

Appendix A

Akhsiket glazed ceramics: analytical data

In the following appendix, results of the analytical data for each sherd are presented in numerical order according to object, layer and sherd number.

The information given includes:

Image of the sherd.

Drawing of the sherd if rim or base.

Optical microscopy (OM) image(s) as appropriate.

Backscatter electron microscope (BSE) image(s) as appropriate.

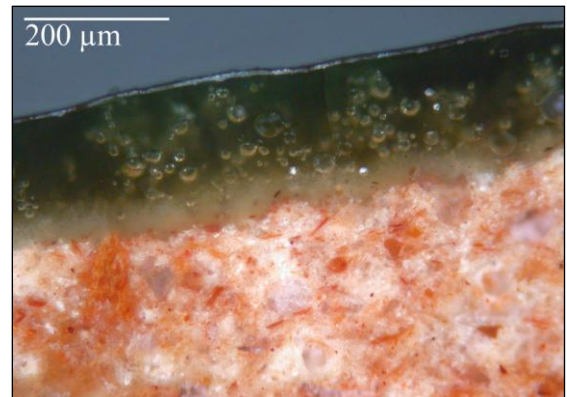
Full SEM results, divided into tables corresponding to the glaze, slips, body and inclusions (where these were analysed). 'Area 1' indicates the general area on the sherd (i.e. 'Black' glaze is an area, or over an area of black decoration). 'Area 2' is more specific. All analyses are shown normalised and the elements stoichiometrically combined with oxygen, in wt. %. Standard deviations (showing the deviation of an individual value from the mean) and standard errors (showing the accuracy of the mean) are given for each significant set of values (except spot analysis of inclusions). Analytical totals (AT) are also shown. Where there is no data for an element for a related set of analyses, the cells have been left blank. Where body inclusions have been analysed, BSE images(s) are provided with the analysed minerals numbered according to the table (quartz – pure silica – is marked with a 'Q').

Petrography results (if any) – a petrofabric description.

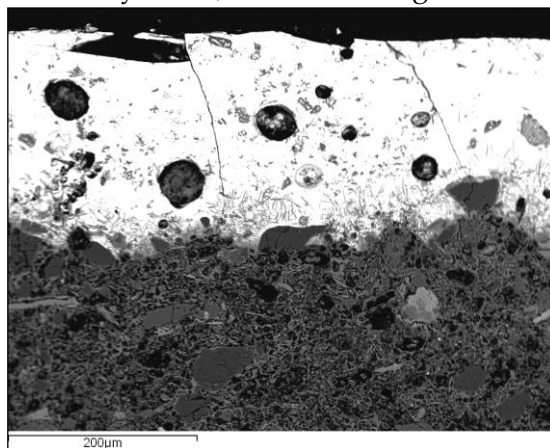
Akhsiket 9/2.3



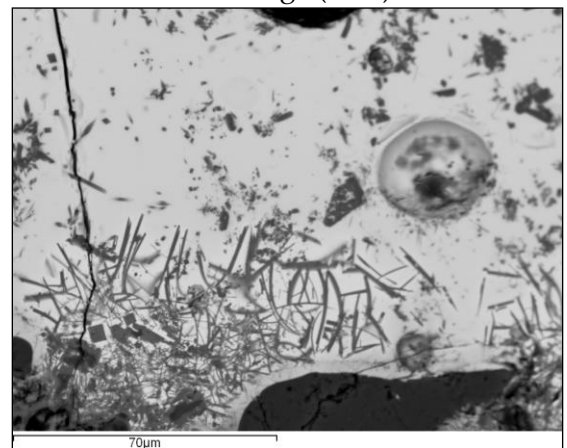
Body sherd, monochrome green.



OM image (XPL).



BSE: Green glaze. Scale is 200 microns.



BSE: Green glaze, detail. Scale is 70 microns.

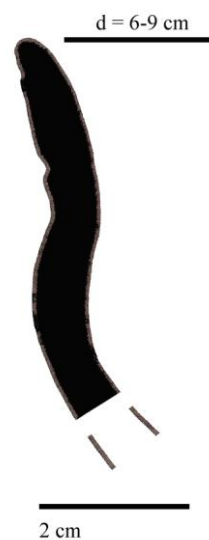
Akhsiket 9/2.3 Glaze												
Area 1	Area 2	Na ₂ O	MgO	Al ₂ O ₃	SiO ₂	K ₂ O	CaO	Fe ₂ O ₃	TiO ₂	PbO	CuO	AT %
Face 1	upper	0.7	1.1	4.4	42.0	2.5	6.5	2.6	0.0	37.4	2.9	73
Face 1	upper	0.0	1.5	4.5	42.0	2.3	6.7	2.2	0.0	37.9	3.0	73
Face 1	lower	0.0	1.8	6.8	41.6	2.3	10.5	4.0	0.0	30.7	2.3	73
Face 1	lower	0.7	1.2	5.6	43.4	2.6	7.2	3.0	0.0	33.7	2.6	73
Face 2	upper	0.0	0.8	4.6	42.5	2.7	5.5	2.2	0.0	38.7	3.1	73
Face 2	upper	0.0	0.9	5.0	41.9	2.4	5.3	2.2	0.0	38.8	3.7	72
Face 2	lower	0.8	1.2	9.5	43.1	4.0	8.5	3.8	0.0	27.2	2.1	73
Face 2	lower	0.7	1.7	7.9	43.8	4.0	8.2	4.4	0.0	27.5	1.8	73
Face	inclusion	0.0	7.6	3.9	45.7	0.9	19.0	9.2	0.6	12.2	0.9	77
Face	inclusion	0.0	12.5	2.7	50.5	0.2	26.2	4.1	0.0	2.3	1.4	76
Face	inclusion	0.0	9.7	2.7	49.3	0.7	23.2	6.4	0.0	7.2	0.8	77
Face	inclusion	1.1	0.0	15.7	56.1	10.0	2.8	1.6	0.0	12.8	0.0	72
Face	inclusion	0.0	8.8	3.2	50.3	1.1	19.8	3.4	0.0	12.3	1.1	74
Face	inclusion	0.8	1.9	16.6	45.2	2.1	16.3	5.5	0.7	10.0	0.9	75
Face	inclusion	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	80
Back 1	upper	0.9	0.9	4.4	45.9	3.0	6.4	2.5	0.0	34.5	1.7	72
Back 1	upper	0.5	0.7	4.3	45.1	2.6	6.7	2.2	0.0	35.9	2.0	70
Back 1	lower	0.6	1.6	7.4	41.1	4.1	10.3	8.6	1.4	23.1	1.8	73
Back 1	lower	0.7	1.6	7.3	45.1	4.2	8.0	4.1	0.0	27.8	1.1	71
Back 2	upper	0.9	0.0	5.1	47.4	3.1	5.2	2.5	0.0	34.3	1.6	70
Back 2	upper	0.8	0.9	4.9	46.3	3.0	6.4	2.3	0.0	33.7	1.7	70
Back 2	lower	0.7	1.7	10.3	47.7	6.0	10.9	4.7	0.0	17.9	0.0	70
Back	inclusion	0.4	0.0	23.9	39.0	0.0	24.3	9.3	0.0	2.0	1.0	74
Back	inclusion	1.1	0.0	15.6	62.6	14.4	0.0	2.5	0.0	3.9	0.0	73
Average face	upper/lower	0.4	1.3	6.0	42.5	2.9	7.3	3.0	0.0	34.0	2.7	
St. Deviation		0.4	0.4	1.9	0.8	0.7	1.7	0.9	0.0	4.9	0.6	
St. Error		0.1	0.1	0.7	0.3	0.3	0.6	0.3	0.0	1.8	0.2	
Average back	Average	0.7	1.1	6.3	45.5	3.7	7.7	3.8	0.2	29.6	1.4	
St. Deviation		0.1	0.6	2.2	2.2	1.2	2.1	2.3	0.5	6.9	0.2	
St. Error		0.1	0.2	0.8	0.8	0.5	0.8	0.9	0.2	2.6	0.3	
Average all	Average	0.5	1.2	6.1	43.9	3.3	7.5	3.4	0.1	32.0	2.1	
St. Deviation		0.3	0.5	2.0	2.2	1.0	1.9	1.7	0.4	6.1	0.9	
St. Error		0.1	0.1	0.5	0.6	0.3	0.5	0.4	0.1	1.6	0.2	

Akhsiket 9/2.3 Body									
Area 1	Na ₂ O	MgO	Al ₂ O ₃	SiO ₂	K ₂ O	CaO	Fe ₂ O ₃	TiO ₂	AT%
Body 1	1.2	3.2	12.7	53.9	3.9	16.8	7.5	0.8	83
Body 2	0.9	2.6	11.3	57.6	4.0	17.3	6.3	0.0	70
Body 3	0.8	3.2	12.1	53.5	3.2	18.9	7.5	0.8	52
Body 4	0.9	3.1	12.6	54.8	3.6	16.5	7.9	0.7	55
Average	1.0	3.0	12.2	54.9	3.7	17.4	7.3	0.6	
St. Deviation		0.2	0.3	0.7	1.8	0.3	1.1	0.7	0.4
St. Error		0.1	0.1	0.3	0.9	0.2	0.5	0.3	0.2

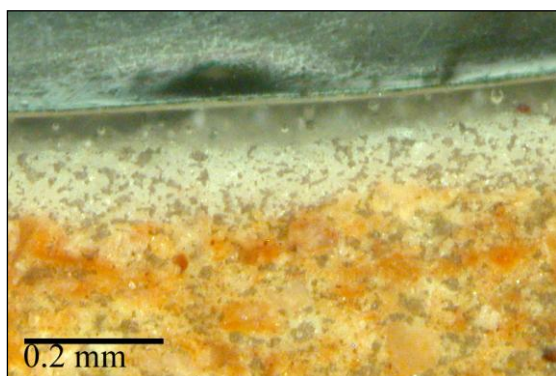
Akhsiket 9/3.3



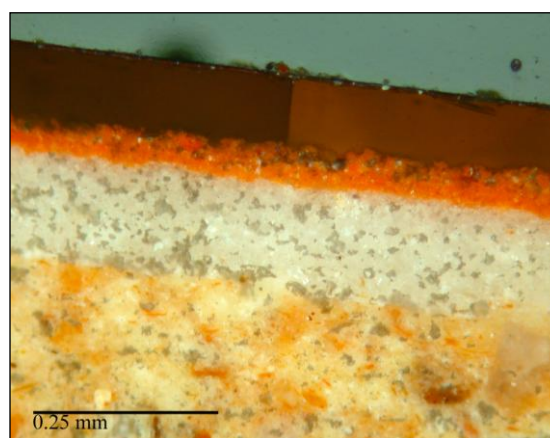
Body sherd of cup or bowl, polychrome slipware, lead glazed, black and red geometric designs, incised 'V field'.



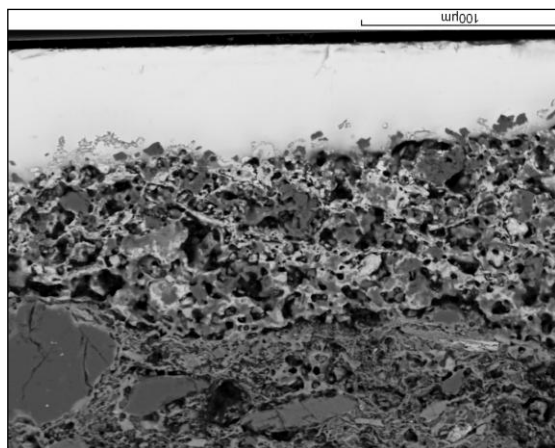
Drawing.



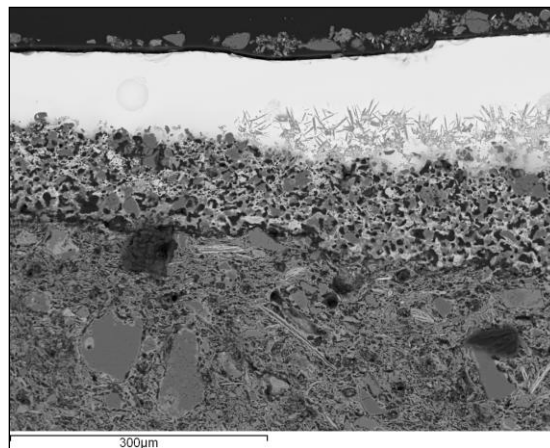
OM: Colourless decoration (XPL).



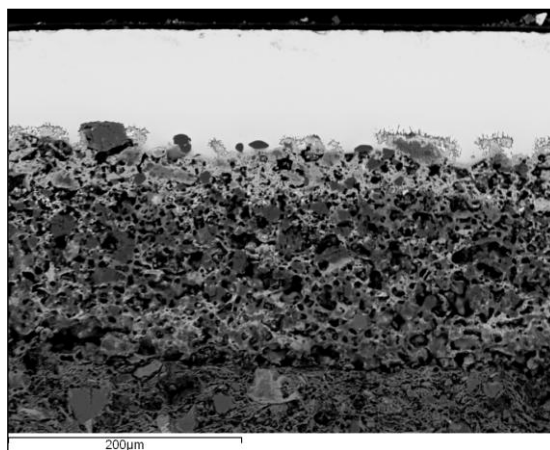
OM: Red decoration (XPL).



