	0.171
Al	0.103	7.66	0.311	9.61	0.385	5.91	2.43	5.97	4.84	949	2.51	7.63	0.514	16.3	2.66	2113	0.538	830	32.5	*	*
Si	0.538	1112	0.477	1102	0.634	24461	0.752	8533	0.819	1378	2.59	258	0.682	164	3.91	5748	0.257	3454	1.55	*	*
P	11.4	1115	0.611	1073	0.117	*	*	*	*	*	*	*	*	*	*	185	3.52	*	*	*	*
S	512	1673	43.3	1845	41.6	44581	1.48	791019	0.333	*	*	7224	1.13	*	*	3194	29.6	2273242	0.646	2607468	0.719
Cl	131	900	35.9	*	1339	61943	2.49	6727802	2.23	*	*	*	*	*	*	*	*	24924660	3.01	31115289	1.43
K	7.63	382	0.607	364	0.392	36943	1.16	18715	2.59	239	2.87	658	1.27	*	*	1104	0.49	394371	0.776	430606	0.536
Ca	54.8	979	24	933	16.7	24097	11.7	283756	1.08	*	*	20272	7.92	*	*	83168	2.92	93764	2.09	148293	4.66
Sc	0.006	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ti	0.612	*	*	*	*	*	*	*	*	47.2	2.16	*	*	*	*	71.2	0.949	*	*	*	*
V	0.031	0.5	10.3	0.525	9.18	27.9	0.387	173	3.29	*	*	0.424	13.7	0.298	25.9	*	*	445	0.402	571	0.892
Cr	0.037	0.574	6.62	0.536	1.57	0.611	4.52	*	*	2.27	1.99	*	*	0.344	1.7	*	*	*	*	*	*
Mn	0.015	1.57	0.771	6.34	0.31	0.283	11.6	*	*	18.1	14.7	0.528	2.14	1.36	2.82	20.8	36.4	85.9	0.441	*	*
Fe	0.678	1.88	8.41	*	*	*	*	*	*	1315	0.172	6.26	3.6	7.66	24.8	3538	0.584	2792	0.102	*	*
Co	0.022	0.034	18.1	0.044	7.69	0.11	26.4	1.41	5.3	0.768	2.14	0.055	39.3	0.179	5.87	1.57	1.8	4.73	10.2	4.05	3.6
Ni	0.024	0.091	14.1	0.118	21.1	*	927	*	*	2.08	1.27	0.426	8.61	0.069	29.9	7.15	5.49	*	*	*	*
Cu	0.026	109	0.174	81.5	0.146	*	2.53	*	*	4.45	1.38	0.297	8.06	0.477	4.9	96.1	0.11	*	*	*	*
Zn	0.019	50.1	0.838	5.92	0.355	1.29	0.96	809	0.525	9.43	2.26	*	*	50.6	6.05	1461	0.381	5.81	46.4	*	*
Ga	0.015	*	*	*	*	*	*	*	*	0.138	4.87	*	*	*	*	0.079	24	*	*	*	*
Ge	0.020	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
As	0.112	*	*	*	*	6.42	1.12	110	1.08	0.263	5.13	0.531	6.45	*	*	*	*	51.3	4.16	56.2	3.82
Se	0.155	0.676	16.7	0.574	36	1.94	18.2	*	*	0.265	53.9	0.351	18.9	*	*	*	*	*	*	*	*
Br	0.297	14.9	3.21	13.8	1.13	262	2.67	20830	1.12	*	*	19.7	0.442	*	*	6.49	0.417	106641	0.318	112689	0.43
Rb	0.003	0.278	3.17	0.283	5.43	4.09	1.26	*	*	4.05	1.92	0.923	0.91	0.293	10.9	5.48	1.51	*	*	*	*
Sr	0.005	22.6	0.078	22	0.356	505	1.11	20534	0.122	1.49	1.79	309	2.29	1.23	6.08	7137	0.246	9448	2.81	10547	0.105

Y	0.003	*	*	*	*	*	*	*	*	0.418	1.36	*	*	*	*	*	*	*	*	*	*
Zr	0.004	0.018	29.4	0.021	10.2	0.01	49.9	*	*	0.034	3.75	0.063	20	0.025	3.74	3.43	6.21	0.015	1050	*	*
Nb	0.005	*	*	*	*	*	*	*	*	0.102	4.24	*	*	0.005	54	*	*	*	*	*	*
Mo	0.022	*	*	*	*	55.7	1.06	2.6	0.699	*	*	0.436	2.41	*	*	*	*	12.1	2.98	17.1	2.27
Ru	0.001	*	*	*	*	*	*	0.171	43.5	0.003	184	0.007	13.2	0.004	221	0.052	28.9	*	*	0.212	89.1
Pd	0.015	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ag	0.013	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Cd	0.002	0.015	23.3	0.009	28.4	*	*	0.005	624	0.08	17.1	*	*	*	*	0.799	1.18	*	*	*	*
In	0.002	*	*	*	*	*	*	*	*	0.005	14.8	*	*	*	*	0.011	18.2	*	*	0.011	186
Sn	0.004	0.014	2.17	0.015	17	0.012	31.8	0.25	7.54	0.185	0.832	0.007	16.1	0.016	4.03	0.927	1.35	0.186	81.7	*	*
Sb	0.004	0.049	17.2	0.051	11.2	0.537	1.61	*	*	0.162	2.36	0.088	3.61	0.026	22.6	1.64	0.927	*	*	*	*
Te	0.036	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
I	0.020	1.98	3.62	1.81	2.91	29.3	5.51	71.2	4.79	0.151	5.05	1.19	2.92	0.264	4.25	0.919	3.4	197	3.71	41.3	2.29
Cs	0.002	*	*	*	*	*	*	0.083	2.84	0.26	0.787	0.007	6.24	0.008	16.8	*	*	1.12	1.31	0.347	12.7
Ba	0.002	14.5	0.409	14	0.116	26.2	0.84	25.5	1.21	5.62	1.34	33.4	0.453	0.844	5.42	5228	1.76	17.8	0.355	8.76	3.87
La	0.005	*	*	*	*	*	*	*	*	1.15	1.5	*	*	0.027	6.52	*	*	0.571	2.15	*	*
Ce	0.007	*	*	*	*	*	*	0.043	32.5	2.5	1.67	*	*	0.046	9.18	2.29	0.56	1.27	3.17	*	*
Pr	0.000	0.009	9.07	0.009	5.83	0.013	2.25	0.23	3.29	0.28	1.37	0.019	1.64	0.010	6.1	3.88	10	0.597	1.49	0.489	2.05
Nd	0.003	0.013	42.7	0.013	20.4	*	*	*	*	0.981	0.76	*	*	0.034	10.5	0.674	57.6	0.296	148	*	*
Sm	0.005	0.014	23.9	0.014	54.8	0.015	44.5	*	*	0.216	0.418	0.024	2.53	*	*	0.283	3.49	0.226	13	0.064	30.3
Eu	0.003	0.007	16.2	0.008	51	0.007	29.5	0.022	15.4	0.032	2.06	0.008	32.5	*	*	1.87	1.4	0.053	174	*	*
Gd	0.009	*	*	*	*	*	*	0.024	126	0.224	1.6	*	*	*	*	0.525	1.59	0.275	27.1	*	*
Tb	0.001	*	*	*	*	*	*	0.008	59.8	0.029	2.17	0.002	22.8	*	*	0.076	1.08	0.093	48.3	0.045	103
Dy	0.006	*	*	*	*	*	*	0.011	53.7	0.122	0.834	*	*	*	*	0.354	0.571	0.071	74.1	*	*
Ho	0.003	*	*	*	*	*	*	0.005	53.1	0.017	5.67	*	*	*	*	0.063	3.65	0.02	35.2	0.043	67.9
Er	0.001	0.002	24.3	0.001	258	*	*	*	*	0.045	6.4	0.002	15.1	*	*	0.175	0.823	*	*	*	*
Tm	0.001	*	*	*	*	*	*	*	*	0.008	5.19	*	*	*	*	0.023	1.81	0.008	244	0.012	96.6
Yb	0.006	*	*	*	*	*	*	*	*	0.034	14.2	*	*	*	*	0.14	1.89	*	*	*	*
Lu	0.002	*	*	*	*	*	*	*	*	0.007	7.15	*	*	0.002	28.4	*	*	*	*	*	*
Hf	0.011	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0.065	9.85	*	*	*	*
Ta	0.002	*	*	*	*	*	*	0.007	24.2	*	*	*	*	*	*	*	*	0.021	28	*	*
W	0.002	*	*	*	*	0.183	3.42	0.026	80.9	0.022	4.59	0.027	12.9	*	*	*	*	*	*	*	*
Re	0.002	0.006	52.2	*	*	0.003	141	0.099	5.5	*	*	*	*	*	*	*	*	*	*	*	*
Os	0.007	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ir	0.006	*	*	*	*	*	*	0.01	60.7	*	174	*	*	*	*	*	*	*	*	*	*
Pt	0.001	0.005	79.6	0.006	12.3	0.004	131	0.015	135	0.003	189	*	*	0.002	181	0.01	87	*	*	0.151	133
Au	0.005	*	*	*	*	*	*	0.033	41.4	0.006	55.3	*	*	*	*	0.006	53.8	*	*	0.036	166
Hg	0.044	*	*	*	*	*	*	0.044	65	*	*	*	*	*	*	*	*	0.105	78.5	*	*
Tl	0.001	0.005	25.4	0.005	27.8	0.032	4.52	*	*	0.005	20.4	*	*	*	*	*	*	0.421	12.8	0.345	20.8
Pb	0.005	*	*	*	*	0.086	2.11	1.5	4.38	1.81	1.01	0.029	11.5	0.566	7.77	27.2	0.392	4.12	3.61	3.87	4.32
Bi	0.004	*	*	*	*	0.086	33.5	0.389	0.726	0.024	10.1	*	*	*	*	0.146	20.8	1.76	8.71	3.72	18.6

