Table S2. Bulk-rock geochemistry of the manganiferous quartzite and other Mn-rich siliceous metasediments available from the literature.

Locality	Lanterman Range, Antarctica	Otago schist, New Zealand		Andros Island, Greece			Sanbagawa schist, Japan		Praborna Mn ore, Western Alps	Belgian coticule			Meta-exhalite, Venezuela
Reference	this study	Coombs et al. (1985)		Reinecke et al. (1985)			Izadyar et al. (2003)		Tumiati et al. (2010)	Herbosch et al. (2016)			Maresch et al. (2022)
		Pink Pmt-bearing quartzose schist	Brown-pink quartzose schist	Pmt- and Pmt-Sps quartzite	Chl-Ms quartzite	Sps quartzite	Tc-bearing Pmt schist	Tc-free Pmt schist		Coticule	Cld coticule	Coticule	
Major elements (wt%)													
SiO_2	86.63	80.31	67.77	78.57	83.20	63.08	71.88	77.19	59.56	59.10	66.60	54.51	51.21
TiO_2	0.23	0.33	0.50	0.33	0.31	0.46	0.12	0.33	0.26	1.05	0.48	1.06	0.52
Al_2O_3	4.66	7.58	12.37	7.48	6.90	9.90	7.14	5.76	7.92	20.30	11.30	22.50	14.59
Fe_2O_3	2.74	4.06	7.21	4.22	4.34	7.18	5.05	3.00	3.79	0.30	3.59	2.28	21.50
FeO		0.38	0.11				0.11	0.13		0.64			
MnO	1.78	1.38	2.28	1.94	0.23	13.57	1.65	0.21	12.12	9.83	16.60	10.65	6.23
MgO	0.70	0.89	1.39	1.76	1.45	1.15	2.98	2.43	1.91	1.40	0.75	1.10	1.57
CaO	0.29	1.54	2.84	1.83	0.31	2.28	2.70	2.87	5.18	0.24	0.69	0.38	3.99
Na_2O	0.28	0.78	0.97	0.24	0.22	1.40	1.06	0.96	2.78	0.69	0.10	0.83	0.05
K_2O	1.25	1.30	2.29	1.70	2.38	0.12	1.00	0.60	0.99	2.60	0.08	2.55	0.03
P_2O_5	0.08	0.03	0.11	0.10	0.09	0.11	0.20	0.16	0.10	0.07	0.06	0.11	1.28
LOI	0.90	1.24	1.67	1.33	1.15	0.45	4.99	5.50	1.46	2.50		2.95	-1.24
Total	99.54	99.82	99.51	99.50	100.58	99.70	99.18	99.17	99.04	98.72	100.25	98.91	99.78
Trace elements (ppm)													
Co	87								92	22	13		42
Ni	50			35	21	19	13	10	113	68	0.5		36
Cu	< 10	113	252	175	35	32			40	17	939		86
La	8								8.25			51.3	71.5
Ce	50.6								19.9			115.5	173.0
Pr	1.95								2.01			13.13	21.01
Nd	7.5								8.01			45.5	89.7
Sm	1.8								1.79			10.10	22.12
Eu	0.41								0.48			3.29	5.05
Gd	2.1								2.00			9.33	23.77
Tb	0.4								0.30				3.81
Dy	2.8								1.65			8.85	22.11
Y	13	20	38	25	16	43	18	16	9.32	44	15		103.7
Ho	0.6								0.31			1.65	4.59
Er	1.6								0.87			4.58	13.73
Tm	0.25								0.13				2.04
Yb	1.7								0.87			4.03	14.11
Lu	0.25								0.14			0.59	2.35

*Mineral abbreviations after Whitney and Evans (2010).