BSE: Colourless decoration. Scale is 100 microns.



BSE: Colourless and black – black glaze shows crystalline interface. Scale is 300 microns.



BSE: Red decoration. Scale is 200 microns.

Ahksiket 9/3.3 Glaze											
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	PbO	MnO	AT %
Red 1	upper	0.7	0.0	2.7	44.0	2.8	0.6	0.8	48.5	0.0	87
Red 1	upper	0.6	0.0	2.7	43.4	2.8	0.5	0.9	49.1	0.0	87
Red 1	lower	0.7	0.0	4.3	46.3	3.1	0.6	0.9	44.2	0.0	87
Red 2	upper	0.7	0.0	2.4	43.7	2.4	0.6	0.7	49.5	0.0	88
Red 2	upper	0.7	0.0	2.6	44.0	2.5	0.5	0.8	49.0	0.0	88
Black 1	upper	0.3	0.0	2.4	42.1	1.5	0.6	1.5	49.2	2.3	84
Black 1	upper	0.0	0.0	2.6	43.8	1.8	0.6	1.3	47.7	2.2	84
Black 1	lower	0.5	0.0	5.5	40.9	3.0	0.6	8.4	38.7	2.4	86
Black 1	crystals	0.7	0.0	8.3	26.8	3.9	1.0	48.1	7.1	4.2	99
Black 3	middle	0.6	0.0	4.5	41.3	2.4	0.5	4.6	45.6	0.5	83
Colourless 1	middle	0.6	0.3	3.1	46.0	2.3	0.5	0.0	47.3	0.0	78
Colourless 2	upper	0.6	0.0	3.2	51.2	2.9	0.5	0.0	41.6	0.0	83
Colourless 2	upper	0.8	0.0	3.2	50.5	2.9	0.5	0.0	42.0	0.0	82
Colourless 2	lower	0.8	0.0	6.0	56.4	4.6	0.0	0.0	32.2	0.0	83
Colourless 3	upper	0.7	0.0	3.7	50.3	3.4	0.0	0.5	41.4	0.0	84
Colourless 3	upper	0.5	0.0	3.4	50.8	3.0	0.4	0.6	41.3	0.0	82
Average red	upper/lower	0.7	0.0	2.9	44.3	2.7	0.6	0.8	48.1	0.0	
St. Deviation		0.1		0.8	1.1	0.3	0.1	0.1	2.2		
St. Error		0.0		0.3	0.5	0.1	0.0	0.0	1.0		
Average black	upper/lower	0.4	0.0	3.8	42.0	2.2	0.6	4.0	45.3	1.9	
St. Deviation		0.3		1.5	1.3	0.7	0.1	3.3	4.7	0.9	
St. Error		0.1		0.8	0.6	0.3	0.0	1.7	2.3	0.4	
Average c'less	upper/lower	0.7	0.1	3.8	50.9	3.2	0.3	0.2	41.0		
St. Deviation		0.1	0.1	1.1	3.3	0.8	0.3	0.3	4.9		
St. Error		0.1	0.1	0.5	1.4	0.3	0.1	0.1	2.0		

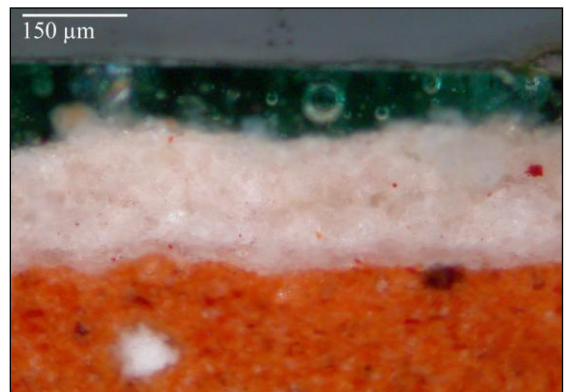
Akhsiket 9/3.3 slip and engobe												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	MnO	AT %
Red 1	red slip	0.9	0.4	15.7	55.0	7.0	0.9	5.6	0.6	14.0	0.0	80
Red 1	red slip	1.1	0.3	16.5	56.1	6.1	0.8	7.6	0.6	10.9	0.0	79
Red 1	engobe	0.6	0.7	8.6	76.0	5.6	1.4	0.6	1.0	5.5	0.0	71
Red 1	engobe	0.9	0.9	9.8	73.9	6.1	1.6	0.7	0.4	5.8	0.0	67
Red 2	red slip	0.7	0.4	15.7	57.1	6.1	1.0	6.1	1.2	11.7	0.0	74
Red 2	red slip	0.7	0.5	16.4	54.5	6.4	0.7	6.3	1.3	13.2	0.0	70
Red 2	engobe	0.8	0.6	11.3	71.5	6.4	0.9	0.7	0.5	7.5	0.0	68
Black 1	black slip	0.7	0.7	10.0	72.8	5.8	0.8	0.6	0.4	7.8	0.4	63
Black 1	engobe	0.8	0.7	10.5	71.6	6.3	0.0	0.5	0.8	8.8	0.0	63
Black 1	engobe	1.0	0.8	11.1	68.7	6.3	2.9	0.5	0.4	8.4	0.0	62
CCL 2	engobe	1.0	0.8	12.0	67.6	7.2	0.9	0.7	0.5	9.3	0.0	67
CCL 2	engobe	0.9	0.8	10.8	68.8	7.2	1.1	0.8	1.8	8.0	0.0	63
CCL 3	engobe	0.8	0.6	11.2	69.8	6.9	0.8	0.6	0.7	8.5	0.0	65
Average red	red slip	0.9	0.4	16.1	55.7	6.4	0.9	6.4	0.9	12.4	0.0	
St. Deviation		0.2	0.1	0.4	1.2	0.4	0.1	0.9	0.4	1.4		
St. Error		0.1	0.0	0.2	0.6	0.2	0.1	0.4	0.2	0.7		
Average engobe	all engobe	0.9	0.8	10.7	70.8	6.5	1.2	0.6	0.7	7.9	0.0	
St. Deviation		0.1	0.1	1.1	2.9	0.6	0.8	0.1	0.5	1.4		
St. Error		0.0	0.0	0.4	1.1	0.2	0.3	0.0	0.2	0.5		

Akhsiket 9/3.3 Body									
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	TiO2	Fe2O3	AT%
Body 1	1.0	3.7	11.9	57.5	3.1	16.5	0.7	5.6	68
Body 2	1.1	3.7	12.5	55.3	3.3	16.8	0.9	6.5	65
Body 3	1.0	4.0	11.6	56.7	3.0	16.9	0.8	6.1	68
Body 4	1.0	3.8	12.0	56.2	3.1	17.1	0.8	6.2	64
Average	1.0	3.8	12.0	56.4	3.1	16.8	0.8	6.1	
St. Deviation	0.1	0.2	0.4	1.0	0.1	0.2	0.1	0.4	
St. Error	0.0	0.1	0.2	0.5	0.1	0.1	0.1	0.2	

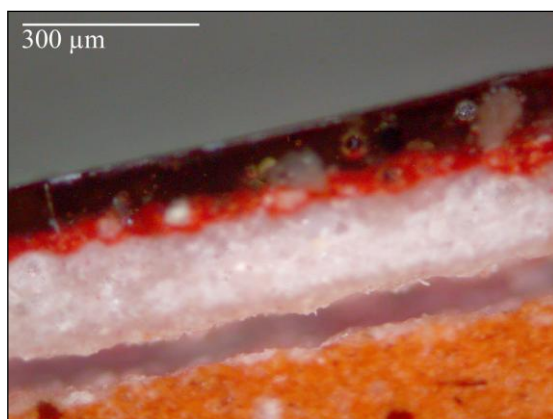
Akhsiket 15/1.1



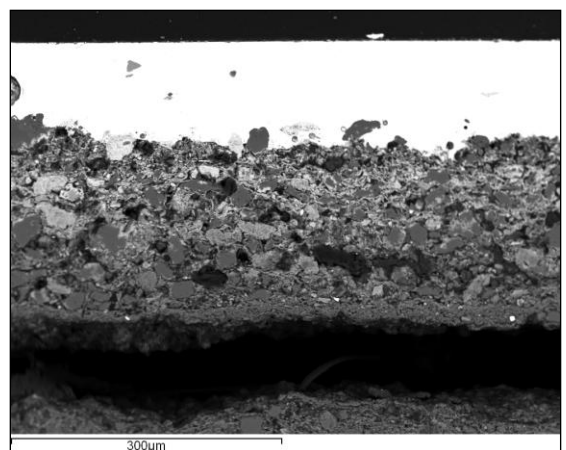
Plate with raised lip, 12th century polychrome ware.



OM image: green glaze.



OM image: red slip.



BSE: Red decoration. Scale is 300 microns.

Akhsiket 15/1.1 Glaze												
Area 1	Area 2	Na2O	Mg O	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO 2	PbO	CuO	AT %
Yellow	Upper	0.0	0.0	1.1	32.0	0.0	1.0	0.6	0.0	65.2	0.0	75
Yellow	Upper	0.0	0.0	1.1	32.1	0.0	0.8	0.5	0.0	65.6	0.0	75
Yellow	Lower	0.0	0.0	2.0	34.0	0.6	0.8	0.0	0.0	62.6	0.0	75
Yellow	Lower	0.0	0.0	2.4	34.4	0.5	0.8	0.0	0.0	62.0	0.0	74
Red	Upper	0.0	0.0	1.4	33.8	0.0	1.6	1.1	0.0	62.2	0.0	74
Red	Upper	0.0	0.0	1.7	33.2	0.0	1.2	1.4	0.0	62.5	0.0	74
Red	Upper	0.0	0.0	1.3	33.2	0.0	1.2	1.5	0.0	62.7	0.0	73
Colourless	Upper	0.0	0.0	1.4	34.9	0.0	0.7	0.0	0.9	62.2	0.0	72
Colourless	Upper	0.0	0.0	1.4	35.6	0.0	0.8	0.0	0.0	62.2	0.0	71
Green	Upper	0.0	0.0	1.4	34.6	0.4	0.7	0.0	0.0	59.9	3.0	74
Green	Upper	0.0	0.0	1.6	34.2	0.0	0.7	0.0	0.0	59.9	3.6	74
Green	Upper	0.0	0.0	1.5	34.6	0.0	0.6	0.0	0.0	59.8	3.6	74
Yellow	all	0.0	0.0	1.7	33.1	0.3	0.8	0.3	0.0	63.9	0.0	
St. Deviation				0.7	1.2	0.3	0.1	0.3		1.8		
St. Error				0.3	0.6	0.2	0.1	0.2		0.9		
Average red	upper	0.0	0.0	1.5	33.4	0.0	1.3	1.3	0.0	62.5	0.0	
St. Deviation				0.2	0.3	0.0	0.2	0.2		0.3		
St. Error				0.1	0.2	0.0	0.1	0.1		0.2		
Average colourless	upper	0.0	0.0	1.4	35.2	0.0	0.8	0.0	0.4	62.2	0.0	
St. Deviation				0.0	0.5		0.1		0.6	0.0		
Average green	upper	0.0	0.0	1.5	34.5	0.1	0.7	0.0	0.0	59.9	3.4	
St. Deviation				0.1	0.2	0.2	0.0			0.1	0.3	
St. Error				0.1	0.1	0.1	0.0			0.1	0.2	