U	0.001	0.005	23.3	0.004	13.2	0.288	0.431	12.8	0.344	0.085	0.823	0.39	0.111	*	*	0.369	0.893	3.02	1.97	3.17	1.45

Table S4.2 Elemental concentrations [µg/L] of certified reference material ICAL, Mix2, Mix3, Multi and Nist 1640a for tap, well, rain and sea waters, snow 2 and lake 1. Given are the mean [µg/L], relative standard deviation (rsd) [%] and the percentage the mean represents of the given reference value [%]. The elemental means should lie between ± 20 % of the given reference value.

	mean [µg/L]	rsd [%]	wanted value [%]	reference
Li	19.8	0.642	99.1	*ICAL 20ppb*
Be	202	0.817	101	*ICAL 20ppb*
	2.71	12	89.4	*Nist 1640a*
B	203	0.438	102	*ICAL 20ppb*
	349	0.376	115	*Nist 1640a*
Na	53615	1.37	107	*Multi*
Mg	49301	1.45	98.6	*Multi*
Al	21.4	0.243	107	*ICAL 20ppb*
	44.3	0.672	83.7	*Nist 1640a*
Si	11922	2.28	99.4	*Multi*
P	16946	3.59	84.7	*Multi*
S	18276	5.52	91.4	*Multi*
Cl			n.a.	
K	11792	3.73	98.3	*Multi*
Ca	294305	6.25	98.1	*Multi*
Sc	9.73	0.525	97.3	*Mix3 10ppb*
Ti	10.6	2.77	106	*Mix2 10ppb*
V	21.2	0.561	106	*ICAL 20ppb*
	17.1	0.635	114	*Nist 1640a*
Cr	20.6	0.431	103	*ICAL 20ppb*
	44.4	0.087	109	*Nist 1640a*
Mn	17.3	0.347	86.7	*ICAL 20ppb*
	45.6	0.552	113	*Nist 1640a*
Fe	163	0.444	81.5	*ICAL 20ppb*
	46	0.529	125	*Nist 1640a*
Co	21.5	0.062	108	*ICAL 20ppb*
	22.4	0.124	111	*Nist 1640a*
Ni	20.2	0.798	101	*ICAL 20ppb*
	26.4	0.186	104	*Nist 1640a*
Cu	20.6	0.351	103	*ICAL 20ppb*
	97.7	0.272	114	*Nist 1640a*
Zn	207	0.747	103	*ICAL 20ppb*
	62.5	0.469	112	*Nist 1640a*
Ga	20.2	0.069	101	*ICAL 20ppb*
Ge	10.7	0.884	107	*Mix2 10ppb*
As	199	0.463	99.4	*ICAL 20ppb*
	8.49	0.712	105	*Nist 1640a*
Se	204	0.888	102	*ICAL 20ppb*
	24	1.16	120	*Nist 1640a*
Br			n.a.	
Rb	19.6	0.539	98	*ICAL 20ppb*
Sr	21.3	0.377	106	*ICAL 20ppb*
	135	1.2	107	*Nist 1640a*
Y	11.7	0.383	117	*Mix3 10ppb*
Zr	10.6	0.791	106	*Mix2 10ppb*
Nb	10.3	1.44	103	*Mix2 10ppb*
	10.1	1.04	101	*Mix2 10ppb*
Mo	19.8	0.951	99.1	*ICAL 20ppb*
	49.2	0.999	108	*Nist 1640a*

	mean [µg/L]	rsd [%]	wanted value [%]	reference
Ru	10.6	0.337	106	*Mix2 10ppb*
Pd	10.2	0.544	102	*Mix2 10ppb*
Ag	22.5	0.385	113	*ICAL 20ppb*
	7.92	1.16	98.0	*Nist 1640a*
Cd	20.2	0.635	101	*ICAL 20ppb*
	3.41	0.63	85.5	*Nist 1640a*
In	n.a.			
Sn	10.4	0.523	104	*Mix2 10ppb*
Sb	11.2	0.958	112	*Mix2 10ppb*
	6.08	0.511	119	*Nist 1640a*
Te	20.4	0.644	102	*ICAL 20ppb*
I			n.a.	
Cs			n.a.	
Ba	19.1	0.373	95.4	*ICAL 20ppb*
	166	0.47	109	*Nist 1640a*
Lu	9.69	1.88	96.9	*Mix3 10ppb*
La	10.7	0.451	107	*Mix3 10ppb*
Ce	11	0.503	110	*Mix3 10ppb*
Pr	10.1	0.65	101	*Mix3 10ppb*
Nd	10.5	0.251	105	*Mix3 10ppb*
Sm	10.5	0.254	105	*Mix3 10ppb*
Eu	10.6	0.175	106	*Mix3 10ppb*
Gd	11	0.208	110	*Mix3 10ppb*
Tb	10	0.068	100	*Mix3 10ppb*
Dy	10.2	1.65	102	*Mix3 10ppb*
Ho	9.58	1.53	95.8	*Mix3 10ppb*
Er	9.49	1.15	94.9	*Mix3 10ppb*
Tm	9.36	1.62	93.6	*Mix3 10ppb*
Yb	10.8	1.87	108	*Mix3 10ppb*
Hf	8.83	1.43	88.3	*Mix2 10ppb*
Ta	9.46	1.13	94.6	*Mix2 10ppb*
W	9.83	1.51	98.3	*Mix2 10ppb*
Re	9.69	0.387	96.9	*Mix2 10ppb*
Os			n.a.	
Ir	9.5	0.854	95	*Mix2 10ppb*
Pt	9.71	0.404	97.1	*Mix2 10ppb*
Au	10.1	2.35	101	*Mix2 10ppb*
Hg			n.a.	
Tl	20	0.803	99.8	*ICAL 20ppb*
	1.68	3.44	104	*Nist 1640a*
Pb	19.9	1.09	99.7	*ICAL 20ppb*
	12	3.31	99.5	*Nist 1640a*
Bi	20.2	0.54	101	*ICAL 20ppb*
	18.8	0.721	93.8	*ICAL 20ppb*
U	24.8	3.88	97.8	*Nist 1640a*

Table S4.3 Elemental concentrations [µg/L] of environmental water samples (river waters, snow 1 and lake 2). Given are the detection limit (DL) [µg/L], mean [µg/L] and relative standard deviation (rsd) [%] for each element in each sample. Elements marked with * indicate that the respective element is either not in the sample, or that its concentration is below the respective detection limit.

