

Table VII-6. Compositions of various marine sediments, manganese nodules, manganese crust, and phosphorite (all in ppm unless noted otherwise).

	Pelagic clay		Calcareous	Siliceous	Manganese nodule		Mn	Phospho
	average	OOPE	ooze	silt	average	OOPE	crust	-rite
	(1)	-501 (2)	-401 (2)	-402 (2)	(1)	-601 (2)	Marshall Island (3)	average (4)
Ag-47	0.11		(0.3)g	(0.04)g	0.09	(0.2)		2
Al-13 %	8.4	8.45	1.9	4.74	2.7	2.76	0.41	0.90 gu
As-33	20	32	(30)g	20	140	110	230	23
Au-79 ppb	2	5	(2)g	4	2	8		1.4
B-5	230	70	(10)g	70	300	(90)		16
Ba-56	2300	1100	100	1500	2300	1900	1000	350
Be-4	2.6	2.1	1	1.6	2.5	(8)		2.6
Bi-83	0.53	(5) ?			(7)			0.06
Br-35	~ 0				21			
C-6 %			org 0.3	0.34		0.18		2.1
	0.45	0.27	carb 8.8	0.74	0.1	0.11	0.12	0.6
Ca-20 %	1	2.17	28	4.57	2.3	1.98	2.2	31.4 gu
Cd-48	0.42	(3) ?	(4)g	(2)g	10	9	3	18
Ce-58	106	100	(20)g	33	530	500	900	104
Cl-17	~ 0		(17000)g	(30000)g		8000		300 g
Co-27	74	160	12	30	2700	3100	8400	7
Cr-24	90	90	34	80	35	17	9.1	125
Cs-55	6	5	(2)g	3	1	(30) ?		
Cu-29	250	320	30	140	4500	5100	380	75
Dy-66	12	(10)		(2)g	31	(30)		19.2
Er-68	7.2	(9)		(2)g	18	(20)	24	23.3
Eu-63	3.5	(5)	(0.6)g		9	(10)	8.1	6.5
F-9	1300	(1200)	(700)g		200	(300)		31000 gu
Fe-26 %	6.5	6.45	1.7	3.53	12.5	12	12.3	0.77 gu
Ga-31	20	14	5	11	10	(20)		4
Gd-64	13	(30)		(4)g	32	(50)	39	12.8
Ge-32	1.6	(2)	(4)g	(2)g	0.8			
Hf-72	4.1	(4)	(2)g	(2)g	8	(10)		
Hg-80	0.1				0.15			0.06
Ho-67	2.8	(2)		(0.3)g	7	(3)	8.2	4.2
I-53	28				400			24
In-49	0.08			(0.02)g	0.25			
Ir-77 ppb	0.4				7			
K-19 %	2.5	1.7	0.42	1.15	0.7	0.98	0.38	0.42 gu
La-57	42	80	7	15	157	150	190	133
Li-3	57	60	13	18	80	70		5
Lu-71	1.1	(2)	(0.3)g	(0.3)g	1.8	(2)	3.9	2.7
Mg-12 %	2.1	1.91	2.1	1.91	1.6	1.65	0.88	0.18 gu
Mn-25 %	0.67	1.37	0.16	0.28	18.6	23.2	20.4	0.12
Mo-42	27	38	4	2.8	400	430	370	9

	Pelagic clay		Calcareous	Siliceous	Manganese nodule		Mn-	Phospho
	average	OOPE	ooze	silt	average	OOPE	crust	-rite
		-501	-401	-402		-601	Marshall	average
	(1)	(2)	(2)	(2)	(1)	(2)	Island	(4)
N-7	600				200			100 m
Na-11 %	2.8	2.6	0.43	1.7	1.7	1.5	1.5	0.45 gu
Nb-41	14	12	(10)g	10	50	48		10 m
Nd-60	51	(80)	(50)g	13	158	150	150	98
Ni-28	230	370	38	100	6600	8400	3900	53
Os-76 ppb	0.14				2			
P-15	1500	3146	1000	520	2500	2840	3900	138000 gu
Pb-82	80	62	11	24	900	710	1400	50
Pd-46 ppb	6	(7)	(1)g	(3)g	6	(6)	1.1	
Pr-59	13	(20)			36		34	21
Pt-78 ppb	5	(20)		(7)g	200	190	350	
Ra-88 ppb	0.028							
Rb-37	110	90	11	46	17	16		
Re-75 ppb	0.3				1			
Rh-45 ppb	0.4			(3)g	13	(3)	14	
Ru-44 ppb	0.2				8			
S-16	2000	(1500)	1900 g	1700	4700	(1200)		7200 gu
Sb-51	1	(4)		(0.8)g	40	(20)		7 g
Sc-21	19	32	6	17	10	12		11
Se-34	0.2		(2)g	(6)g	(0.6)	(6)		4.6
Si-14 %	25	22.8	5.6	27.7	7.7	7.57	2.2	5.6 gu
Sm-62	13	20	(3)g	2.5	35	40	30	20
Sn-50	4	4	210	3.2	2	(3)		3
Sr-38	180	290	1200	340	830	900	1200	750
Ta-73	1	(1)	(1)g	(0.8)g	(10)	(5)		
Tb-65	1.9	(4)		(0.7)g	5.4	(8)	5	3.2
Te-52	1		(100)g?	(1)g	(10)	(1)		
Th-90	13	14	3	5	30	31		6.5
Ti-22	4600	5900	1800	3500	6700	8800	7700	640
Tl-81	1.8	(3)		(1)g	150	(100)		
Tm-69	1.1	(2)		(0.3)g	2.3	(2)	3.6	1.2
U-92	2.6	2.5	(2)g	1.5	5	5		120
V-23	120	150	57	85	500	400	500	100
W-74	4				100			
Y-39	60	150	9	16	150	160	190	260
Yb-70	7.3	15	(1)g	2.2	20	21	24	13
Zn-30	170	160	100	90	1200	770	540	200
Zr-40	150	190	80	100	560	600		70

Data sources: (1) Li (1991) and references therein; (2) Berkovits et al. (1991); (3) Hein et al. (1988); (4) Altschuler (1980); g: Govindaraju (1994); gu: Gulbrandsen (1966); m: Manheim et al. (1980). The values in parentheses for geostandards are uncertified, thus, probably less reliable, especially those with questions marks.