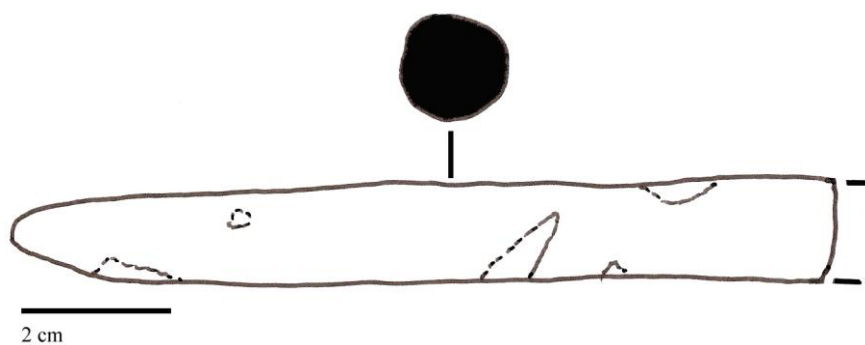
Akhsiket 15/1.1 Slip/engobe											
Area 1	Area 2	Na2O	M g O	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	AT%
Yellow	engobe-upper	0.8	0.0	12.7	58.2	4.8	3.1	0.7	0.0	19.7	35
Yellow	engobe-upper	0.8	0.0	11.2	63.2	4.6	3.4	0.0	0.0	16.9	43
Yellow	engobe-lower	0.4	0.0	18.7	51.0	5.2	1.1	0.8	0.4	22.4	55
Yellow	engobe-lower	0.0	0.0	10.1	70.0	3.2	1.3	0.8	0.8	13.9	55
Red	slip	0.7	0.6	11.7	62.5	3.9	2.4	2.3	0.0	15.9	54
Red	slip	0.6	0.0	11.9	63.4	3.9	1.5	2.2	0.0	16.5	52
Red	slip	0.6	0.0	12.2	62.1	4.2	1.7	2.6	0.0	16.7	57
Red	engobe-lower	0.5	0.0	12.9	73.3	4.3	1.9	0.5	1.0	5.6	57
Red	engobe-lower	0.5	0.6	18.7	62.2	6.2	3.4	0.8	3.0	4.6	59
Colourless	engobe	0.4	0.0	9.4	73.5	3.3	0.9	0.0	0.0	12.5	60
Colourless	engobe	0.0	0.0	8.4	73.2	2.8	1.4	0.6	2.3	11.3	53
Green	engobe	0.7	0.5	12.5	65.2	4.7	3.1	1.1	0.0	12.1	46
Green	engobe	0.7	0.5	15.3	55.2	5.3	3.0	1.0	0.6	18.4	50
Average yellow	all engobe	0.5	0.0	13.2	60.6	4.4	2.2	0.6	0.3	18.2	
St. Deviation		0.4	0.0	3.8	8.0	0.9	1.2	0.4	0.4	3.7	
St. Error		0.2	0.0	1.9	4.0	0.4	0.6	0.2	0.2	1.8	
Average red	slip	0.7	0.2	12.0	62.7	4.0	1.8	2.4	0.0	16.3	
St. Deviation		0.1	0.4	0.2	0.7	0.2	0.5	0.2	0.0	0.4	
St. Error		0.1	0.2	0.1	0.4	0.1	0.3	0.1	0.0	0.2	
Average red	engobe	0.5	0.3	15.8	67.8	5.3	2.7	0.7	2.0	5.1	
St. Deviation		0.0	0.4	4.1	7.8	1.3	1.1	0.3	1.4	0.7	
Average c'less	engobe	0.2	0.0	8.9	73.4	3.0	1.1	0.3	1.1	11.9	
St. Deviation		0.3	0.0	0.8	0.2	0.3	0.4	0.4	1.6	0.8	
Average green	engobe	0.7	0.5	13.9	60.2	5.0	3.0	1.0	0.3	15.3	
St. Deviation		0.1	0.0	2.0	7.1	0.4	0.0	0.1	0.4	4.5	
Average engobe	all engobe	0.5	0.2	13.0	64.5	4.4	2.3	0.6	0.8	13.8	
St. Deviation		0.3	0.3	3.6	8.0	1.1	1.0	0.4	1.0	5.8	
St. Error		0.1	0.1	1.1	2.5	0.3	0.3	0.1	0.3	1.8	

Akhsiket 15/1.1 Body									
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	At%
Body 1	1.2	3.1	13.8	58.2	4.7	11.2	7.2	0.5	64
Body 2	1.1	3.3	13.3	58.9	4.2	11.6	7.1	0.6	62
Body 3	1.2	3.2	14.2	56.4	4.6	12.0	7.5	0.9	57
Body 4	1.2	3.5	15.0	54.0	4.6	12.4	8.3	1.0	56
Average	1.2	3.3	14.1	56.9	4.5	11.8	7.6	0.7	
St. Deviation		0.1	0.2	0.7	2.2	0.3	0.5	0.2	
St. Error		0.0	0.1	0.4	1.1	0.1	0.3	0.1	

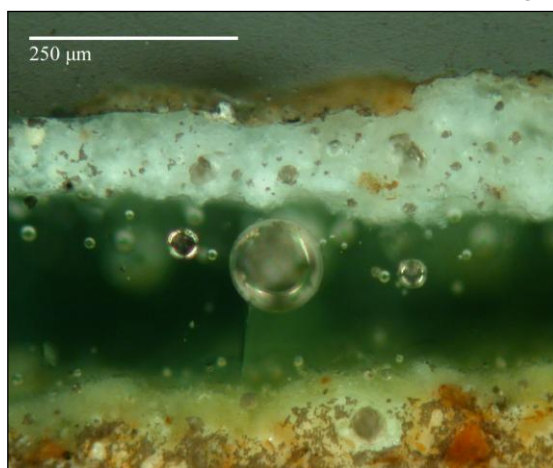
Kiln rod with glaze, 23/surface



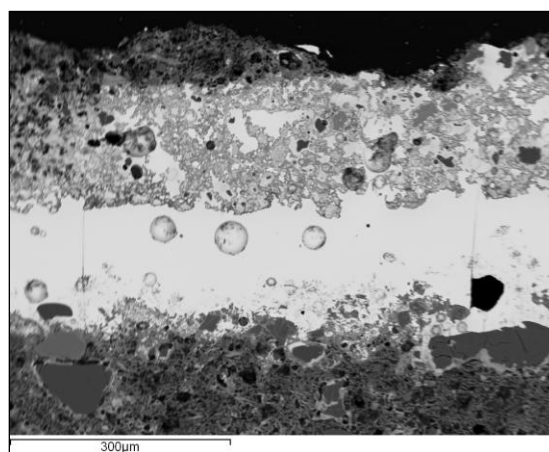
Kiln rod with green glaze.



Drawing. Scale is 2 cm.



OM: glaze (gree middle layer), XPL.



BSE: glaze (light middle layer). Scale is 300 microns.

Akhsiket 23 surface, Kiln rod green glaze											
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	PbO	CuO	AT%
Glaze 1	upper	0.6	0.7	3.3	40.0	1.8	2.6	0.9	48.4	1.7	74
Glaze 1	upper	0.0	0.7	3.8	40.2	1.5	3.2	1.2	47.6	1.8	74
Glaze 1	lower	0.0	1.4	3.9	40.3	1.7	4.5	2.1	44.6	1.5	73
Glaze 2	upper	0.8	0.0	2.5	41.9	2.1	2.3	0.0	48.6	1.8	74
Glaze 2	middle	0.0	0.5	2.8	39.8	1.7	2.1	1.1	50.3	1.8	73
Glaze 2	lower	0.0	0.0	3.1	39.8	2.0	3.0	1.2	49.2	1.8	73
Average	all glaze	0.2	0.6	3.2	40.3	1.8	3.0	1.1	48.1	1.7	
St. Dev.		0.2	0.6	3.2	40.3	1.8	3.0	1.1	48.1	1.7	
St. Error		0.2	0.2	0.2	0.3	0.1	0.4	0.3	0.8	0.1	

Akhsiket 23 surface, Kiln rod upper crystalline area of glaze											
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	PbO	CuO	AT%
Glaze 1	cryst. area	1.2	0.0	16.7	50.5	8.8	0.0	0.0	22.9	0.0	70
Glaze 2	cryst. area	1.0	0.0	21.1	47.0	7.7	0.0	0.0	23.3	0.0	72
Average	all	1.1	0.0	18.9	48.8	8.2	0.0	0.0	23.1	0.0	
St. Dev.		0.1	0.0	3.1	2.5	0.8	0.0	0.0	0.3	0.0	

Akhsiket 23 surface, Kiln rod body										
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	AT%	
Body 1	0.8	3.0	11.3	54.7	3.2	18.9	7.2	0.8	75	
Body 2	1.1	3.2	11.2	55.9	3.2	18.6	6.8	0.0	74	
Body 3	0.6	3.1	10.3	56.7	2.8	19.3	6.6	0.6	61	
Average	0.9	3.1	11.0	55.8	3.1	18.9	6.9	0.5		
St. Deviation	0.2	0.1	0.6	1.0	0.3	0.4	0.3	0.4		
St. Error	0.1	0.1	0.3	0.6	0.2	0.2	0.2	0.3		

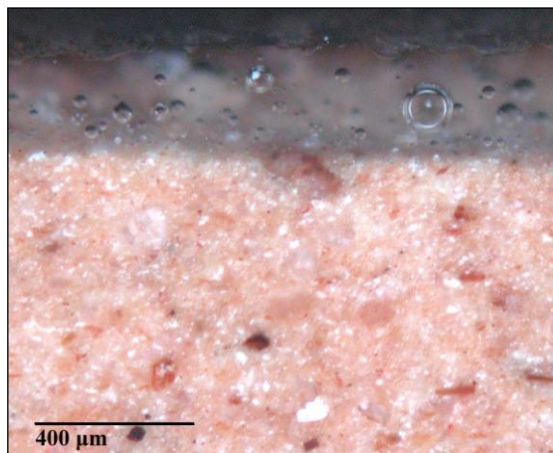
Akhsiket 23/2-8.1



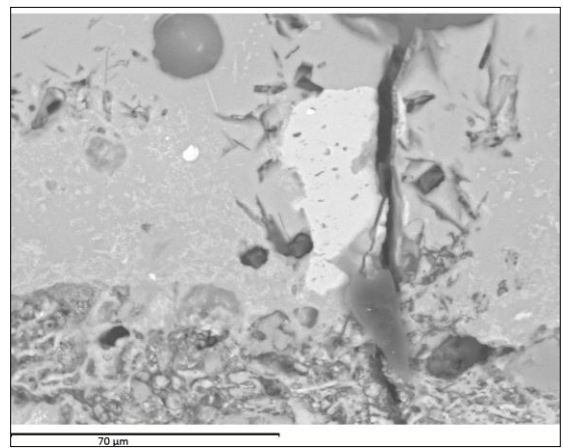
Body sherd of closed-form vessel, *ishkor*, lilac and blue.



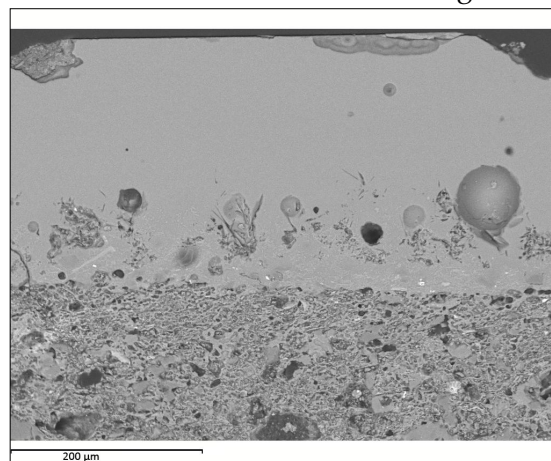
Drawing of wall shape.



OM: Lilac glaze.



BSE: Undissolved and secondary minerals in lilac glaze. Scale is 70 microns.



BSE: Lilac glaze. Scale is 200 microns.

Akhsiket 23/2-8.1 Glaze															
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	MnO	CuO	P2O5	S2O	Cl	AT%
Blue 1	upper	5.3	1.7	2.9	64.3	6.2	3.9	0.8	0.4	1.0	13.2	0.0	0.3	0.0	104
Blue 1	upper	5.3	1.8	3.5	64.9	6.3	3.6	0.7	0.4	0.9	12.1	0.0	0.4	0.0	106
Blue 1	lower	3.8	1.3	11.6	70.2	8.4	2.0	0.8	0.3	0.0	1.4	0.0	0.2	0.0	101
Blue 1	lower	5.6	1.5	26.6	54.9	8.9	1.0	0.6	0.3	0.0	0.5	0.0	0.0	0.0	108
Blue 2	lower	5.1	1.8	3.0	64.8	6.3	3.5	0.7	0.4	0.8	12.7	0.0	0.7	0.0	106
Blue 2	upper	5.7	0.4	25.2	58.5	9.0	0.6	0.3	0.0	0.0	0.4	0.0	0.0	0.0	108
Lilac 1	upper	9.1	3.0	3.5	68.7	5.4	6.6	1.3	0.0	1.9	0.00	0.0	0.4	0.2	105
Lilac 1	upper	8.8	2.9	3.6	68.7	5.4	6.9	1.4	0.0	1.9	0.00	0.0	0.3	0.2	103
Lilac 1	lower	6.7	2.5	7.4	68.2	6.0	5.7	1.7	0.3	0.8	0.00	0.0	0.4	0.2	103
Lilac 1	lower	6.1	2.6	8.7	68.0	6.5	5.1	1.9	0.3	0.5	0.00	0.0	0.3	0.2	104
Lilac 2	upper	8.8	2.8	3.6	68.6	5.6	6.0	1.3	0.3	1.8	0.00	0.0	0.4	0.3	105
Lilac 2	lower	8.9	0.8	17.2	63.8	6.6	1.7	0.6	0.0	0.3	0.00	0.0	0.0	0.1	106
Lilac 3	upper	8.7	2.9	3.4	68.5	4.9	7.6	1.2	0.3	1.9	0.00	0.0	0.4	0.3	105
Lilac 3	upper	8.7	3.2	3.1	69.0	5.0	7.6	1.1	0.2	1.9	0.00	0.0	0.0	0.3	106
Lilac 3	upper	7.4	2.3	11.9	60.6	6.0	5.5	4.6	0.7	0.6	0.00	0.0	0.0	0.3	101
Lilac 3	lower	7.2	1.8	12.1	64.0	6.9	3.5	3.2	0.7	0.4	0.00	0.0	0.0	0.3	102
Lilac 3	lower	8.5	2.1	7.8	66.5	6.0	5.0	2.0	0.3	1.2	0.00	0.0	0.3	0.4	103
Lilac 3	lower	8.6	3.0	3.5	68.6	4.9	7.6	1.3	0.2	1.9	0.00	0.0	0.4	0.2	104
Average Blue	upper/ lower	5.1	1.4	12.1	62.9	7.5	2.4	0.7	0.3	0.5	6.7	0.0	0.3	0.0	
St. Dev.		0.7	0.6	11.2	5.4	1.4	1.5	0.2	0.2	0.5	6.6		0.3		
St. Error		0.3	0.2	4.6	2.2	0.6	0.6	0.1	0.1	0.2	2.7		0.1		
Average Lilac	upper/ lower	8.1	2.5	7.1	66.9	5.8	5.7	1.8	0.3	1.3	0.00	0.0	0.2	0.2	
St. Dev.		1.0	0.7	4.6	2.7	0.7	1.8	1.1	0.2	0.7			0.2	0.1	
St. Error		0.3	0.2	1.3	0.8	0.2	0.5	0.3	0.1	0.2			0.1	0.0	