	all	Snow: Sljeme Mountain		Lake: Treće Jazero		River: Medveščak feeder		River: Oswegatchie river	
	DL *[µg/L]*	mean [µg/L]	rsd [%]	mean [µg/L]	rsd [%]	mean [µg/L]	rsd [%]	mean [µg/L]	rsd [%]
Li	1.26	*	*	*	*	3.31	9.76	*	*
Be	0.925	*	*	*	*	*	*	*	*
B	21.1	*	*	*	*	*	*	*	*
Na	143	587	8.4	13886	1.12	4494	2.29	6126	0.738
Mg	43.1	79.1	15	10357	0.185	16199	0.274	3947	0.181
Al	0.444	166	1.89	349	1.29	88.9	1.2	457	2.75
Si	29.5	422	1.33	2274	0.769	8481	0.479	6096	0.905
P	5.46	*	*	*	*	*	*	*	*
S	15100	*	*	*	*	*	*	*	*
Cl	4360	*	*	11281	66.2	*	*	*	*
K	1.39	477	5.42	1659	1.2	546	4.22	1118	2.49
Ca	230	*	*	61991	4.93	153943	5.64	5055	5.16
Sc	0.378	*	*	*	*	*	*	*	*
Ti	2.52	2.87	8.24	6.72	2.44	*	*	27.5	2.35
V	0.756	*	*	*	*	*	*	*	*
Cr	0.222	1.05	33.7	1.66	28.8	1.47	35.3	2.12	24.2
Mn	0.314	2.17	2.83	107	2.66	2.49	3.97	72.3	4.61
Fe	25.7	80.5	11	*715*	*3.1*	*97.6*	*26.4*	1280	0.873
Co	0.079	0.281	16.3	0.776	6.15	0.666	9.72	0.732	8.77
Ni	0.200	*	*	*	*	1.18	19.1	*	*
Cu	0.161	3.26	0.391	3.02	0.228	0.274	8.6	9.5	0.161
Zn	8.11	*149*	*1.48*	23.7	16.1	*	*	15.7	19.8
Ga	0.073	*	*	*	*	*	*	*	*
Ge	0.024	*	*	*	*	*	*	*	*
As	0.166	0.998	5.14	0.494	29.9	*	*	*	*
Se	0.192	1.17	25.2	*	*	*	*	0.3	138
Br	5.23	*	*	25.8	11.1	30.6	7.44	12.3	8.55
Rb	0.041	0.064	4.86	1.41	0.265	1.05	2.13	2.25	0.307
Sr	0.408	0.63	14.5	142	0.944	255	0.373	51.9	0.622
Y	0.029	0.029	35.2	0.216	14.8	*	9.68	1.6	3.14
Zr	0.006	1.52	1.13	0.016	24.3	0.015	45.7	0.072	6.13
Nb	0.006	0.014	58.4	*	*	*	*	0.034	29.5
Mo	0.040	*	*	*	*	*	*	*	*
Ru	0.011	*	*	*	*	*	*	*	*
Pd	0.006	*	*	*	*	*	*	*	*
Ag	0.047	*	*	*	*	*	*	*	*
Cd	0.040	0.192	7.66	0.132	25.8	*	*	0.277	6.12
In	0.004	*	*	*	*	*	*	*	*
Sn	0.038	0.192	4.21	*	*	*	*	0.038	22.2
Sb	0.012	0.067	16.5	0.115	3.89	*0.065*	*32*	0.061	14.2
Te	0.121	*	*	*	*	*	*	*	*
I	0.343	*	*	1.95	5.49	1.04	15.1	0.765	10.9
Cs	0.059	*	*	*	*	*	*	0.288	279
Ba	0.188	1.1	2.18	36	2.97	42.8	2.35	23.8	2.18
La	0.002	0.071	4.32	0.323	6.82	*	*	1.47	3.56
Ce	0.004	0.135	1.52	0.849	3.25	0.217	1.87	2.64	0.876
Pr	0.002	0.014	0.764	0.095	3.53	0.019	3.43	0.364	1.32
Nd	0.009	0.047	2.79	0.36	2.34	0.077	9.9	1.41	0.721
Sm	0.005	*0.009*	*6.9*	0.065	9.51	*	*	0.301	2.11
Eu	0.002	0.002	37	0.026	23	0.018	9.01	0.053	3.08
Gd	0.005	0.015	27.2	0.094	4.29	0.029	15.6	0.324	3.47
Tb	0.004	*	*	0.014	5.92	0.005	14	0.05	1.98

Dy	0.006	0.007	33.9	0.056	4.03	0.012	46.8	0.205	1.66
Ho	0.0001	0.001	20.5	0.011	1.45	0.003	26.8	0.04	4.04
Er	0.008	0.009	30.8	0.032	16.1	0.011	16.7	0.127	3.56
Tm	0.002	*	*	0.003	4.1	*	*	0.015	0.819
Yb	0.001	0.001	209	0.022	16.9	0.008	19.6	0.11	1.22
Lu	0.002	0.002	42.7	0.005	21.7	0.002	97.7	0.018	2.04
Hf	0.006	*0.03*	*20.2*	*	*	0.008	42.1	*	*
Ta	0.003	*	*	*	*	*	*	*	*
W	0.012	0.024	15.7	*	*	*	*	*	*
Re	0.001	*	*	*	*	*	*	*	*
Os	0.012	*	*	0.013	122	*	*	0.012	127
Ir	0.003	0.006	13.7	0.005	14.4	*	*	*	*
Pt	0.006	*	*	*	*	*	*	*	*
Au	0.011	*	*	*	*	*	*	*	*
Hg	0.020	*	*	0.025	46.3	*	*	0.024	85.2
Tl	0.026	0.171	9.17	0.035	22.3	*	*	0.037	10
Pb	0.051	1.29	0.255	0.52	4.16	0.087	38.3	1.01	1.63
Bi	0.007	0.132	2.11	0.007	97.9	0.009	70.2	0.017	46.2
U	0.003	0.119	6.06	0.396	0.953	0.964	0.283	0.135	0.908

Table S4.4 Elemental concentrations [µg/L] of certified reference material ICAL, Mix2, Mix3, Multi and Nist 1640a for river waters, snow 1 and lake 2. Given are the mean [µg/L], relative standard deviation (rsd) [%] and the percentage the mean represents of the given reference value [%]. The elemental means should lie between ± 20 % of the given reference value.

	mean [µg/L]	rsd [%]	wanted value [%]	reference
Li	20.9	0.772	104	*ICAL 20ppb*
Be	199	7.65	99.6	*ICAL 20ppb*
	332	7.4	109	*Nist 1640a*
B	211	0.199	105	*ICAL 20ppb*
	2.05	19.2	67.6	*Nist 1640a*
Na	55483	2.01	111	*Multi*
Mg	51037	1.15	102	*Multi*
Al	23.5	3.25	118	*ICAL 20ppb*
	54.6	2.18	103	*Nist 1640a*
Si	12282	1.31	102	*Multi*
P	19010	9.18	95	*Multi*
S	21384	2.94	107	*Multi*
Cl			n.a.	
K	11360	7.09	94.7	*Multi*
Ca	293347	11.2	97.8	*Multi*
Sc	8.89	2.27	88.9	*Mix3 10ppb*
Ti	9.29	3.91	92.9	*Mix2 10ppb*
V	19.4	3.7	97	*ICAL 20ppb*
	16.4	3.34	109	*Nist 1640a*
Cr	22.6	4.13	113	*ICAL 20ppb*
	45.9	0.912	113	*Nist 1640a*
Mn	19.9	1.09	99.3	*ICAL 20ppb*
	43.4	1.55	108	*Nist 1640a*
Fe	197	7.74	98.7	*ICAL 20ppb*
	62	49.6	168	*Nist 1640a*
Co	21.1	0.499	105	*ICAL 20ppb*
	22.8	2.23	112	*Nist 1640a*
Ni	21.6	2.02	108	*ICAL 20ppb*
	27.8	2.48	110	*Nist 1640a*
Cu	20.3	0.427	102	*ICAL 20ppb*
	94.4	1.11	110	*Nist 1640a*
Zn	203	0.719	102	*ICAL 20ppb*
	62	1.28	111	*Nist 1640a*
Ga	19.4	1.32	97.2	*ICAL 20ppb*
Ge	10.4	1.05	104	*Mix2 10ppb*
As	188	1.09	93.9	*ICAL 20ppb*
	8.66	0.964	107	*Nist 1640a*
Se	196	0.292	98.1	*ICAL 20ppb*
	23.8	0.39	118	*Nist 1640a*
Br			n.a.	
Rb	19.6	0.664	97.8	*ICAL 20ppb*
Sr	19.2	0.209	96.2	*ICAL 20ppb*
	139	1.11	111	*Nist 1640a*
Y	9.53	2.38	95.3	*Mix3 10ppb*
Zr	10.3	1.41	103	*Mix2 10ppb*
Nb	10.2	1.58	102	*Mix2 10ppb*
	9.14	0.731	91.4	*Mix2 10ppb*
Mo	17.2	1.24	86.2	*ICAL 20ppb*
	48.2	0.426	106	*Nist 1640a*

