

Table 1 Stable, soluble and toxic metals plus essential transition metals^a

Metal	mg/kg Earth crust	Mobility	OxState, Redox	MIC, Atoms/cell
Fe	56300	1.78E-07	2/3 : 771 mV	Not toxic, 537,000
Mn	950	2.11E-06	2, 4 , ff; various	20 mM, 993
V	135	1.48E-05	5 ; 4/3: 337 mV	5 mM/pH(III), 5 mM (V), bdl
Cr	100	5.00E-07	6/3 : 1350 mV	200 μ M (VI), 5 mM/pH(III), bdl
Ni	75	7.20E-05	2 , obr	1 mM, 10,800
Zn	70	1.43E-04	2 , obr	1 mM, 90,900
Cu	55	5.45E-05	1/2 : 153 mV	1 mM, 60,700
Y	33	9.09E-06	3 , obr	2 mM/pH, bdl
Co	25	1.08E-05	2 , obr	1 mM, 3,970
Mo	1.5	6.67E-03	6 , obr	Not toxic, 3,450
W	1.5	6.67E-05	6 , obr	Not toxic, bdl
Cd	0.2	5.50E-04	2 , obr	500 μ M, 221
Hg	0.08	3.75E-04	2/0 : 851 mV	10 μ M, bdl
Ag	0.07	4.29E-03	1/0 : 800 mV	20 μ M, bdl
Au	0.004	2.75E-03	3/1 : 1401 mV	20 μ M, bdl

^a These are the values plotted in Fig. 2 for the elements in groups I, II, and V plus Cr. The mobility is the quotient of the content of a metal in standard sea water in g kg^{-1} divided by the content of the earth's crust in g kg^{-1} .³⁶ OxState gives the oxidation states of the metals listed with the most frequently occurring states in bold type, and the half-cell redox potential E_0 for the indicated states;³⁶ obr, outside of the biological range for the cations in water; ff, and others. MIC is the minimal inhibitory concentration as determined for 5 days at 30 °C on Tris-buffered mineral salts medium with gluconate as the carbon source (TMM).^{4,43,44} The number of metal atoms per cell was determined by ICP-MS in TMM-grown cells;⁴⁵ bdl, below detection limit. "pH" indicates that the growth medium was strongly acidified by the added metal but the pH value could not be adjusted because otherwise metal hydroxide complexes precipitated. Fields: toxic oxyanions yellow, essential-but-toxic cations light yellow, toxic-only cadmium light orange, toxic cations orange.

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