Akhsiket 23/2-8.1 Body

Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	AT%
Body 1	1.6	3.9	13.2	55.9	2.6	16.9	6.0	69
Body 2	1.3	3.9	13.7	58.1	2.7	15.0	5.3	73
Body 3	1.1	4.0	12.9	59.4	2.5	15.2	5.0	69
Body 4	1.3	3.6	13.7	57.1	2.1	16.5	5.7	41
Average	1.3	3.9	13.4	57.6	2.5	15.9	5.5	
St. Deviation	0.2	0.2	0.4	1.5	0.3	0.9	0.4	
St. Error	0.1	0.1	0.2	0.7	0.1	0.5	0.2	

Akhsiket 23/2-8.1 Inclusions

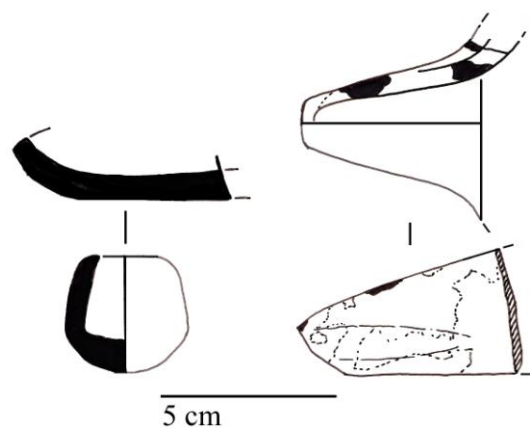
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	MnO	Cr2O3	NiO2	AT%
Inclusion 1	4.6	1.7	27.7	53.0	9.9		3.2					91
Inclusion 2	2.6	7.2	22.5	55.3	7.4		5.0					93
Inclusion 3	3.7	10.6	20.7	51.5	8.2		5.3					89
Inclusion 4		11.3	21.8	28.0	8.5	1.9	27.7		0.9			93
Inclusion 5				2.9		1.0	73.1		1.2	12.4	9.5	99
Inclusion 6	2.3	2.2	14.7	60.2	9.9	1.2	9.6					90
Inclusion 7	1.1	8.5	11.5	23.7	5.9	29.1	20.3					68
Inclusion 8		0.5		98.8			0.8					100
Inclusion 9			1.2	94.7	1.0		0.8	2.4				97
Inclusion 10		8.7	24.4	33.4	10.6	1.4	21.4					90
Inclusion 11	2.1	18.5	9.1	39.2	4.1	3.4	17.1	6.6				93
Q=quartz												



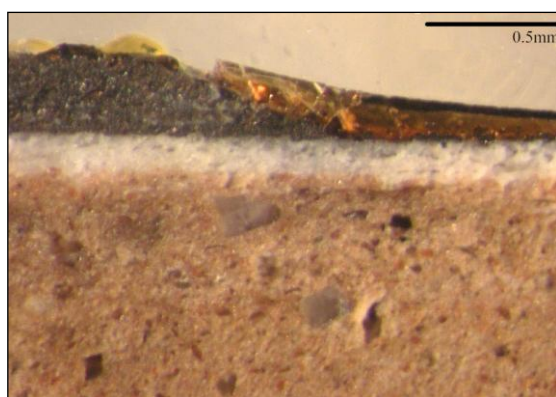
Akhsiket 23/2-8.3



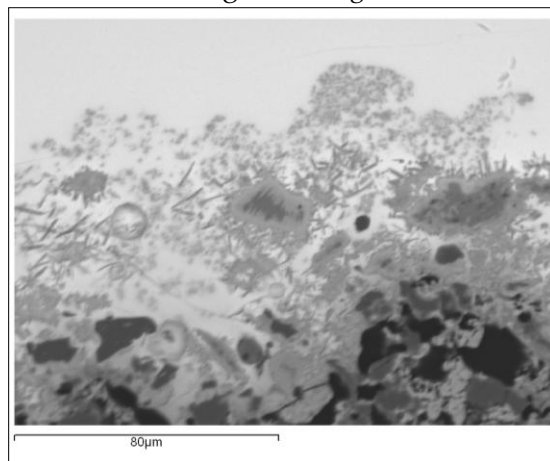
Nose of *chirag*, Samanid' style, lead glazed



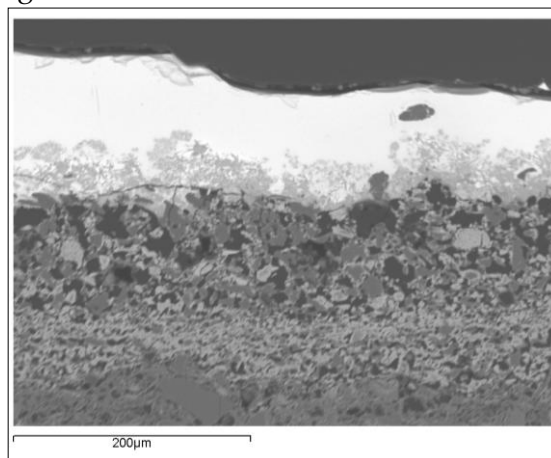
Drawings of *chirag* nose.



OM: Black slip over white engobe and coloured glaze.



BSE: Crystalline matrix in black glaze.
Scale is 80 microns.



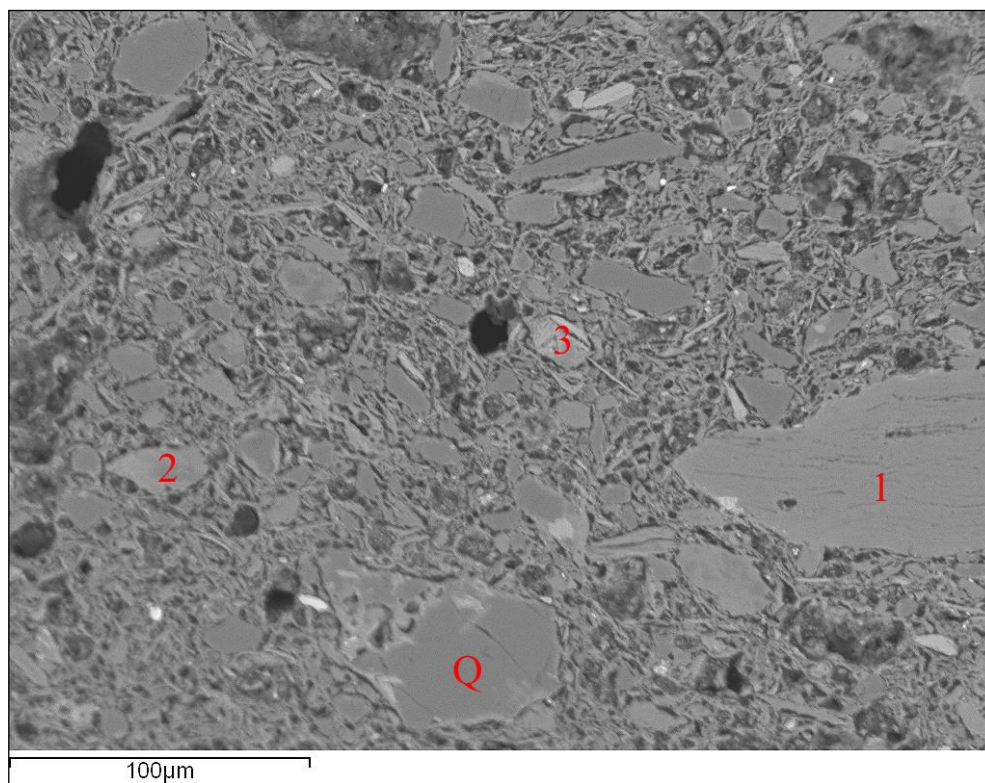
BSE: Black glaze.

Akhsiket 23/2-8.3 Glaze												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	MnO	AT%
Black	middle	0.0	0.0	3.8	40.0	1.2	0.6	2.9	0.0	49.2	2.2	81
Black	middle	0.0	0.0	4.1	41.2	1.4	0.5	4.2	0.0	46.7	1.9	81
Black	lower	0.4	0.0	6.4	31.0	2.2	0.5	26.3	0.0	30.3	2.8	86
Colourless	middle	0.3	0.0	3.5	44.0	1.4	0.5	0.0	0.0	50.3	0.0	83
Colourless	middle	0.3	0.0	3.6	44.7	1.5	0.5	0.0	0.0	49.4	0.0	82
Colourless 2	middle	0.3	0.0	3.4	43.9	1.1	0.7	0.0	0.0	50.5	0.0	79
Colourless 2	middle	0.3	0.0	3.1	43.3	1.1	0.6	0.0	0.0	51.6	0.0	79
Average black	all glaze	0.1	0.0	4.8	37.4	1.6	0.5	11.2	0.0	42.1	2.3	
St. Deviation		0.2		1.4	5.6	0.6	0.1	13.2		10.3	0.5	
St. Error		0.1		0.8	3.2	0.3	0.1	7.6		5.9	0.3	
Average colourless	middle	0.3	0.0	3.4	44.0	1.3	0.6	0.0	0.0	50.5	0.0	
St. Deviation		0.0		0.2	0.6	0.2	0.1			0.9		
St. Error		0.0		0.1	0.3	0.1	0.1			0.5		

Akhsiket 23/2-8.3 Engobe												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	AT%	
Black	engobe-upper	0.6	0.6	16.4	61.0	3.6	3.6	0.7	0.0	13.5	50	
Black	engobe-upper	0.6	0.5	15.0	65.5	4.3	1.2	0.5	0.0	12.4	56	
Black	engobe-lower	0.6	0.8	22.0	53.2	5.2	1.7	0.7	0.4	15.4	61	
Black	engobe-lower	0.7	0.9	19.0	58.3	5.3	1.5	0.6	0.0	13.7	66	
Colourless	engobe-upper	0.3	0.8	10.7	71.8	2.9	1.7	0.7	0.0	11.0	61	
Colourless	engobe-upper	0.5	0.5	13.0	68.3	3.3	1.2	0.5	0.0	12.7	52	
Colourless	engobe-lower	0.6	1.2	23.2	49.7	5.5	1.7	0.8	0.5	16.9	62	
Average all engobe		0.5	0.8	17.0	61.1	4.3	1.8	0.7	0.1	13.7		
St. Deviation		0.1	0.2	4.6	8.0	1.0	0.8	0.1	0.2	2.0		
St. Error		0.1	0.1	1.7	3.0	0.4	0.3	0.0	0.1	0.7		

Akhsiket 23/2-8.3 Body									
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	AT%
Body 1	0.8	3.3	12.8	56.9	3.5	16.2	5.8	0.7	61
Body 2	0.5	4.0	12.8	55.4	3.2	16.9	6.6	0.6	56
Body 3	0.6	3.4	12.3	57.5	2.9	16.5	6.2	0.6	61
Average	0.7	3.6	12.6	56.6	3.2	16.5	6.2	0.6	
St. Deviation	0.1	0.4	0.3	1.1	0.3	0.4	0.4	0.1	
St. Error	0.1	0.2	0.2	0.6	0.2	0.2	0.3	0.0	

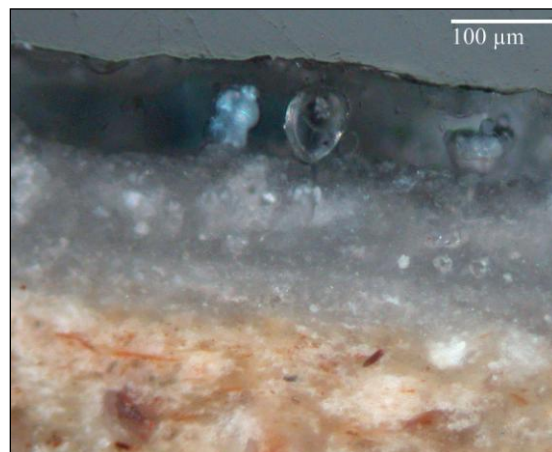
Akhsiket 23/2-8.3 Inclusions												
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	P2O5	MnO	PbO	AT%
Inclusion 1	0.5	0.9	32.7	51.9	11.9	0.0	1.7	0.4	0.0	0.0	0.0	78
Inclusion 2	0.9	0.6	11.8	72.7	10.5	1.3	2.0	0.3	0.0	0.0	0.0	80
Inclusion 3	1.2	7.3	17.9	29.8	8.2	1.2	33.2	1.3	0.0	0.0	0.0	72
Q=quartz												



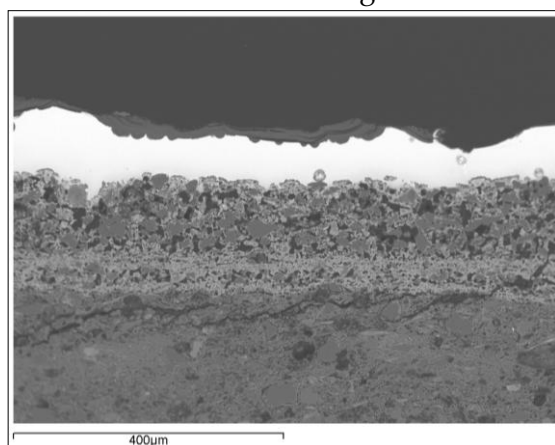
Akhsiket 23/2-8.5



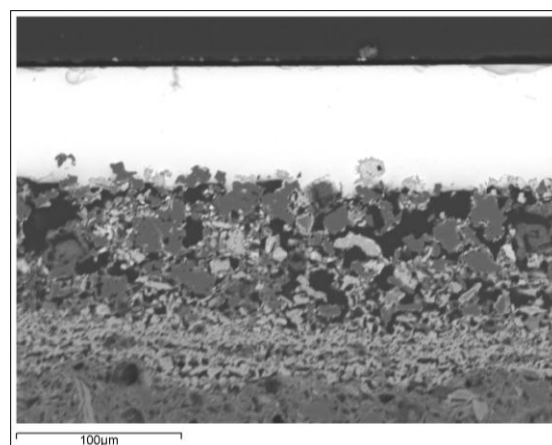
Body sherd of open-form vessel,
monochrome lead glazed



OM image.