	mean [µg/L]	rsd [%]	wanted value [%]	reference
Ru	10.1	0.696	101	*Mix2 10ppb*
Pd	10.1	0.472	101	*Mix2 10ppb*
Ag	19.5	0.082	97.7	*ICAL 20ppb*
	8.65	0.879	107	*Nist 1640a*
Cd	19.8	0.243	99.2	*ICAL 20ppb*
	3.93	0.862	98.4	*Nist 1640a*
In			n.a.	
Sn	10.3	0.733	103	*Mix2 10ppb*
Sb	10	0.917	100	*Mix2 10ppb*
	6.30	0.448	118	*Nist 1640a*
Te	19.7	2.13	98.3	*ICAL 20ppb*
I			n.a.	
Cs			n.a.	
Ba	19.6	0.881	97.8	*ICAL 20ppb*
	171	0.341	113	*Nist 1640a*
Lu	9.9	1.83	99	*Mix3 10ppb*
La	9.3	1.37	93	*Mix3 10ppb*
Ce	9.75	2.05	97.5	*Mix3 10ppb*
Pr	9.42	2.27	94.2	*Mix3 10ppb*
Nd	9.88	1.55	98.8	*Mix3 10ppb*
Sm	9.77	1.42	97.7	*Mix3 10ppb*
Eu	9.62	1.41	96.2	*Mix3 10ppb*
Gd	9.76	3.04	97.6	*Mix3 10ppb*
Tb	9.51	2.18	95.1	*Mix3 10ppb*
Dy	10.2	2.53	102	*Mix3 10ppb*
Ho	9.92	2.26	99.2	*Mix3 10ppb*
Er	10	3.7	100	*Mix3 10ppb*
Tm	9.86	2.49	98.6	*Mix3 10ppb*
Yb	10.9	2.77	109	*Mix3 10ppb*
Hf	10.2	2.65	102	*Mix2 10ppb*
Ta	10	1.7	100	*Mix2 10ppb*
W	10.2	1.88	102	*Mix2 10ppb*
Re	10.2	3.65	102	*Mix2 10ppb*
Os			n.a.	
Ir	10.1	2.63	101	*Mix2 10ppb*
Pt	10.2	2.67	102	*Mix2 10ppb*
Au	10.4	7.13	104	*Mix2 10ppb*
Hg			n.a.	
Tl	20.2	2.11	101	*ICAL 20ppb*
	1.64	2.59	101	*Nist 1640a*
Pb	19	2.81	95.2	*ICAL 20ppb*
	11.8	5.03	97.3	*Nist 1640a*
Bi	19.3	2.85	96.6	*ICAL 20ppb*
U	19.1	1.48	95.6	*ICAL 20ppb*
	25.4	1.88	100	*Nist 1640a*

S5) Beverage samples

Table S5.1 Elemental concentrations [µg/L] of beverage samples (bottled water, wine, beer and milk). Given are the detection limit (DL) [µg/L], mean [µg/L] and relative standard deviation (rsd) [%] for each element in each sample. Elements marked with * indicate that the respective element is either not in the sample, or that its concentration is below the respective detection limit.

	Bottled Water					Beer					Wine				Milk				
	all	Voss		Poland Spring		all	Budweiser		Heineken		Old Soul		Montana		all	Elmhust Dairy		Farmland Fresh Dairies	
	DL *[µg/L]*	mean [µg/L]	rsd [%]	mean [µg/L]	rsd [%]	DL *[µg/L]*	mean [µg/L]	rsd [%]	mean [µg/L]	rsd [%]	mean [µg/L]	rsd [%]	mean [µg/L]	rsd [%]	DL *[µg/L]*	mean [µg/L]	rsd [%]	mean [µg/L]	rsd [%]
Li	0.292	0.721	4.54	2.08	1.96	0.391	*	*	*	*	5.94	7.36	5.44	6.70	1.13	8.95	270.1	17.48	21.5
Be	1.75	1.86	18.9	1.94	18.8	0.945	*	*	*	*	*	*	*	*	0.756	*	*	*	*
B	4.32	*	16.8	*	20.1	3.17	228	0.756	257	0.432	8208	0.354	6400	0.674	2.22	300	19.7	*	*
Na	9.14	8288	0.637	10324	0.675	0.549	11388	0.147	20292	0.410	26896	0.235	6432	0.089	4.42	411300	0.199	407700	0.023
Mg	0.765	1528	0.298	1859	0.303	0.778	72649	0.638	75427	0.735	115474	0.433	68740	0.293	8.03	174225	0.185	180350	0.066
Al	0.619	43.8	0.322	13.6	0.920	0.880	101	0.536	28.5	1.32	1330	0.034	241	0.459	0.541	161	1.04	230	0.879
Si	0.961	4836	0.880	7735	0.723	593	53588	0.009	36532	0.693	51906	2.96	23467	6.13	0.54	4000	0.187	3675	0.138
P	10.6	*	*	*	*	5.41	290554	0.802	309934	1.08	646816	1.27	212832	1.10	120	900100	0.586	1015850	0.453
S	666	8180	1.84	7954	2.92	296	73326	3.92	17820	3.14	94101	0.516	26097	3.52	211	55125	4.82	*	*
Cl	254	*	*	4127	9.55	319	23710	1.88	204399	4.28	4372	24.3	*	*	612	1395225	0.699	1078800	17.8
K	2.69	1039	0.744	1335	1.29	6.89	265048	0.973	417057	0.471	910262	0.491	706569	0.516	1.95	1537225	0.668	1740975	0.413
Ca	99	7234	0.37	7018	0.632	91.3	37763	0.918	27227	0.399	60310	0.394	28051	1.41	256	893275	0.329	878850	0.288
Sc	0.044	*	*	*	*	0.683	6.07	6.05	*	*	*	*	*	*	0.182	25.5	2.51	24.7	1.14
Ti	0.835	*	*	*	*	0.117	*	*	*	*	1.38	6.29	*	*	1.11	5075	2.24	4925	0.871
V	0.057	0.837	3.59	1.06	10.3	0.104	19.6	0.455	44.4	0.228	73.6	0.787	28.2	1.79	0.14	13.2	2.83	5.08	12.9
Cr	0.030	0.803	2.83	0.876	1.92	0.412	10.3	4.09	19.6	2.05	60.5	1.86	16.1	8.52	0.071	49.5	7.79	36.5	10.4
Mn	0.056	73.4	0.704	0.974	1.86	3.45	119	0.696	125	0.989	1436	1.59	789	2.36	0.047	45.3	1.41	43.3	4.36
Fe	0.480	33.4	2.44	35.7	1.91	0.083	74	23.3	*	*	1887	0.962	956	1.22	0.336	450	3.47	415	2.54
Co	0.117	0.776	0.153	0.019	35.6	0.017	*	*	*	*	5.26	1.21	1.98	5.61	0.062	7.83	10.8	6.73	9.45
Ni	0.038	*	*	*	*	0.301	9.82	13.8	8.6	9.78	34.3	6.30	9.35	8.90	0.1	*	*	*	*
Cu	0.342	*	*	0.125	13.7	0.010	27.6	0.41	36.6	0.621	95.0	3.51	114	1.79	0.197	56.25	4.32	22.75	2.69
Zn	0.800	*	*	1.17	1.38	0.146	20	2.07	12.6	0.721	1064	1.31	380	2.51	0.008	4850	0.593	5100	0.075
Ga	0.013	0.029	16.9	*	*	0.008	2.07	0.545	1.9	1.77	4.21	2.74	1.67	8.43	0.058	18.45	3.86	17.1	1.76
Ge	0.037	*	*	*	*	0.032	*	*	*	*	*	*	*	*	0.132	*	*	3.675	3.78
As	0.119	*	*	0.264	13.7	0.045	12.8	0.938	9.27	1.35	15.4	2.58	8.21	2.28	0.567	21.525	28.4	10.85	15.5
Se	1.62	*	*	0.364	20.7	0.294	344	1.46	867	0.187	460	1.46	109	0.291	2.3	128.25	6.22	44.75	4.6
Br	0.520	26.9	0.858	7.5	1.47	0.270	8.40	12.0	6.88	4.55	*	*	*	*	1.75	2475	1.67	1367.5	2.23
Rb	2.28	1.89	0.094	1.39	0.502	0.015	425	0.502	210	0.417	6191	0.691	744	2.25	0.126	1817.5	0.656	1100	0.409
Sr	0.004	31.9	0.167	44.6	0.189	0.085	124	0.246	55.9	0.467	1156	1.11	773	2.08	0.039	397.5	0.656	270	0.649
Y	0.005	2.58	0.054	*	*	0.002	0.19	4.02	*	*	0.260	6.78	0.103	26.8	0.028	0.3	12.8	0.075	21.2
Zr	0.005	0.006	62.7	0.044	3.74	0.015	2.44	0.908	1.12	4.78	5.93	0.909	6.52	1.92	0.124	3.95	15.7	3.675	12.8
Nb	0.039	*	*	*	*	0.017	*	*	*	*	*	*	*	*	0.019	8.2	5.53	7.925	6.51
Mo	0.029	3.42	1.08	0.176	28.4	0.025	21.3	4.60	1.51	11.3	15.9	4.03	*	*	0.19	66	1.69	54.5	2.69
Ru	0.016	0.027	17.1	*	*	0.027	*	*	*	*	*	*	*	*	0.042	*	*	*	*

