Supplementary materials

A Workflow for Uncertainty Assessment in Elemental Analysis of Archaeological Ceramics: A Case Study of Neolithic Coarse Pottery from Eastern Siberia

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Table S1. The average composition of ceramic samples nos. 9, 62, 63, 66 obtained by WDXRF (major oxides) and ICP MS (minor and trace elements).

	no. 9	**no. 62**	**no. 63**	**no. 66**
Na_2O, wt.%	1.15	1.22	0.95	0.33
MgO, wt.%	1.34	1.30	1.28	1.93
Al_2O_3, wt.%	12.24	12.58	17.30	18.25
SiO_2, wt.%	68.07	65.72	58.24	62.08
P_2O_5, wt.%	0.10	0.51	0.86	0.19
K_2O, wt.%	2.05	1.86	3.41	2.64
CaO, wt.%	1.11	1.20	2.44	2.01
TiO_2, wt.%	0.56	0.56	0.98	1.03
MnO, wt.%	0.11	0.14	0.23	0.03
Fe_2O_3, wt.%	4.84	5.35	6.41	6.10
V, μg/g	77	65	139	122
Cr, μg/g	86	110	96	120
Ni, μg/g	57	40	33	47
Cu, μg/g	24	19	17	23
Zn, μg/g	44	65	115	132
Ga, μg/g	13	10	17	20
Rb, μg/g	66	44	78	87
Sr, μg/g	108	88	187	90
Y, μg/g	19	17	22	27
Zr, μg/g	202	157	176	208
Ba, μg/g	571	688	1101	489
La, μg/g	22	19	37	39
Ce, μg/g	44	37	76	77
Nd, μg/g	21	18	30	33
Th, μg/g	5.6	5.6	13	11
U, μg/g	1.3	1.4	1.9	4.3
LOI, wt.%	6.78	8.73	7.36	4.29