BSE: Grey glaze and slips (face), showing
degradation of surface. Scale is 400
microns.



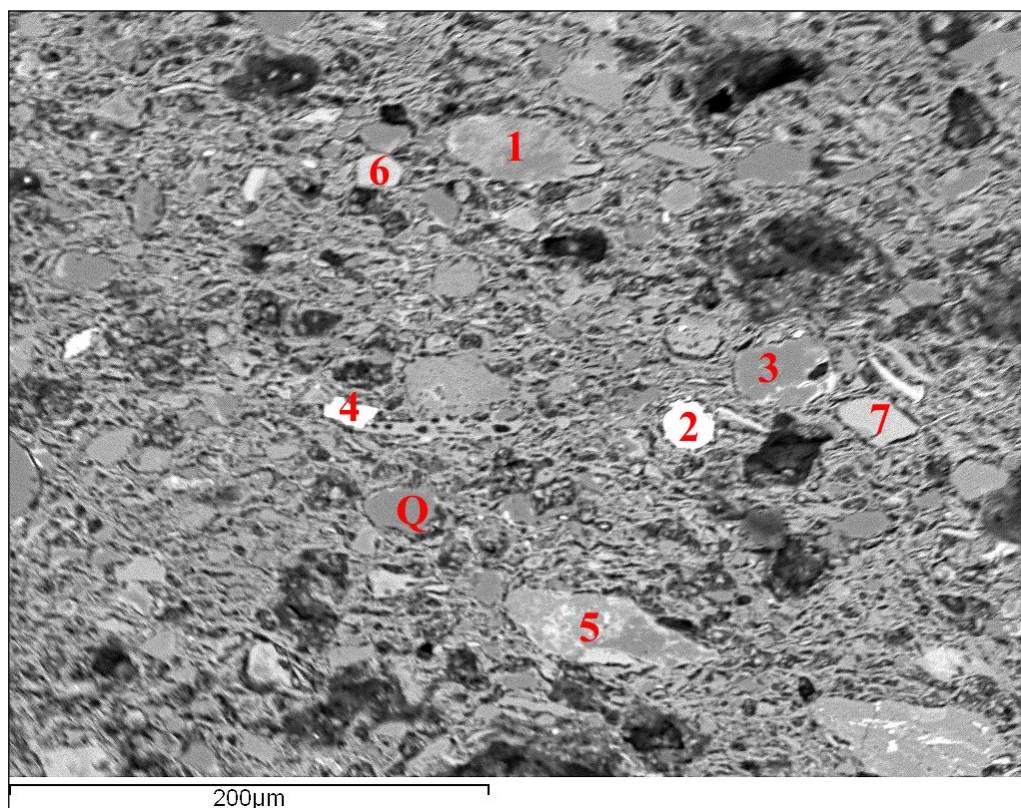
BSE: Glaze (back). Scale is 100 microns.

Akhsiket 23/2-8.5 Glaze										
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	PbO	AT%
Grey 1	middle	0.6	0.0	3.0	41.6	1.9	0.8	0.5	51.6	78
Grey 1	middle	0.4	0.0	3.5	42.0	1.9	1.0	0.0	51.2	77
Grey 2	middle	0.5	0.0	3.2	42.9	2.2	1.0	0.0	50.2	73
Grey 2	middle	0.4	0.0	3.5	42.4	2.4	0.9	0.0	50.4	71
Average grey	middle	0.5	0.0	3.3	42.2	2.1	0.9	0.1	50.8	
St. Deviation		0.1		0.3	0.5	0.2	0.1	0.3	0.6	
St. Error		0.1		0.1	0.3	0.1	0.0	0.1	0.3	

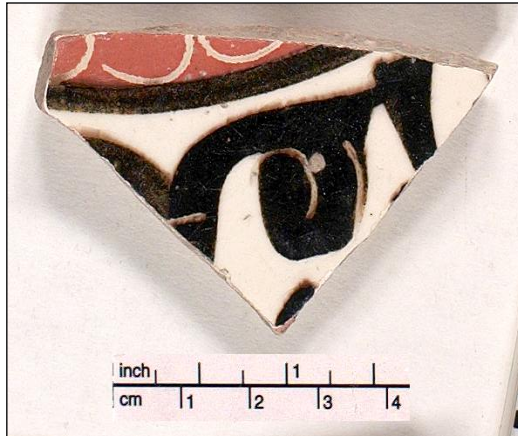
Akhsiket 23/2-8.5 Engobe											
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	PbO	SO3	AT%
Grey 1	engobe-upper	0.4	1.2	10.8	73.6	4.5	0.0	0.0	9.5	0.0	61
Grey 1	engobe-upper	0.5	1.3	12.0	70.2	5.3	0.0	0.4	10.5	0.0	58
Grey 1	engobe-lower	0.7	1.1	18.1	59.8	7.6	0.0	0.8	11.9	0.0	68
Grey 1	engobe-lower	0.7	1.1	18.6	59.3	7.8	0.0	0.9	11.6	0.0	68
Grey 2	engobe-upper	0.6	1.0	9.0	77.0	3.7	1.2	0.0	7.5	0.0	54
Grey 2	engobe-upper	0.0	0.9	6.9	80.7	3.4	1.2	0.0	6.0	1.0	48
Grey 2	engobe-lower	0.8	0.9	17.2	58.2	7.8	1.1	1.5	12.6	0.0	54
Grey 2	engobe-lower	0.7	1.0	19.2	55.9	7.6	1.3	1.2	13.2	0.0	53
Average engobe	all engobe	0.6	1.1	14.0	66.8	5.9	0.6	0.6	10.3	0.1	
St. Deviation		0.3	0.1	4.9	9.7	1.9	0.6	0.6	2.5	0.4	
St. Error		0.1	0.1	1.7	3.4	0.7	0.2	0.2	0.9	0.1	

Akhsiket 23/2-8.5 Body										
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	SO3	AT%
Body 1	0.9	5.2	12.4	57.3	2.8	13.7	6.3	0.7	0.9	53
Body 2	0.7	5.0	12.1	59.8	2.7	13.4	5.6	0.7	0.0	53
Body 3	0.7	5.4	12.7	57.7	2.3	14.4	6.0	0.7	0.0	48
Average	0.8	5.2	12.4	58.3	2.6	13.8	6.0	0.7	0.3	
St. Deviation	0.2	0.4	0.6	2.8	0.5	1.0	0.8	0.1	0.0	
St. Error	0.1	0.1	0.2	0.8	0.2	0.3	0.2	0.0	0.3	

Akhsiket 23/2-8.5 Inclusions												
Area 1	Na ₂ O	MgO	Al ₂ O ₃	SiO ₂	K ₂ O	CaO	Fe ₂ O ₃	TiO ₂	MnO	PbO	Cl	AT%
Inclusion 1	1.7	1.7	20.3	59.8	11.8	1.5	2.5			0.9		64
Inclusion 2		2.0	0.5	7.3		3.3	85.7			1.1		62
Inclusion 3	0.4	0.7	5.3	89.3	3.5		0.9					65
Inclusion 4			0.3			0.6	1.6	97.5		0.0		70
Inclusion 5	0.5	5.4	8.1	59.2	8.5	5.4	10.7			2.3		51
Inclusion 6	0.5		21.0	37.2	0.2	23.5	17.1		0.5			63
Inclusion 7	1.7	10.8	22.3	41.7	9.5	1.5	8.3			3.9	0.2	58
Q=quartz												



Akhsiket 23/2-8.11



Body sherd of bowl or plate, incised red band outlined in black with black ?kufic/pseudo-kufic.

Not analysed with SEM-EDS.

Petrofabric

Fabric colour: red

Size: ~10-15% 50-100 μ m, to ~40-50% 5-20 μ m

Sorting: Well-sorted

Shape: sub-angular and angular inclusions, with a few rounded

Density: 15%

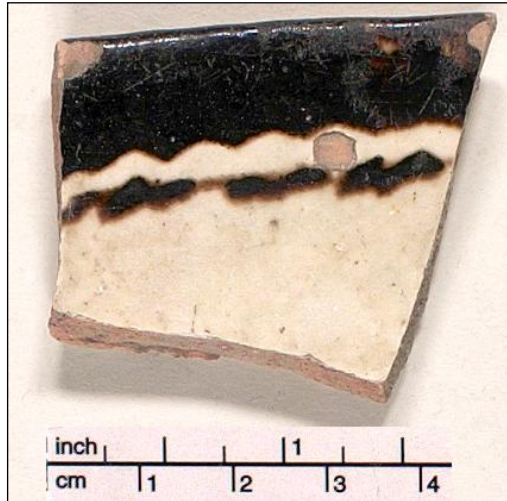
Mostly quartz: 90% monocrystalline, 10% polycrystalline

Some polycrystalline quartz ingrown with iron minerals and biotite

> 5% feldspar, calcium-rich minerals and muscovite (< 20 μ m)

Chemically well-evolved with angular quartz inclusions.

Akhsiket 23/2-8.15



Rim sherd of bowl or cup with black on white notched rim and pseudo-kufic band.



Drawing.

Petrofabric

Fabric colour: Red

Size: 5-20 μm . Few 50-100 μm

Sorting: Poorly-sorted

Shape: mostly sub-angular inclusions

Density: 30%

Mostly quartz: 50% monocrystalline, 50% polycrystalline

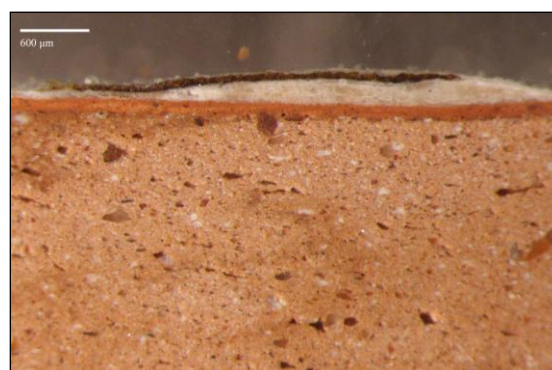
Some mica, calcium-rich inclusions

Not analysed with SEM-EDS.

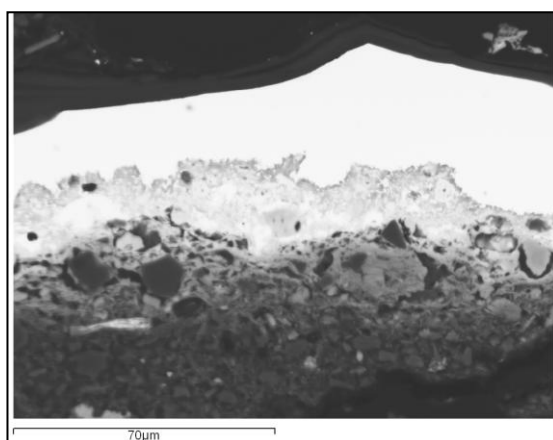
Akhsiket 23/2-8.17



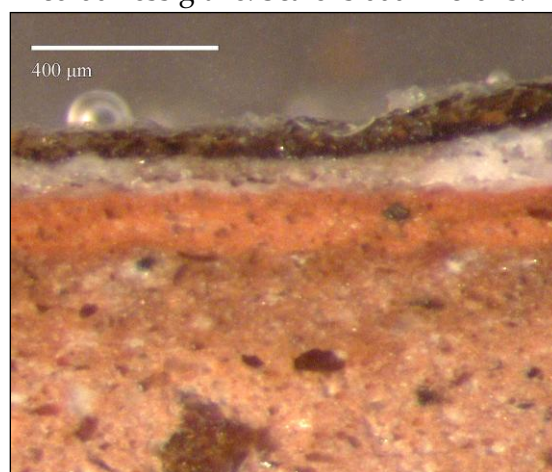
Body sherd, "bulls-eye" on red slip, lead glazed.



OM: Layers of slip covered with black and colourless glaze. Scale is 600 microns.



BSE image: glaze over red slip showing crystalline interaction layer. Scale is 70 microns.



OM: Detail of slip and black glaze.