Pd	0.014	*	*	*	*	0.010	0.174	11	0.173	10.2	*	*	*	*	0.035	2440	22.1	297.5	4.9
Ag	0.013	*	*	*	*	0.015	*	*	*	*	*	*	*	*	0.146	28.5	2.19	27.5	2.52
Cd	0.014	*	*	0.030	17.0	0.046	*	*	*	*	*	*	*	*	0.162	8.9	12.1	8.4	12.7
In	0.004	*	*	0.006	25.3	0.003	*	*	*	*	*	*	*	*	0.029	7.425	3.32	7.425	2.74
Sn	0.011	0.063	2.88	*	94.1	0.029	0.919	4.58	*	*	*	*	*	*	0.073	1.75	3.31	1.5	15.3
Sb	0.006	*	*	0.126	4.05	0.002	0.40	2.19	0.228	4.19	1.22	2.78	0.336	8.83	0.111	0.45	22	1.1	7.13
Te	0.024	0.18	16.4	*	*	0.014	6.05	0.903	1.88	2.88	9.26	2.05	3.23	3.61	0.112	*	*	*	*
I	0.028	4.96	3.58	1.01	1.65	0.018	0.239	15.2	0.153	29.7	*	*	*	*	0.483	577.5	1.99	397.5	1.17
Cs	0.004	0.016	12.3	0.011	7.46	0.003	0.364	0.896	0.215	2.36	29.2	0.937	4.83	2.90	0.065	1.575	17.5	0.75	23.8
Ba	0.036	6.95	0.266	1.06	0.217	0.008	15.8	0.183	11.1	0.268	117	0.855	56.0	1.55	0.089	79.75	8.21	69.25	3.65
La	0.005	6.11	0.334	*	*	0.002	0.134	3.36	*	*	0.573	8.68	0.435	8.40	0.022	*	*	0.35	10.8
Ce	0.002	5.27	0.168	*	*	0.002	0.325	2.08	0.036	21.5	0.933	5.93	0.898	10.8	0.038	1.65	22.1	2.025	21
Pr	0.004	1.32	0.298	0.009	9.17	0.001	0.023	14.5	*	*	0.105	8.65	0.072	17.8	0.04	0.05	3.45	0.275	22.1
Nd	0.012	4.26	0.221	0.014	11.3	0.015	*	*	*	*	0.591	17.5	0.411	27.1	0.095	2.625	28.4	2.7	26.2
Sm	0.007	0.672	0.864	*	*	0.021	0.109	3.62	*	*	*	*	*	*	0.087	3.075	24.5	2.4	28.7
Eu	0.003	0.060	1.71	*	*	0.003	*	*	*	*	0.053	34.2	0.038	24.7	0.027	3.025	11	3.35	4.57
Gd	0.003	0.758	0.532	*	*	0.015	*	*	*	*	*	*	*	*	0.049	3.775	29.5	4.6	7.8
Tb	0.010	0.083	0.749	*	*	0.006	*	*	*	*	*	*	*	*	0.024	5.6	3.64	5.73	5.57
Dy	0.001	0.348	1.02	*	*	0.010	*	*	*	*	*	*	*	*	0.067	*	*	*	*
Ho	0.002	0.068	1.66	*	*	0.004	*	*	*	*	*	*	*	*	0.035	*	*	*	*
Er	0.004	0.194	1.14	*	*	0.010	*	*	*	*	*	*	*	*	0.111	*	*	27	87.9
Tm	0.007	0.023	1.57	*	*	0.003	*	*	*	*	*	*	*	*	0.021	*	*	*	*
Yb	0.019	0.140	1.93	*	*	0.018	*	*	*	*	*	*	*	*	0.061	*	*	*	*
Lu	0.007	0.022	2.28	*	*	0.004	*	*	*	*	*	*	*	*	0.048	*	*	*	*
Hf	0.011	*	*	*	*	0.011	0.935	7.23	0.536	11.9	*	*	*	*	0.044	5.38	15.2	53.8	27.9
Ta	0.004	*	*	*	*	0.007	0.059	5.68	0.051	4.91	*	*	*	*	0.06	14.5	5.44	6.88	12.3
W	0.004	*	*	0.009	72.7	0.025	*	*	0.462	7.13	4.12	0.546	0.717	3.74	0.092	63.8	7.52	33.5	13.4
Re	0.006	*	*	*	*	0.008	0.047	44.8	*	*	*	*	0.027	57.4	0.11	2.35	9.71		
Os	0.011	*	*	*	*	0.008	*	*	*	*	*	*	*	*	0.065	7.4	2.76	25.5	45
Ir	0.009	*	*	*	*	0.007	*	*	*	*	*	*	*	*	0.037	20.5	11.5	4.33	4.1
Pt	0.001	0.003	145	*	*	0.029	*	*	*	*	*	*	*	*	0.107	*	*	34.5	11.7
Au	0.014	*	*	*	*	0.005	0.118	15.5	0.113	23.3	*	*	*	*	0.054	35350	22.5	3575	5.39
Hg	0.049	*	*	*	*	0.079	0.195	49.7	0.168	93.0	0.122	67.8	*	*	0.077	*	*	*	*
Tl	0.054	0.052	4.38	0.040	13.5	0.002	*	*	*	*	0.423	3.01	*	*	0.051	*	*	*	*
Pb	0.001	*	*	*	*	0.020	*	*	*	*	4.86	3.50	7.36	4.97	0.021	45.5	8.6	9.05	382
Bi	0.010	*	*	0.780	35.2	0.393	*	*	*	*	*	*	*	*	0.107	34	34.3	61.3	16.3
U	0.003	*	*	*	*	0.003	*	*	*	*	0.313	4.61	*	*	0.158	*	*	*	*

Table S5.2 Elemental concentrations [µg/L] of certified reference material (ICAL, Mix1, Mix2, Mix3, Multi, I, Os and Hg) for beverage samples (bottled water, wine, beer and milk). Given are the mean [µg/L], relative standard deviation (rsd) [%] and the percentage the mean represents of the given reference value [%]. The elemental means should lie between ± 20 % of the given reference value.