LOI – loss on ignition

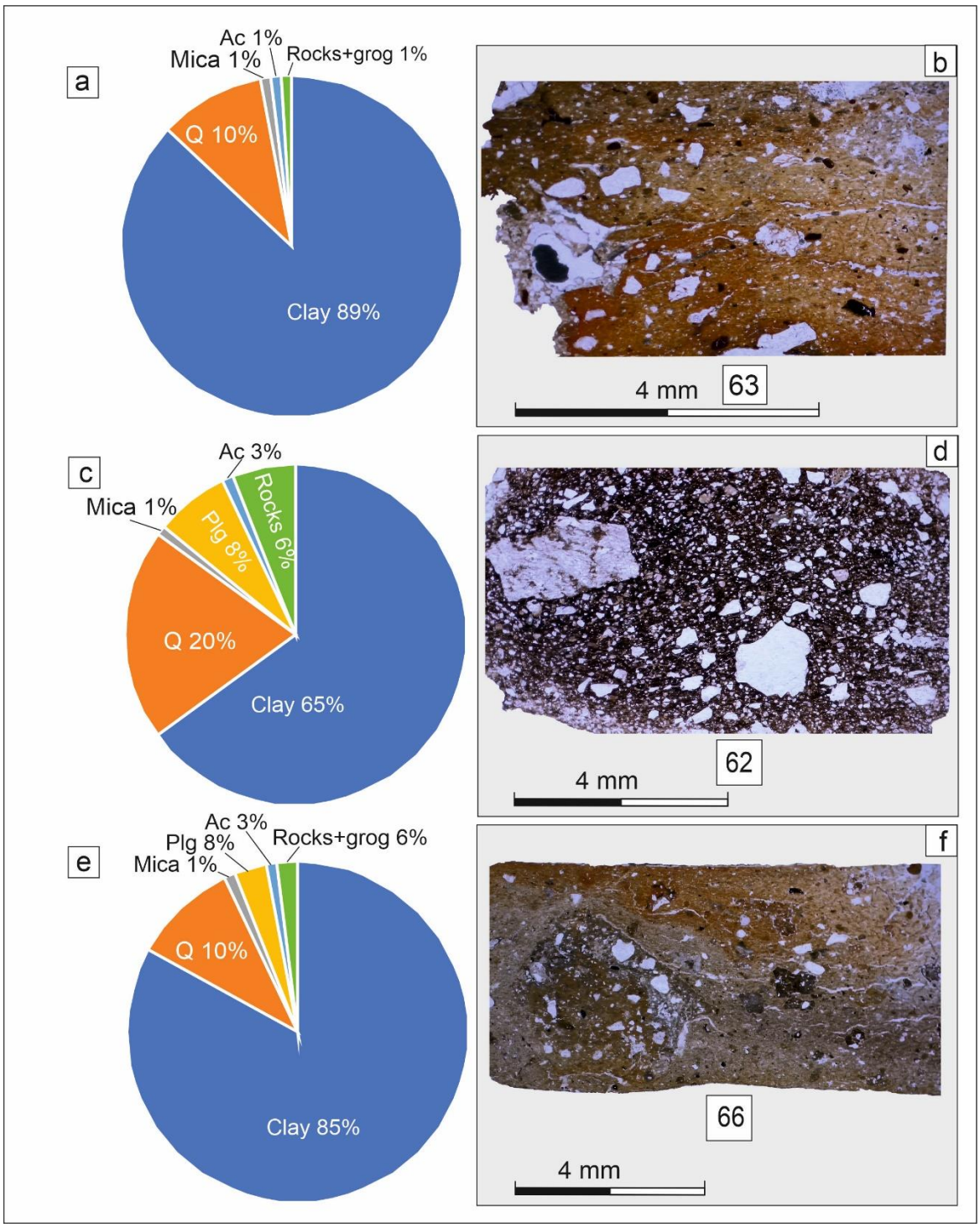

Figure S1. Dominant mineralogical combinations of the ceramics for our samples (Q – quartz, Mica, Fsp - plagioclase or K-feldspar, Ac – accessory minerels and Rock– fragments of granite and chert, grog - argillaceous clay fragments with or without mineral grains) (a, c, e). Microphotographs of pottery thin sections under plane-polarized light (b, d, f). Large inhomogeneous inclusions in ceramics include fragments of rocks and temper. Clear or translucent minerals of an angular, subangular and subrounded shape are medium- and fine-grained minerals of quartz and plagioclase or K-feldspar.

Table S2. The composition of mineral phases in ceramic samples obtained by SEM-EDS (wt.%).

Sample	Mineral phase	Determined elements in oxide form														Total
		Na_2O	MgO	Al_2O_3	SiO_2	K_2O	CaO	TiO_2	Cr_2O_3	MnO	FeO	P_2O_5	BaO	SO_3	Cl	
62a	K-feldspar	0.89		15.76	54.19	12.91										83.75
	Quartz				100											100
	Quartz				91.20											91.20
	K-feldspar	0.31		18.76	64.78	16.21					0.15		0.54			100.76
	Magnetite			2.57	2.74		1.36	0.23			82.36	1.28				90.54
	Magnetite			2.97	3.59		1.30	0.27			82.46	1.31				91.90
	Goethite			0.81	0.34			1.05			86.31					88.52
62b	Plagioclase	7.90		23.30	60.31	0.37	4.87				0.15					96.90
	Quartz			0.91	92.66	0.30										93.86
	K-feldspar	1.01		19.05	64.78	15.06					0.19					100.09
	K-feldspar	0.65		18.42	64.18	15.96					0.30					99.51
	Quartz			0.15	93.73						0.19					94.07
	Magnetite		1.87	1.34	0.26			10.08	0.61		73.19					87.35
63a	Quartz				99.97											99.97
	K-feldspar	0.36		18.21	63.03	15.99					0.14					97.73
	Epidote			20.80	36.37	1.55	18.92			0.17	9.91	0.27				87.99
	Chlorite	0.24	13.32	19.82	32.05	1.05	0.87			0.25	20.08					87.67
	Chlorite		17.38	21.62	29.33	0.17	0.15			0.40	26.57					95.61
	K-feldspar	0.59		19.03	66.34	16.56					0.17					102.69
63b	Quartz			0.17	94.37											94.54
	Quartz				95.33											95.33
	K-feldspar	0.71		19.08	65.08	15.88					0.27		0.39			101.42
	Mn-bearing phase	0.16	0.45	3.12	3.25	0.10	1.36	0.21		64.43	1.39	1.12	0.98	0.47	0.10	77.15
66a	Quartz				99.84											99.84
	K-feldspar	0.55		18.37	64.48	16.55										99.95
	Epidote		0.36	24.07	33.67		19.28			0.43	9.66					87.48
	Plagioclase	8.41		22.60	62.21	1.01	2.35				0.40					96.98
	K-feldspar	0.40		17.65	61.91	15.94					0.26					96.16
66b	Ca-enriched zone		1.26	4.55	7.19	0.49	21.87				1.44	0.85		0.20	0.10	37.95
	Ca-enriched zone	0.34	0.90	3.34	6.42	0.23	23.16				0.87	0.96		0.17	0.10	36.49
	Ca-enriched zone		0.68	1.10	3.17		30.17				0.44	0.44		0.07	0.08	36.14
	Ca-enriched zone		0.61	1.19	0.90		28.49				0.33	0.55		0.15	0.10	32.32