

STSD-1 to STSD-4

Stream Sediment Samples

STSD-1 to STSD-4 were chosen to represent typical stream sediments from various geochemical environments in Canada. Efforts were made to incorporate a range of concentrations for a substantial number of elements. Collection was carried out by the Geological Survey of Canada using shovels and by hand. The samples were prepared, blended and bottled at CANMET. Information on each sample follows. The National Topographic System (NTS) for identifying maps in Canada is used.

STSD-1: This sample is a single lot from Lavant Creek (31F) in Ontario.

STSD-2: This sample is a mixture of a lot from Hirok Stream (104P) and a composite lot from 93A and 93B; both lots are from British Columbia. Composites were produced by mixing unused portions of regional survey samples collected in the corresponding NTS sheets.

STSD-3: This sample is made from the same lots as STSD-2 with the addition of a lot from Lavant Creek (31F) in Ontario.

STSD-4: This sample is made from a mixture of a lot which is a composite sample from 31F in Ontario and a lot from the same composite from British Columbia used for STSD-2.

Provisional Values for Major and Minor Elements Expressed as Per Cent Oxides

100g/135

Constituent	STSD-1	STSD-2	STSD-3	STSD-4
SiO ₂	42.5	53.7	48.6	58.9
Al ₂ O ₃	9.0	16.1	10.9	12.1
Fe ₂ O ₃	6.5	7.5	6.2	5.7
MgO	2.2	3.1	2.2	2.1
CaO	3.6	4.0	3.3	4.0
Na ₂ O	1.8	1.7	1.5	2.7
K ₂ O	1.2	2.1	1.8	1.6
MnO	0.5	0.1	0.3	0.2
TiO ₂	0.8	0.8	0.7	0.8
P ₂ O ₅	0.4	0.3	0.4	0.2
LOI (1000°C)	31.6	10.3	23.6	11.6
Sum	100.1	99.7	99.5	99.9

Thirty-five laboratories provided analytical data and provisionally Certified Values are given for 65 elements. Besides "total" values, the samples were also characterized for values relating to specific types of partial extraction wherein the sample is not totally dissolved, particularly the silicate components. Geochemists and environmental scientists frequently perform this type of analysis, and these reference samples should prove useful to them. A publication giving complete details on these stream sediment reference materials will be forwarded with each unit.

Provisional Values for "Total" Elements $\mu\text{g/g}$ (except where noted)

Constituent	STSD-1	STSD-2	STSD-3	STSD-4
Ag	<0.5	0.5	<0.5	<0.5
As	23	42	28	15
Au (ng/g)	8	3	7	4
B	89	42	82	46
Ba	630	540	1490	2000
Be	1.6	5.2	2.6	1.7
Br	40	4	24	13
C (%)	12.3	1.6	8.4	4.1
Ce	51	93	63	44
Co	17	19	16	13
Cr	67	116	80	93
Cs	1.8	12	5.2	1.9
Cu	36	47	39	65
Dy	5.6	6.5	5.4	3.8
Eu	1.6	2.0	1.3	1.2
F	950	940	850	380
Fe (%)	4.7	5.2	4.4	4.1
H ₂ O- (%)	4.46	2.43	3.47	1.73
Hf	6.1	5.0	5.1	5.5
La	30	59	39	24
Li	11	65	23	14
LOI (500°C) (%)	29.7	8.7	21.6	10.2
Lu	0.8	0.7	0.8	0.5
Mn	3950	1060	2730	1520

Mo	<5	13	6	<5
Nb	5	20	12	9
Nd	28	43	33	21
Ni	24	53	30	30
Pb	35	66	40	16
Rb	30	104	68	39
S (%)	0.18	0.06	0.14	0.09
Sb	3.3	4.8	4.0	7.3
Sc	14	16	13	14
Sm	6	8	7	5
Sn	4	5	4	2
Sr	170	400	230	350
Ta	0.4	1.6	0.9	0.6
Tb	1.2	1.3	1.1	0.8
Th	3.7	17.2	8.5	4.3
Ti	4600	870	4400	4530
U	8.0	18.6	10.5	3.0
V	98	101	134	106
W	<4	7	<4	<4
Y	42	37	36	24
Yb	4.0	3.7	3.4	2.6
Zn	178	246	204	107
Zr	218	185	196	190

Provisional Values for Partial Extraction Elements

Concentrated HNO₃ - Concentrated HCl - µg/g(except where noted)

Constituent	STSD-1	STSD-2	STSD-3	STSD-4
Ag	0.3	0.5	0.4	0.3
As	17	32	22	11
Cd	0.8	0.8	1.0	0.6
Co	14	17	14	11

Cr	28	50	34	30
Cu	36	43	38	66
Fe (%)	3.5	4.1	3.4	2.6
Hg (ng/g)	110	46	90	930
Mn	3740	720	2630	1200
Mo	2	13	7	2
Ni	18	47	25	23
Pb	34	66	39	13
Sb	2.0	2.6	2.4	3.6
V	47	58	61	51
Zn	165	216	192	82

CCRMP - CANMET (NRCan) - 555 Booth Street, Ottawa, Ontario, Canada K1A 0G1

Telephone: (613) 995-4738, Facsimile: (613) 943-0573.

Internet: ccrmp@nrcan.gc.ca