Akhsiket 23/2-8.17 Glaze												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	MnO	AT%
Black	middle	0.0	0.0	4.8	34.7	1.6	0.5	10.5	0.0	46.9	1.1	93
Black	middle	0.7	0.0	10.1	38.5	3.1	0.0	6.0	0.0	39.3	2.5	90
Black 2	upper	0.0	0.0	3.2	36.7	0.7	0.6	3.3	0.0	54.9	0.8	85
Black 2	upper	0.0	0.0	2.5	36.7	0.6	0.7	2.9	0.0	55.6	1.0	86
Black 2	interface	0.8	0.0	18.6	38.4	2.8	0.0	2.1	0.0	36.6	0.6	86
Black 2	interface	0.9	0.0	18.2	40.4	3.4	0.0	1.8	0.0	34.5	0.9	87
C'less	middle	0.0	0.0	3.6	36.5	0.9	0.7	0.8	0.0	57.5	0.0	84
C'less	middle	0.0	0.0	3.7	34.9	0.7	0.7	1.1	0.6	58.3	0.0	84
Average black	all glaze	0.2	0.0	5.1	36.6	1.5	0.5	5.7	0.0	49.2	1.3	
St. Deviation		0.3		3.5	1.5	1.2	0.3	3.5		7.7	0.8	
St. Error		0.2		1.7	0.8	0.6	0.2	1.7		3.8	0.4	
Average black	interface	0.8	0.0	18.4	39.4	3.1	0.0	1.9	0.0	35.6	0.8	
St. Deviation		0.1		0.3	1.4	0.4	0.0	0.3		1.5	0.2	
Average c'less	middle	0.0	0.0	3.7	35.7	0.8	0.7	0.9	0.0	57.9	0.0	
St. Deviation				0.1	1.1	0.1	0.0	0.2	0.4	0.6		
St. Error				0.1	0.8	0.1	0.0	0.1	0.3	0.4		

Akhsiket 23/2-8.17 Slip/Engobe													
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	MnO	SO3	AT%
Black	red slip/upper	0.0	1.0	20.7	59.5	1.7	10.1	5.3	1.0	0.0	0.0	0.8	78
Black	red slip/lower	0.0	1.2	20.0	62.5	1.8	8.8	5.1	0.6	0.0	0.0	0.0	78
Black	red slip/lower	0.4	1.0	21.0	64.9	2.7	2.8	5.7	1.6	0.0	0.0	0.0	77
Black	slip inclusion	0.0	0.0	0.0	0.0	0.0	9.0	1.6	0.0	0.0	88.5	1.0	85
Average	red slip	0.1	1.1	20.6	62.3	2.1	7.2	5.4	1.0	0.0	0.0	0.3	
St. Dev		0.2	0.1	0.5	2.7	0.5	3.9	0.3	0.5			0.5	
St. Error		0.1	0.1	0.3	1.6	0.3	2.3	0.2	0.3			0.3	

Akhsiket 23/2-8.17 Body											
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	SO3	AT%	
Spectrum 1	1.1	4.1	13.2	60.0	3.4	11.7	5.9	0.6	0.0	70	
Spectrum 2	0.9	4.2	14.0	59.2	4.1	10.7	5.7	0.6	0.6	73	
Average	1.0	4.2	13.6	59.6	3.8	11.2	5.8	0.6	0.3		
St. Deviation		0.1	0.0	0.5	0.5	0.5	0.7	0.1	0.4		

Akhsiket 23/2-8.18



Body sherd of bowl with black on white kufic design.

Not analysed with SEM-EDS.

Petrofabric

Fabric colour: buff

Size: 5-20 μm . Few 50-100 μm

Sorting: Poorly sorted

Shape: sub-rounded and angular inclusions

Density: 20%

Mostly quartz: 90% monocrystalline, 10% polycrystalline

Some ~50 μm calcium-rich inclusions

Some mica

Chemically well-evolved with angular quartz.

Akhsiket 23/10a.1

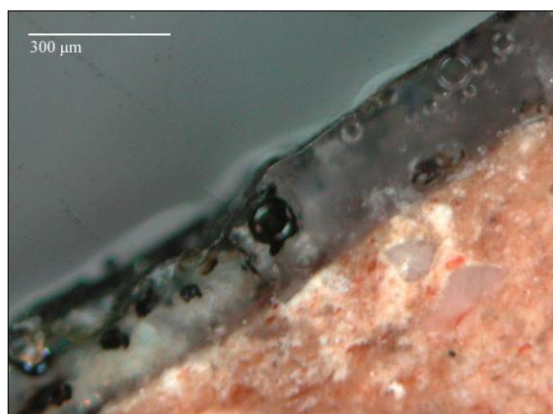


Body sherd near base of skumorphic jar,
alkaline glaze

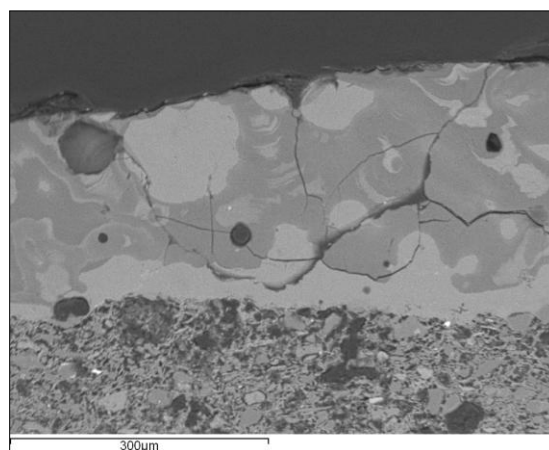


2.5 cm

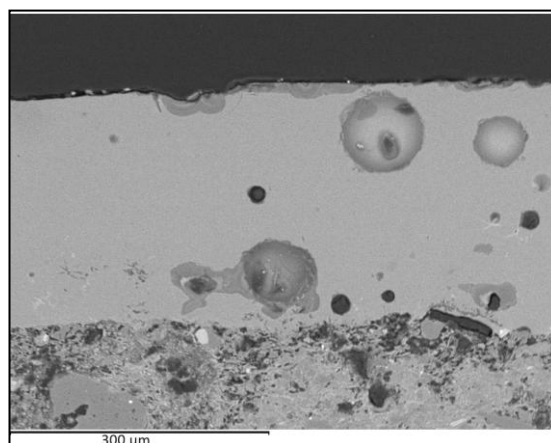
Drawing of vessel base.



OM: Glaze.



BSE: Glaze with dark areas.

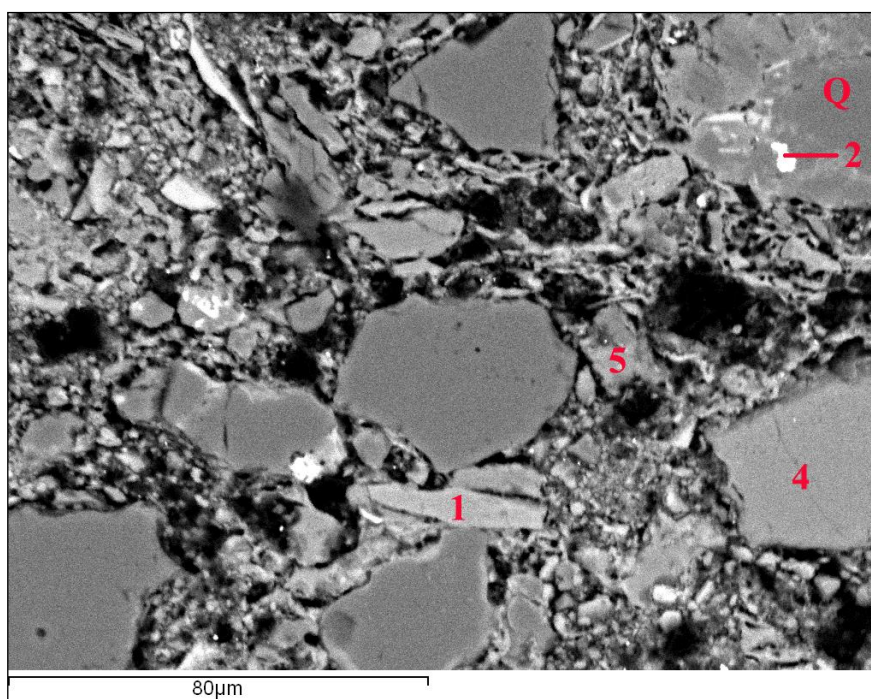


BSE: Glaze.

Akhsiket 23/10a.1 Glaze															
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	MnO	CuO	P2O5	S2O	Cl	AT%
Face 1	upper (light)	8.8	2.0	8.7	62.7	8.1	4.8	2.4	0.0	1.0	0.0	0.0	0.7	0.8	94
Face 1	upper (light)	8.3	2.5	5.9	67.0	7.5	5.5	1.3	0.0	1.3	0.0	0.0	0.0	0.8	93
Face 1	lower (light)	8.1	2.6	4.1	66.6	7.3	7.2	1.8	0.0	1.2	0.0	0.0	0.0	1.0	89
Face 1	lower (light)	7.1	2.3	4.9	66.5	7.4	7.4	2.5	0.0	1.0	0.0	0.0	0.0	0.9	92
Face 1	middle (dark)	1.6	0.0	6.6	78.9	8.7	0.0	2.2	0.0	0.8	0.0	0.0	0.0	1.3	77
Face 1	middle (dark)	1.8	0.0	6.9	79.3	8.4	0.0	2.2	0.0	0.0	0.0	0.0	0.0	1.4	79
Face 2	upper	8.6	2.6	3.9	67.0	7.2	6.6	1.2	0.0	1.7	0.0	0.0	0.0	1.2	93
Face 2	upper	9.2	2.5	3.7	66.5	7.1	7.1	1.2	0.0	1.8	0.0	0.0	0.0	1.0	93
Back 3	upper	7.6	2.7	3.5	67.5	7.7	6.9	1.3	0.5	1.4	0.0	0.0	0.0	1.0	92
Back 3	upper	7.6	2.8	4.1	67.2	7.8	6.8	1.1	0.0	1.6	0.0	0.0	0.0	1.1	89
Back 4	upper	7.0	2.9	3.6	67.0	8.2	6.9	1.4	0.0	1.8	0.0	0.0	0.0	1.2	92
Back 4	upper	6.9	3.0	3.9	67.3	7.9	6.5	1.5	0.0	1.7	0.0	0.0	0.0	1.2	90
Average light face	upper/lower	8.3	2.4	5.2	66.0	7.5	6.4	1.7	0.0	1.3	0.0	0.0	0.1	1.0	
St. Deviation		0.7	0.2	1.9	1.7	0.4	1.1	0.6	0.0	0.3			0.3	0.1	
St. Error		0.3	0.1	0.8	0.7	0.1	0.4	0.2	0.0	0.1			0.1	0.1	
Average dark face	upper/lower	1.7	0.0	6.8	79.1	8.5	0.0	2.2	0.0	0.4	0.0	0.0	0.0	1.3	
St. Deviation		0.2	0.0	0.2	0.3	0.2	0.0	0.0	0.0	0.5			0.0	0.1	
Average back	upper	7.3	2.8	3.8	67.3	7.9	6.8	1.3	0.1	1.6	0.0	0.0	0.0	1.1	
St. Deviation		0.4	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2			0.0	0.1	
St. Error		0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1			0.0	0.1	

Akhsiket 23/10a.1 Body									
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	AT%
Body 1	1.0	2.8	11.5	63.2	3.3	13.1	4.9	0.0	67
Body 2	1.1	2.9	12.8	57.7	3.6	15.2	5.6	0.8	64
Body 3	0.9	3.4	13.4	56.6	3.8	15.7	5.6	0.7	68
Body 4	0.7	3.0	13.6	56.8	3.8	16.2	5.2	0.7	69
Average	0.9	3.0	12.8	58.6	3.6	15.0	5.3	0.5	
St. Deviation	0.1	0.3	0.9	3.1	0.3	1.4	0.3	0.4	
St. Error	0.1	0.1	0.5	1.6	0.1	0.7	0.2	0.2	

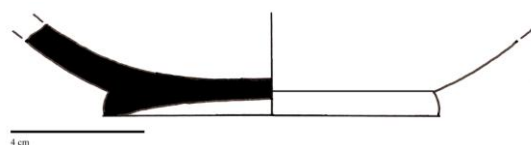
Akhsiket 23/10a.1 Inclusions													
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	P2O5	La	Ce	Nd	AT%
Inclusion 1	1.0	14.7	1.1	58.1		13.1	11.9						90
Inclusion 2			2.1	36.3	1.3	0.6	0.6		17.1	13.9	21.9	6.2	95
Inclusion 3	0.5		16.3	66.4	16.9								91
Inclusion 4		0.4	6.7	80.8	6.6	5.1	0.5						96
Q=quartz													



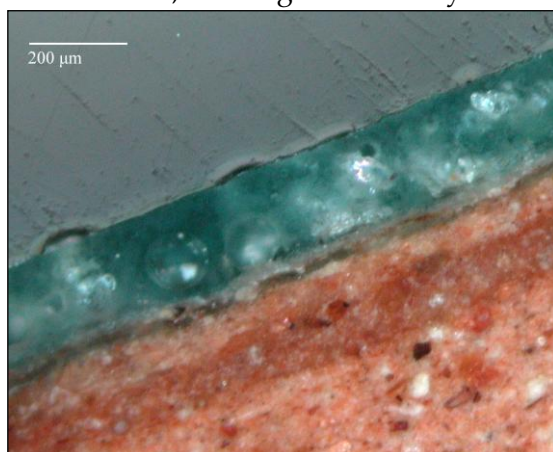
Akhsiket 23/10b.3



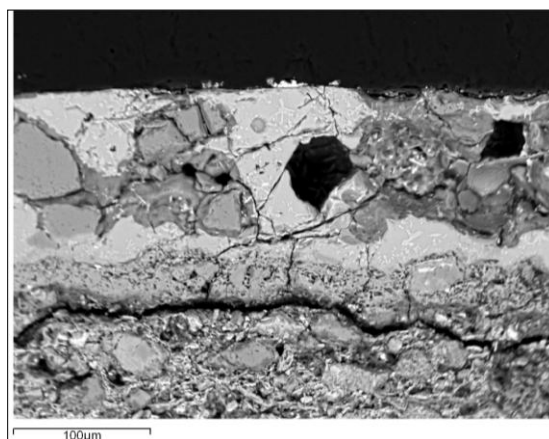
Base of bowl, ishkor glaze with ?eye motif



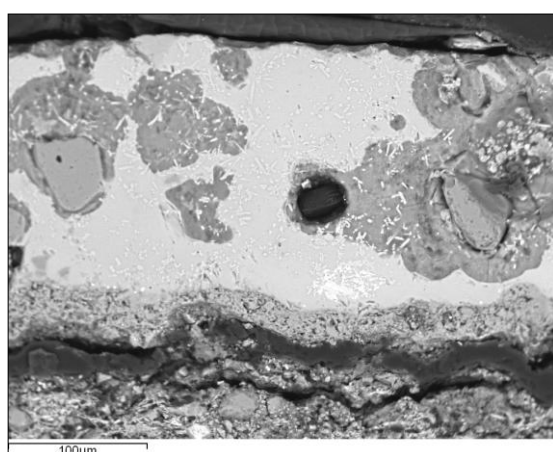
Drawing. Scale is 4 cm.