	Bottled water				Wine and beer				Milk			
	mean [µg/L]	**rsd** [%]	**wanted value [%]**	**reference**	**mean** [µg/L]	**rsd** [%]	**wanted value [%]**	**reference**	**mean** [µg/L]	**rsd** [%]	**wanted value [%]**	**reference**
Li	19.8	0.35	99.2	*ICAL 20ppb*	20.5	0.124	102	*ICAl 20 ppb*	18.1	1.55	90.5	*ICAL 20ppb*
Be	202	0.463	101	*ICAL 20ppb*	198	0.463	99.0	*ICAl 20 ppb*	157	0.094	78.3	*ICAL 20ppb*
	4.98	6.7	164	*Nist 1640a*								
B	237	0.04	118	*ICAL 20ppb*	179	1.85	89.4	*ICAl 20 ppb*	209	0.346	104	*ICAL 20ppb*
	329	0.633	108.5	*Nist 1640a*								
Na	52099	0.376	104	*Multi*	6463	0.109	108	*Multi*	19.5	3.08	97.7	*ICAL 20ppb*
Mg	22797	0.827	114	*Multi*	8321	0.577	83.2	*Multi*	19.0	0.463	94.8	*ICAL 20ppb*
Al	27.7	0.804	139	*ICAL 20ppb*	24.2	0.353	121	*ICAl 20 ppb*	28.1	2.07	141	*ICAL 20ppb*
	51.6	0.647	97.4	*Nist 1640a*								
Si	7904	0.75	98.8	*Multi*	7000	2.46	117	*Multi*			n.a.	
P	3700	2.07	91.8	*Multi*	35257	1.81	117.5	*Multi*			n.a.	
S	1836	0.905	185	*Multi*	5531	4.12	36.9	*Multi*			n.a.	
Cl			n.a.		2432	7.48	48.6	*Cl 5ppm*			n.a.	
K	3323	2.61	111	*Multi*	81303	1.03	81.3	*Multi*	119	0.103	595	*ICAL 20ppb*
Ca	10937	0.791	109	*Multi*	8898	2.59	89.0	*Multi*	2220	2.25	111	*ICAL 20ppb*
Sc			n.a.		6.13	1.44	306	*Mix3 2ppb*			n.a.	
Ti			n.a.		2.70	1.97	135	*Mix2 2ppb*			n.a.	
V	21.6	0.714	108	*ICAL 20ppb*	18.4	0.617	91.9	*ICAl 20 ppb*	16.7	0.424	83.6	*ICAL 20ppb*
	15.1	0.318	100	*Nist 1640a*								
Cr	21.2	0.755	106	*ICAL 20ppb*	18.3	1.5	91.5	*ICAl 20 ppb*	16.2	0.253	81.0	*ICAL 20ppb*
	38	0.264	93.7	*Nist 1640a*								
Mn	21	0.098	105	*ICAL 20ppb*	21.6	0.853	108	*ICAl 20 ppb*	19.4	0.672	97.1	*ICAL 20ppb*
	38.1	0.091	94.3	*Nist 1640a*								
Fe	238	1.06	119	*ICAL 20ppb*	238	1.26	119	*ICAl 20 ppb*	193	0.097	96.6	*ICAL 20ppb*
	44.2	1.45	120	*Nist 1640a*								
Co	20.6	0.401	103	*ICAL 20ppb*	19.0	0.441	95.2	*ICAl 20 ppb*	17.6	0.535	88.2	*ICAL 20ppb*
	18.6	0.161	91.9	*Nist 1640a*								
Ni	21.5	0.07	107	*ICAL 20ppb*	18.3	0.874	91.3	*ICAl 20 ppb*	19.6	0.639	98.0	*ICAL 20ppb*
	23.2	0.26	91.6	*Nist 1640a*								
Cu	22.2	0.122	111	*ICAL 20ppb*	19.9	0.416	99.7	*ICAl 20 ppb*	17.4	0.252	87.2	*ICAL 20ppb*
	83.7	0.241	70.0	*Nist 1640a*								
Zn	221	0.188	111	*ICAL 20ppb*	176	1.21	87.9	*ICAl 20 ppb*	172	0.523	86.1	*ICAL 20ppb*
	53.8	0.535	96.7	*Nist 1640a*								
Ga	20.6	0.142	103	*ICAL 20ppb*	18.6	0.710	93.2	*ICAl 20 ppb*	18.7	0.186	93.5	*ICAL 20ppb*
Ge			n.a.		2.25	0.781	113	*Mix2 2ppb*			n.a.	
As	197	0.612	98.5	*ICAL 20ppb*	288	0.339	144	*ICAl 20 ppb*	176	1.04	88.0	*ICAL 20ppb*
	7.33	0.404	90.8	*Nist 1640a*								

Se	217	0.246	108	*ICAL 20ppb*	**Se**	225	0.650	113	*ICAl 20 ppb*	**Se**	200	0.924	99.8	*ICAL 20ppb*
	21.1	0.48	105	*Nist 1640a*										
Br			n.a.		**Br**	16.1	0.985	80.4	*Br 20ppb*	**Br**			n.a.	
Rb	19.5	0.585	97.4	*ICAL 20ppb*	**Rb**	18.3	0.494	91.5	*ICAl 20 ppb*	**Rb**	18.5	0.586	92.7	*ICAL 20ppb*
Sr	20.8	0.266	104	*ICAL 20ppb*	**Sr**	17.3	0.585	86.3	*ICAl 20 ppb*	**Sr**	19.6	0.439	97.9	*ICAL 20ppb*
	121	0.559	96.0	*Nist 1640a*										
Y			n.a.		**Y**	1.79	0.346	89.3	*Mix3 2ppb*	**Y**			n.a.	
Zr			n.a.		**Zr**	1.95	7.27	97.4	*Mix2 2ppb*	**Zr**			n.a.	
Nb			n.a.		**Nb**	1.98	5.96	99.0	*Mix2 2ppb*	**Nb**			n.a.	
Mo	21.8	0.798	109	*ICAL 20ppb*	**Mo**	1.68	5.15	84.1	Mix2 2ppb	**Mo**	19.8	0.659	98.8	*ICAL 20ppb*
	45.1	1.04	98.9	*Nist 1640a*		20.9	4.62	104	*ICAl 20 ppb*				n.a.	
Ru			n.a.		**Ru**	1.92	1.01	96.0	*Mix2 2ppb*	**Ru**			n.a.	
Pd			n.a.		**Pd**	2.04	0.952	102	*Mix2 2ppb*	**Pd**	21.4	0.322	107	*ICAL 20ppb*
Ag	22.8	0.992	114	*ICAL 20ppb*	**Ag**	20.3	8.41	101	*ICAl 20 ppb*	**Ag**			n.a.	
	7.24	0.796	89.6	*Nist 1640a*										
Cd	21.4	0.207	107	*ICAL 20ppb*	**Cd**	19.6	0.341	98.0	*ICAl 20 ppb*	**Cd**	21.0	0.335	105	*ICAL 20ppb*
	3.59	0.544	89.9	*Nist 1640a*										
In			n.a.		**In**	8.8	0.425	88.0	*Mix1 10ppb*	**In**			n.a.	
Sn			n.a.		**Sn**	1.83	1.1	91.4	*Mix2 2ppb*	**Sn**			n.a.	
Sb	5.15	0.292	101	*Nist 1640a*	**Sb**	2.17	0.376	109	*Mix2 2ppb*	**Sb**			n.a.	
Te	22.1	0.53	111	*ICAL 20ppb*	**Te**	23.4	0.719	117	*ICAl 20 ppb*	**Te**			n.a.	
I			n.a.		**I**	2.30	3.24	115	*I 2ppb*	**I**	22.3	0.521	112	*ICAL 20ppb*
Cs			n.a.		**Cs**	8.75	0.168	87.5	*Mix1 10ppb*	**Cs**			n.a.	
Ba	18.6	0.609	92.8	*ICAL 20ppb*	**Ba**	18.6	0.239	93.0	*ICAl 20 ppb*	**Ba**	20.6	0.400	103	*ICAL 20ppb*
	144	1.34	92.2	*Nist 1640a*										
Lu			n.a.		**Lu**	2.33	10.9	116	*Mix3 2ppb*	**Lu**			n.a.	
La			n.a.		**La**	1.82	0.335	91.2	*Mix3 2ppb*	**La**			n.a.	
Ce			n.a.		**Ce**	1.79	0.229	89.4	*Mix3 2ppb*	**Ce**			n.a.	
Pr			n.a.		**Pr**	1.82	0.297	90.9	*Mix3 2ppb*	**Pr**			n.a.	
Nd			n.a.		**Nd**	1.90	0.160	94.9	*Mix3 2ppb*	**Nd**			n.a.	
Sm			n.a.		**Sm**	1.89	0.628	94.4	*Mix3 2ppb*	**Sm**			n.a.	
Eu			n.a.		**Eu**	1.87	0.284	93.7	*Mix3 2ppb*	**Eu**			n.a.	
Gd			n.a.		**Gd**	1.97	1.26	98.4	*Mix3 2ppb*	**Gd**			n.a.	
Tb			n.a.		**Tb**	1.88	0.521	94.0	*Mix3 2ppb*	**Tb**			n.a.	
Dy			n.a.		**Dy**	2.30	11.0	115	*Mix3 2ppb*	**Dy**			n.a.	
Ho			n.a.		**Ho**	2.28	10.6	114	*Mix3 2ppb*	**Ho**			n.a.	
Er			n.a.		**Er**	2.31	11.1	116	*Mix3 2ppb*	**Er**			n.a.	
Tm			n.a.		**Tm**	2.28	10.7	114	*Mix3 2ppb*	**Tm**			n.a.	
Yb			n.a.		**Yb**	2.30	11.0	115	*Mix3 2ppb*	**Yb**			n.a.	
Hf			n.a.		**Hf**	1.94	8.55	97.1	*Mix2 2ppb*	**Hf**			n.a.	
Ta			n.a.		**Ta**	1.82	0.284	90.8	*Mix2 2ppb*	**Ta**			n.a.	
W			n.a.		**W**	1.92	2.63	96.2	*Mix2 2ppb*	**W**			n.a.	