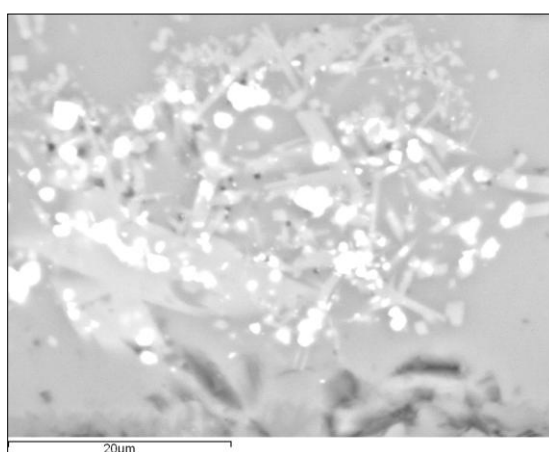
OM: Blue glaze.



BSE: Lilac glaze. Scale is 100 microns.



BSE: Blue glaze. Scale is 100 microns.

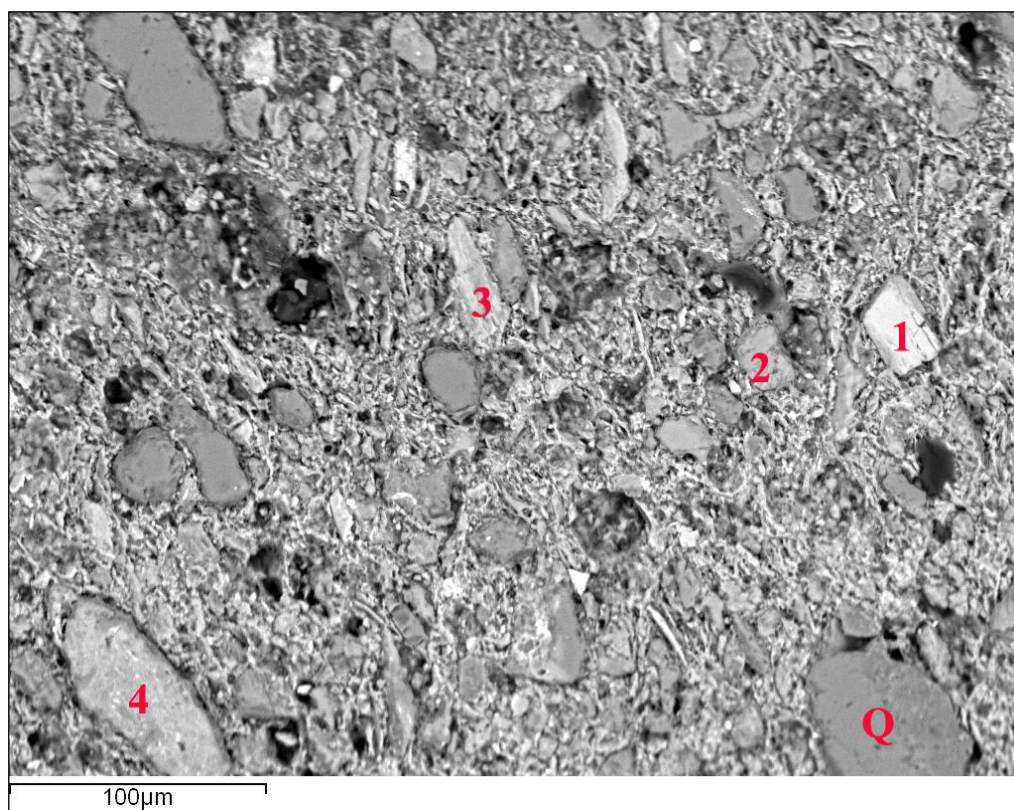


BSE: Crystal formation in blue glaze. Scale is 20 microns.

Akhsiket 23/10b.3 Glaze																
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	MnO	CuO	P2O5	S2O	Cl	SbO	AT%
Blue 1	middle (light)	8.3	1.4	3.6	66.1	3.6	4.9	1.1	0.0	1.5	8.6	0.0	0.0	0.9	0.0	76
Blue 2	Inclusion (long)	1.8	11.5	0.7	55.8	0.5	21.9	2.6	0.0	2.3	3.0	0.0	0.0	0.0	0.0	77
Blue 2	inclusion (round)	4.4	1.0	2.6	39.5	2.1	8.8	0.7	0.0	0.6	4.3	0.0	0.7	0.0	34.7	78
Blue 3	upper (light)	7.7	1.9	3.9	66.9	3.8	4.8	1.3	0.0	1.5	7.2	0.0	0.0	1.0	0.0	73
Blue 3	lower (light)	7.0	2.4	3.6	68.9	3.7	5.1	1.5	0.0	1.3	5.4	0.0	0.6	0.7	0.0	75
Blue 3	upper (dark)	1.9	1.1	7.1	73.4	7.8	4.8	2.4	0.0	0.0	0.0	0.0	0.9	0.8	0.0	73
Blue 3	spot crystalline	1.9	4.1	3.4	58.4	1.8	19.5	1.7	0.0	1.6	7.4	0.0	0.0	0.3	0.0	72
Blue 3	interface	13.8	0.0	31.7	47.2	4.9	1.4	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	68
Blue 4	spot glaze	4.2	1.2	3.4	69.8	3.4	5.3	1.0	0.0	1.6	9.1	0.0	0.0	0.0	0.0	68
Blue 4	spot glaze	4.6	1.0	5.3	70.0	3.7	4.1	1.3	0.5	1.5	7.1	0.0	0.0	0.0	0.0	70
Blue 4	inclusion (round)	1.2	1.6	0.0	11.2	0.0	11.9	5.0	2.8	0.0	2.4	0.0	0.0	0.0	47.8	80
Blue 4	inclusion (round)	3.2	1.4	1.6	19.3	1.4	0.0	1.5	0.0	0.0	3.7	0.0	0.0	0.0	40.8	66
Blue 4	inclusion (long)	0.0	0.5	0.0	50.1	0.0	44.5	0.0	0.0	1.2	3.7	0.0	0.0	0.0	0.0	79
Blue 4	inclusion (long)	2.6	8.2	1.9	58.0	1.4	16.2	2.8	0.0	2.4	6.2	0.0	0.0	0.0	0.0	75
Lilac 1	lower (light)	5.7	4.7	3.9	67.2	3.4	9.7	2.2	0.0	1.6	1.2	0.0	0.0	0.6	0.0	73
Lilac 1	upper (dark)	1.1	1.7	5.9	77.8	5.1	4.3	2.8	0.0	0.0	0.0	0.0	0.9	0.5	0.0	40
Lilac 1	interface	9.4	0.0	22.7	62.5	3.9	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	63
Lilac 2	middle (light)	7.5	1.9	4.5	69.2	4.2	5.6	1.5	0.0	1.9	3.0	0.0	0.0	0.0	0.0	73
Lilac 2	inclusion (long)	1.7	12.6	0.8	56.2	0.5	21.9	3.1	0.6	1.9	0.0	0.7	0.0	0.0	0.0	76
Average blue	all light areas	7.7	1.9	3.7	67.3	3.7	4.9	1.3	0.0	1.4	7.1	0.0	0.2	0.9	0.0	
St. Deviation		0.7	0.5	0.2	1.5	0.1	0.1	0.2	0.0	0.1	1.6	0.0	0.3	0.2	0.0	
St. Error		0.4	0.3	0.1	0.8	0.0	0.1	0.1	0.0	0.1	0.9	0.0	0.2	0.1	0.0	
Average blue	spot analyses	4.4	1.1	4.3	69.9	3.5	4.7	1.2	0.3	1.6	8.1	0.0	0.0	0.0	0.0	
St. Deviation		0.3	0.2	1.4	0.1	0.2	0.8	0.2	0.4	0.1	1.4	0.0	0.0	0.0	0.0	
Average lilac	all light areas	6.6	3.3	4.2	68.2	3.8	7.6	1.8	0.0	1.8	2.1	0.0	0.0	0.3	0.0	
St. Deviation		1.3	1.9	0.4	1.4	0.6	2.9	0.5	0.0	0.2	1.3	0.0	0.0	0.4	0.0	

Akhsiket 23/10b.3 Body									
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	AT%
Body 1	1.2	2.9	13.2	54.0	4.8	15.5	7.4	0.9	58
Body 2	1.5	3.4	13.2	52.2	4.7	16.3	8.0	0.6	56
Body 3	1.3	3.2	12.0	53.3	4.6	17.1	7.8	0.7	52
Average	1.4	3.2	12.8	53.2	4.7	16.3	7.7	0.7	
St. Deviation	0.1	0.3	0.7	0.9	0.1	0.8	0.3	0.2	
St. Error	0.1	0.2	0.4	0.5	0.1	0.5	0.2	0.1	

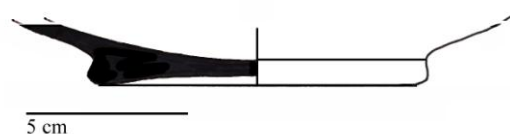
Akhsiket 23/10b.3 Inclusions									
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	AT%
Inclusion 1	1.4	8.8	9.8	42.7	1.3	12.1	22.1	1.8	72
Inclusion 2	0.8		17.4	66.0	15.5	0.5			71
Inclusion 3	0.0	9.6	19.4	33.4	9.5	0.0	27.2	0.9	51
Inclusion 4	1.8	2.3	21.5	52.0	9.0	0.6	11.0	1.7	66
Q=quartz									



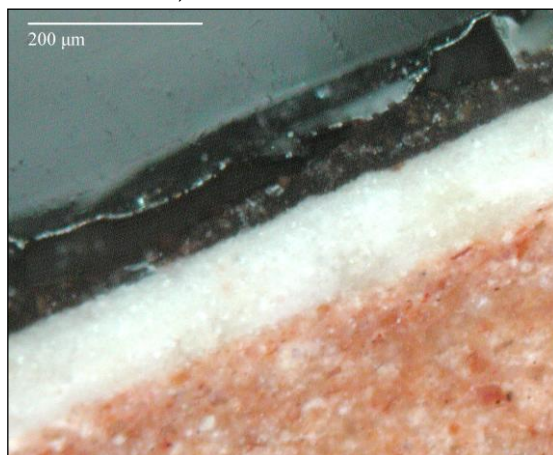
Akhsiket 23/11a.2



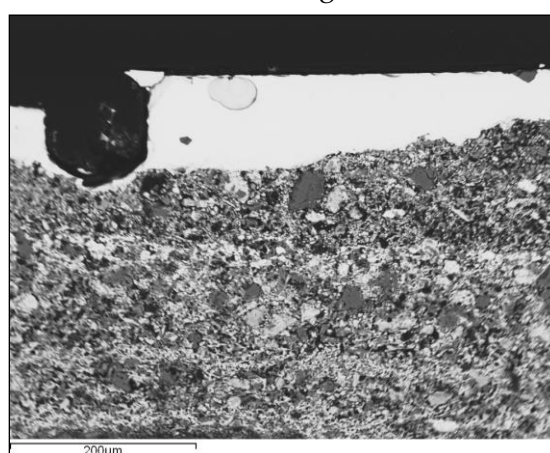
Base of bowl, red and black rosette motif.