Re			n.a.		**Re**	2.08	0.438	104	*Mix2 2ppb*	**Re**			n.a.	
Os			n.a.		**Os**	1.08	10.8	108	*Os 1ppb*	**Os**			n.a.	
Ir			n.a.		**Ir**	2.04	0.490	102	*Mix2 2ppb*	**Ir**			n.a.	
Pt			n.a.		**Pt**	2.06	1.34	103	*Mix2 2ppb*	**Pt**			n.a.	
Au			n.a.		**Au**	1.54	8.87	77.2	*Mix2 2ppb*	**Au**			n.a.	
Hg			n.a.		**Hg**	1.37	8.20	137	*Hg 1ppb*	**Hg**			n.a.	
Tl	21.3	1.13	106	*ICAL 20ppb*	**Tl**	19.1	6.11	95.6	*ICAl 20 ppb*	**Tl**	22.8	1.571	114	*ICAL 20ppb*
	1.7	5.05	105.0	*Nist 1640a*										
Pb	23	0.504	115	*ICAL 20ppb*	**Pb**	19.4	6.51	97.0	*ICAl 20 ppb*	**Pb**	23.0	1.799	115	*ICAL 20ppb*
	12.1	5.01	100.0	*Nist 1640a*										
Bi	19.1	3.68	95.6	*ICAL 20ppb*	**Bi**	17.9	7.09	89.5	*ICAl 20 ppb*	**Bi**	23.2	1.677	116	*ICAL 20ppb*
U	21.3	1.35	106	*ICAL 20ppb*	**U**	17.4	6.00	87.2	*ICAl 20 ppb*	**U**	24.0	2.155	120	*ICAL 20ppb*
	28	5.67	110.5	*Nist 1640a*										

S6) Biofluid samples

Table S6.1 Elemental concentrations [µg/L] of female and male biofluid samples (saliva, urine, plasma and blood). Given are the detection limit (DL) [µg/L], mean [µg/L] and relative standard deviation (rsd) [%] for each element in each sample. Elements marked with * indicate that the respective element is either not in the sample, or that its concentration is below the respective detection limit.

		saliva				**urine**				**plasma**				**blood**			
		female		**male**		**female**		**male**		**female**		**male**		**female**		**male**	
	all DL	**mean**	**rsd**	**mean**	**rsd**	**mean**	**rsd**	**mean**	**rsd**	**mean**	**rsd**	**mean**	**rsd**	**mean**	**rsd**	**mean**	**rsd**
	[µg/L]	[µg/L]	[%]	[µg/L]	[%]	[µg/L]	[%]	[µg/L]	[%]	[µg/L]	[%]	[µg/L]	[%]	[µg/L]	[%]	[µg/L]	[%]
Li	1.12	*	*	*	*	5.18	5.03	12.3	2.13	*	*	*	*	*	*	*	*
Be	0.756	0.839	101	*	*	*	*	*	*	*	*	*	*	*	*	*	*
B	2.22	41.2	2.43	34.6	3.14	306	0.243	1043	0.583	43.6	1.21	38	1.98	33.7	1.27	35.8	3.28
Na	4.49	22727	1.01	9949	0.166	482999	0.767	395588	1.37	300991	1.05	192015	2.57	29527	0.673	13562	1.85
Mg	4.37	377	1.44	390	0.382	11230	0.896	28331	0.711	1238	1.52	1255	4.53	350	0.553	203	3.27
Al	0.360	0.956	8.95	5.27	2.4	*	*	*	*	*	*	*	*	1.24	3.65	0.750	7.68
Si	0.540	28.8	0.342	20.1	6.83	620	2.08	3262	1.84	703	0.805	760	2.40	170	0.409	125	1.66
P	120	16702	0.913	31303	0.467	181385	1.12	412895	2.65	13255	2.90	22590	4.86	4182	1.53	3364	3.80
S	211	*	*	*	*	34050	2.29	186859	2.20	44836	1.75	67086	3.36	6867	2.73	2996	20.2
Cl	612	49332	0.438	42223	0.65	1368719	0.843	450939	2.08	150440	1.86	180600	3.74	27708	2.78	20046	0.246
K	0.424	42093	0.909	79083	0.247	283032	1.04	426009	1.25	45888	1.02	52163	5.01	16455	0.883	11971	2.68
Ca	256	4317	2.76	*	*	7795	2.65	36748	2.73	5178	4.42	4196	5.76	*	*	*	*
Sc	0.182	0.987	5.52	0.541	9.88	1.09	4.84	4.66	1.46	1.22	0.979	1.37	4.51	1.21	4.43	1.01	1.05
Ti	1.11	28.7	3.63	23.5	3.12	78.1	0.693	236	0.469	44.1	8.47	50.6	7.82	9.87	10.1	7.69	3.84
V	0.140	1.58	3.68	1.5	2.38	15.0	0.968	5.62	11.6	3.82	1.69	4.00	5.97	1.25	3.15	1.11	1.18
Cr	0.057	0.587	6.51	0.664	5.53	3.88	0.77	10.2	2.75	20.7	1.72	31.3	5.50	4.10	2.10	3.49	2.51
Mn	0.047	0.368	7.21	0.385	9.35	*	*	0.085	34.2	4.07	5.42	5.24	1.62	0.392	8.69	0.33	6.16
Fe	4.21	35.7	1.52	9.93	7.09	84.2	15.6	*	*	1560	0.73	1268	1.46	4326	0.967	2977	1.51
Co	0.062	*	*	0.089	40.3	0.179	72.4	0.440	8.03	0.396	48.1	0.567	4.60	0.069	34.6	0.091	60.3
Ni	0.204	*	*	*	*	0.835	19.9	0.313	18.1	18.4	1.69	18.4	1.45	1.41	7.64	0.753	10.6
Cu	0.115	1.32	9.12	1.44	5.17	4.10	3.87	6.2	3.3	181	1.29	117	1.35	19.1	0.945	9.04	0.611
Zn	0.008	*	*	*	*	41.9	0.663	118	0.161	98.4	1.5	117	0.852	82.5	0.866	46.6	1.19
Ga	0.034	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Ge	0.132	*	*	*	*	0.472	89.0	0.341	96.4	0.300	371	0.184	92.3	*	*	*	*
As	0.567	1.01	32.4	0.776	6.57	4.56	16.0	122	0.175	*	*	3.45	15.4	*	*	*	*
Se	2.30	*	*	*	*	*	*	32.0	11.1	31.9	11.9	35.5	2.15	*	*	*	*
Br	1.75	347	0.670	771	0.883	1708	0.549	774	0.401	301	2.65	492	0.866	38.1	5.03	32.4	4.49
Rb	0.126	59.8	0.338	105	1.84	340	0.140	525	1.97	40.5	1.30	41.9	0.197	24.5	0.800	21.2	0.815
Sr	0.039	1.93	1.22	1.07	6.94	47.9	0.345	98.9	0.378	4.38	5.10	4.08	0.882	0.269	32.7	0.197	5.64
Y	0.028	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Zr	0.124	*	*	*	*	*	*	*	*	0.195	22.7	*	*	*	*	*	*
Nb	0.019	*	*	*	*	*	*	0.044	9.00	*	*	*	*	*	*	*	*
Mo	0.190	0.314	21.9	*	*	25.0	1.73	25.3	0.722	0.437	18.7	0.587	22.6	*	*	*	*
Ru	0.042	0.049	25.9	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Pd	0.145	0.160	17.9	0.368	16.6	0.193	17.4	1.39	2.53	0.365	21.7	0.156	6.9	*	*	0.051	9.28
Ag	0.035	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Cd	0.162	0.138	11.10	0.061	14.9	0.050	6.42	*	*	*	*	0.060	19.6	*	*	0.022	4.64
In	0.029	*	*	0.011	0.447	0.101	22.4	0.016	19.8	0.041	27.1	0.007	36.6	0.051	2.70	*	*
Sn	0.073	0.121	8.90	0.245	23.1	0.297	5.64	0.305	1.29	0.410	6.50	0.158	27.8	0.264	27.6	0.107	27.4
Sb	0.111	*	*	0.016	24.3	0.014	18.4	*	*	0.316	15.0	0.407	8.57	0.087	14.3	0.025	5.40
Te	0.483	0.073	3.41	*	*	*	*	*	*	*	*	0.192	17.8	0.523	15.2	*	*
I	0.112	4.41	0.495	24.7	0.854	16.8	1.93	35.2	0.741	7.97	2.49	7.45	2.32	0.643	4.42	0.422	3.15
Cs	0.065	0.151	21.5	0.359	6.12	2.12	2.04	3.22	2.70	0.113	13.5	0.162	23.2	*	*	*	*
Ba	0.089	0.218	4	*	*	*	*	3.97	1.96	0.307	4.25	*	*	*	*	0.150	7.76
La	0.022	*	*	*	*	0.035	8.00	*	*	0.065	4.36	*	*	*	*	*	*
Ce	0.038	*	*	*	*	0.049	11.1	*	*	0.097	13.9	*	*	*	*	*	*
Pr	0.040	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Nd	0.095	*	*	*	*	*	*	*	*	*	*	*	*	0.125	7.16	*	*
Sm	0.087	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Eu	0.020	0.046	10.9	*	*	0.058	22.3	*	*	*	*	*	*	*	*	*	*
Gd	0.049	*	*	*	*	0.063	20	*	*	0.104	4	*	*	*	*	*	*
Tb	0.024	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Dy	0.067	0.169	7.95	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ho	0.035	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Er	0.111	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Tm	0.021	0.022	4.01	*	*	0.031	25.9	*	*	*	*	*	*	*	*	*	*
Yb	0.061	0.139	6.53	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lu	0.048	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Hf	0.044	0.180	12.4	*	*	*	*	0.076	17.6	*	*	*	*	*	*	*	*
Ta	0.060	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
W	0.092	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Re	0.040	*	*	*	*	*	*	0.044	6.6	*	*	*	*	*	*	*	*
Os	0.065	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ir	0.037	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Pt	0.107	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Au	0.054	*	*	0.463	10.9	*	*	0.336	16.5	0.358	10.8	0.181	20.7	*	*	*	*
Hg	0.077	*	*	*	*	0.097	63.1	0.096	29.3	*	*	*	*	*	*	*	*
Tl	0.051	*	*	*	*	0.098	35.3	0.091	13.8	*	*	*	*	*	*	*	*
Pb	0.021	0.071	8.20	0.053	34.8	0.151	40	0.795	3.71	0.209	14.3	0.239	29.8	0.150	38.2	0.409	4.66
Bi	0.129	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
U	0.124	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Table S6.2 Elemental concentrations [µg/L] of certified reference material (ICAL) for biofluid samples (saliva, urine, plasma, blood). Given are the mean [µg/L], relative standard deviation (rsd) [%] and the percentage the mean represents of the given reference value [%]. The elemental means should lie between +/-20 % of the given reference value.

	mean [µg/L]	**rsd** [%]	**wanted value [%]**	**reference**		**mean** [µg/L]	**rsd** [%]	**wanted value [%]**	**reference**
Li	15.3	0.397	76.3	*ICAL 20ppb*	Cd	21.0	2.12	105	*ICAL 20ppb*
Be	164	1.06	82.1	*ICAL 20ppb*	In			n.a.	
B	162	1.94	81.1	*ICAL 20ppb*	Sn			n.a.	
Na			n.a.		Sb			n.a.	
Mg			n.a.		Te	21.0	0.944	105	*ICAL 20ppb*
Al	16.1	0.752	80.7	*ICAL 20ppb*	In			n.a.	
Si			n.a.		Cs			n.a.	
p			n.a.		Ba	21.1	1.17	106	*ICAL 20ppb*
Si			n.a.		Lu			n.a.	
Cl			n.a.		La			n.a.	
K			n.a.		Ce			n.a.	
Ca			n.a.		Pr			n.a.	
Sc			n.a.		Nd			n.a.	
Ti			n.a.		Sm			n.a.	
V	20.0	0.200	100	*ICAL 20ppb*	Eu			n.a.	
Cr	19.3	0.789	96.5	*ICAL 20ppb*	Gd			n.a.	
Mn	20.0	1.08	100	*ICAL 20ppb*	Tb			n.a.	
Fe	159	0.305	79.6	*ICAL 20ppb*	Dy			n.a.	
Co	18.5	0.836	92.5	*ICAL 20ppb*	Ho			n.a.	
Ni	17.6	0.371	88.0	*ICAL 20ppb*	Er			n.a.	
Cu	16.7	0.795	83.5	*ICAL 20ppb*	Tm			n.a.	
Zn	198	0.336	98.9	*ICAL 20ppb*	Yb			n.a.	
Ga	18.8	0.535	94.2	*ICAL 20ppb*	Hf			n.a.	
Ge			n.a.		Ta			n.a.	
As	180	0.494	89.9	*ICAL 20ppb*	W			n.a.	
Se	198	1.86	98.8	*ICAL 20ppb*	Re			n.a.	
Br			n.a.		Os			n.a.	
Rb	18.5	0.324	92.5	*ICAL 20ppb*	Ir			n.a.	
Sr	20.2	0.457	101	*ICAL 20ppb*	Pt			n.a.	
Y			n.a.		Au			n.a.	
Zr			n.a.		Hg			n.a.	
Nb			n.a.		Tl	18.0	0.207	90.2	*ICAL 20ppb*
Mo	19.4	0.901	97.1	*ICAL 20ppb*	Pb	19.1	0.350	95.6	*ICAL 20ppb*
Ru			n.a.		Bi	17.5	0.582	87.7	*ICAL 20ppb*
Pd			n.a.		U	19.1	0.467	95.5	*ICAL 20ppb*
Ag	19.3	0.308	96.3	*ICAL 20ppb*					

Table S7 Detection limit (DL) ranges for each element. Ranges are a result of measurements on multiple isotopes and runs.

element	DL range [µg/L]	element	DL range [µg/L]	element	DL range [µg/L]
Li	0.021 - 1.12	Se	0.022 - 6.21	Gd	0.005 - 0.049
Be	0.082- 1.75	Br	0.297 - 3.24	Tb	0.001 - 0.024
B	0.474- 21.1	Rb	0.003 - 0.126	Dy	0.005 - 0.067
Na	0.193 - 143	Sr	0.004 - 0.408	Ho	0.000 - 0.035
Mg	0.054 - 43.1	Y	0.003 - 0.029	Er	0.001 - 0.111
Al	0.056 - 9.91	Zr	0.005 - 0.124	Tm	0.001 - 0.021
Si	0.538 - 51.5	Nb	0.005 - 0.019	Yb	0.001 - 0.105
P	0.481- 120	Mo	0.006- 0.329	Lu	0.002 - 0.1188
S	147- 15100	Ru	0.001 - 0.068	Hf	0.006 - 0.044
Cl	17.07.4300	Pd	0.006 - 0.145	Ta	0.002 - 0.060
K	0.007 - 19.4	Ag	0.003 - 0.047	W	0.002 - 0.092
Ca	0.635 - 256	Cd	0.002 - 0.162	Re	0.001 - 0.043
Sc	0.006 - 0.378	In	0.001 - 0.029	Os	0.004 - 0.065
Ti	0.612 - 2.52	Sn	0.004 - 0.073	Ir	0.003 - 0.037
V	0.029 - 0.756	Sb	0.004 - 0.124	Pt	0.001 - 0.107
Cr	0.029 - 2.60	I	0.013 - 0.343	Au	0.003 - 0.054
Mn	0.007 - 0.336	Te	0.011 - 0.483	Hg	0.020 - 0.077
Fe	0.215 - 52	Cs	0.002 - 0.065	Tl	0.001 - 0.051
Co	0.009 - 0.079	Ba	0.002 - 0.188	Pb	0.002 - 0.053
Ni	0.024 - 0.280	La	0.002 - 0.022	Bi	0.004 - 0.294
Cu	0.026 - 0.197	Ce	0.002 - 0.038	U	0.001 - 0.124
Zn	0.019 - 9.43	Pr	0.0003 - 0.040		
Ga	0.003 - 0.073	Nd	0.003 - 0.095		
Ge	0.009 - 0.132	Sm	0.005 - 0.087		
As	0.027 - 0.567	Eu	0.002 - 0.020		