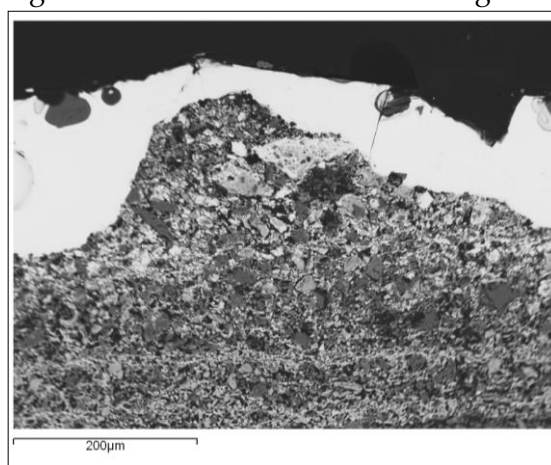
Drawing.



OM: Black glaze.



BSE: Black glaze. Scale is 200 microns.



BSE: Red decoration. Scale is 200 microns.

Akhsiket 23/11a.2 Glaze											
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	PbO	MnO	AT%
Black area	lower	0.4	0.0	2.8	43.3	1.8	0.6	2.2	48.4	0.5	91
Black area	lower	0.0	0.0	3.0	44.6	2.0	0.6	2.2	47.6	0.0	85
Black area	upper	0.0	0.0	2.6	43.7	1.5	0.6	0.6	51.1	0.0	90
Black area	upper	0.0	0.0	2.5	42.3	1.6	0.7	0.9	51.4	0.6	88
Black area 2	upper	0.0	0.0	2.4	45.7	1.7	0.8	0.6	48.9	0.0	92
Black area 2	upper	0.5	0.0	2.8	44.0	1.6	0.6	0.7	49.8	0.0	91
Black area 2	lower	0.0	0.0	3.4	42.6	1.9	0.8	1.8	49.5	0.0	88
Black area 2	lower	0.5	0.0	3.9	43.6	2.1	0.7	1.3	48.0	0.0	88
Colourless area	upper	0.0	0.0	2.2	38.9	1.2	0.6	0.0	57.1	0.0	91
Colourless area	upper	0.5	0.0	2.4	40.0	1.2	0.6	0.0	55.2	0.0	91
Colourless area	lower	0.0	0.0	3.7	43.5	2.0	0.6	0.0	50.2	0.0	86
Colourless area	lower	0.0	0.0	3.7	45.2	2.0	0.5	0.0	48.6	0.0	87
Average black	upper/lower	0.2	0.0	2.9	43.7	1.8	0.7	1.3	49.3	0.1	
St. Deviation		0.2		0.5	1.1	0.2	0.1	0.7	1.4	0.3	
St. Error		0.1		0.2	0.4	0.1	0.0	0.3	0.5	0.1	
Average c'less	upper/lower	0.1	0.0	3.0	41.9	1.6	0.6	0.0	52.8	0.0	
St. Deviation		0.3		0.8	3.0	0.4	0.1		4.0		
St. Error		0.1		0.4	1.5	0.2	0.0		2.0		

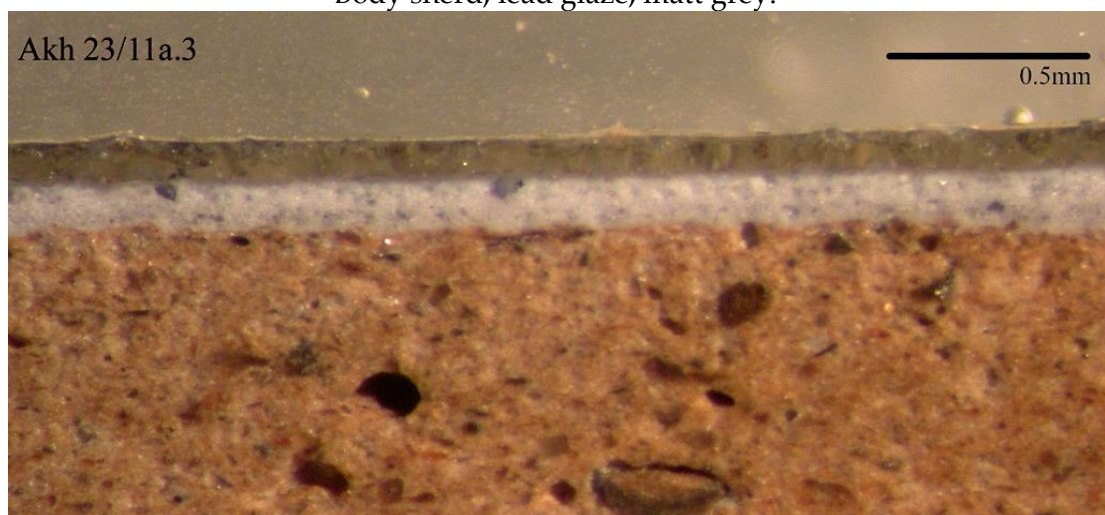
Akhsiket 23/11a.2 Slip/Engobe													
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	MnO	BaO	AT%
Black area	slip	0.0	0.6	9.3	44.4	2.9	1.2	28.3	0.7	9.0	3.7	0.0	50
Black area	slip	0.0	0.6	6.5	23.1	1.8	1.1	25.3	0.0	5.4	30.0	6.2	65
Black area	slip	0.9	0.6	11.0	37.6	3.7	1.1	31.8	0.0	10.3	3.1	0.0	66
C'less area	engobe	0.0	1.1	16.3	54.4	3.6	1.2	0.0	0.0	23.5	0.0	0.0	50
C'less area	engobe	0.6	1.2	15.3	66.7	4.8	1.7	0.0	0.0	9.8	0.0	0.0	45
C'less area	engobe	0.9	0.7	15.9	66.6	6.3	1.4	0.0	0.0	8.2	0.0	0.0	47
C'less area	engobe	0.0	1.1	13.5	65.5	3.8	1.1	0.0	0.0	15.1	0.0	0.0	45
C'less area	engobe	0.9	1.1	18.8	62.5	6.2	1.6	0.0	0.0	8.8	0.0	0.0	45
Red area	slip	0.0	0.7	10.9	44.7	3.1	1.3	20.7	1.4	10.5	6.6	0.0	44
Red area	slip	0.0	1.0	16.3	51.7	4.7	0.9	7.6	0.8	16.9	0.0	0.0	48
Average black	slip	0.3	0.6	9.0	35.0	2.8	1.1	28.5	0.2	8.2	12.3	2.1	
St. Dev.		0.5	0.0	2.3	10.9	0.9	0.1	3.2	0.4	2.5	15.3	3.6	
St. Error		0.3	0.0	1.3	6.3	0.5	0.0	1.9	0.2	1.5	8.9	2.1	
Average c'less	engobe	0.5	1.0	16.0	63.2	4.9	1.4	0.0	0.0	13.1	0.0	0.0	
St. Dev.		0.5	0.2	1.9	5.2	1.3	0.3			6.4			
St. Error		0.2	0.1	0.9	2.3	0.6	0.1			2.9			
Average red	slip	0.0	0.9	13.6	48.2	3.9	1.1	14.2	1.1	13.7	3.3	0.0	
St. Dev.			0.2	3.8	4.9	1.2	0.3	9.3	0.4	4.6	4.7		

Akhsiket 23/11a.2 Body										
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	SO3	AT%
Body 1	1.0	4.3	12.8	54.1	3.0	16.5	7.5	0.9	0.0	52
Body 2	0.9	3.4	12.8	55.4	3.2	16.0	6.7	0.9	0.8	55
Average	0.9	3.8	12.8	54.7	3.1	16.2	7.1	0.9	0.4	
St. Deviation	0.1	0.6	0.1	0.9	0.2	0.4	0.6	0.0	0.6	

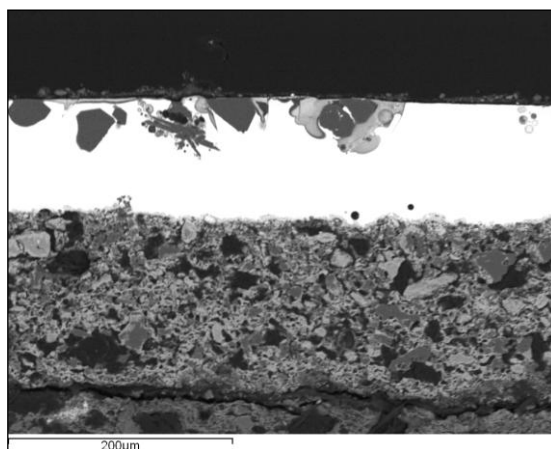
Akhsiket 23/11a.3



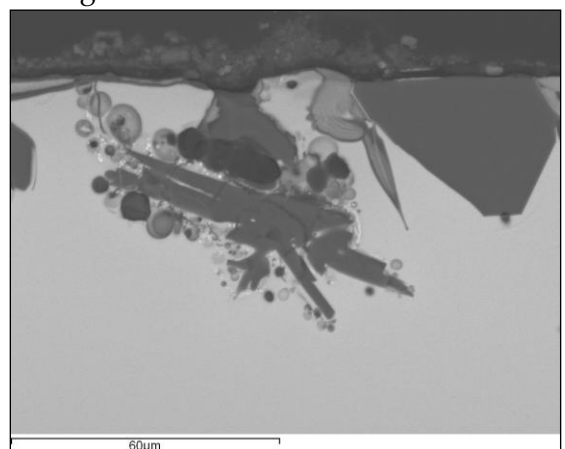
Body sherd, lead glaze, matt grey.



OM: Glaze over engobe.



BSE: Glaze (face). Scale is 200 microns.



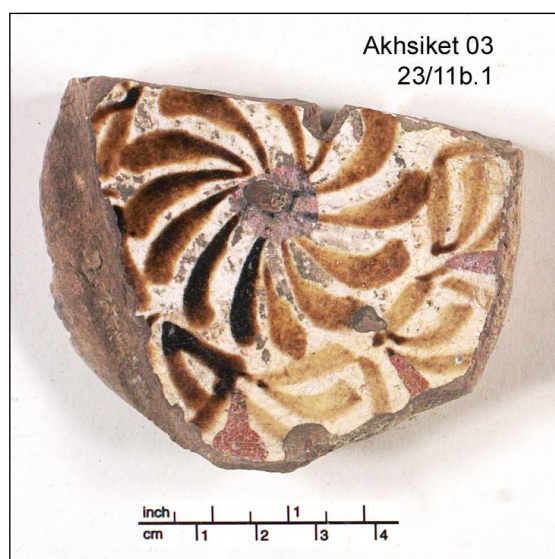
BSE: Detail of glaze (face). Scale is 60 microns.

Akhsiket 23/11a.3 Glaze												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	PbO	P2O5	Cl	AT%
Glaze 1	lower	0.0	0.0	3.8	40.7	0.6	0.9	0.0	54.0	0.0	0.0	90
Glaze 1	lower	0.0	0.0	4.3	41.2	0.7	0.0	0.0	53.8	0.0	0.0	89
Glaze 1	upper	0.0	0.0	2.4	40.3	0.5	0.6	0.0	56.2	0.0	0.0	90
Glaze 1	upper	0.0	0.0	2.2	40.6	0.5	0.8	0.0	55.9	0.0	0.0	91
Glaze 2	upper	0.0	0.0	2.4	39.8	0.6	0.7	0.0	56.5	0.0	0.0	91
Glaze 2	upper	0.0	0.0	2.6	40.5	0.5	0.5	0.0	55.9	0.0	0.0	89
Glaze 2	dark area	1.3	0.0	3.7	37.4	4.0	10.3	0.0	29.9	10.8	2.7	81
Glaze 4 reverse	upper	0.0	0.5	3.7	46.7	1.6	0.0	0.0	47.5	0.0	0.0	86
Glaze 4 reverse	upper	0.0	0.0	3.6	46.1	1.7	0.0	0.0	48.6	0.0	0.0	85
Glaze 3 reverse	upper	0.0	0.0	3.9	46.8	1.9	0.0	0.0	47.4	0.0	0.0	85
Glaze 3 reverse	upper	0.0	0.0	4.2	46.4	2.0	0.0	0.0	47.5	0.0	0.0	85
Average glaze 1&2	upper/lower	0.0	0.0	3.0	40.5	0.6	0.6	0.0	55.4	0.0	0.0	
St. Deviation			0.0	0.9	0.5	0.1	0.3		1.2			
St. Error			0.0	0.4	0.2	0.0	0.1		0.5			
Average glaze reverse	upper	0.0	0.1	3.9	46.5	1.8	0.0	0.0	47.8	0.0	0.0	
St. Deviation			0.3	0.3	0.3	0.2	0.0		0.6			
St. Error			0.1	0.1	0.2	0.1	0.0		0.3			
Average all glaze	upper/lower	0.0	0.1	3.3	42.9	1.1	0.3	0.0	52.4	0.0	0.0	
St. Deviation			0.2	0.8	3.1	0.6	0.4		4.1			
St. Error			0.1	0.3	1.0	0.2	0.1		1.3			

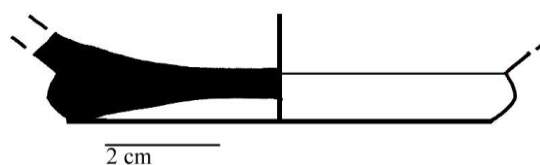
Akhsiket 23/11a.3 Engobe												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	P2O5	AT%
Glaze 1	engobe	0.7	1.3	17.8	60.0	4.1	4.2	0.0	0.0	12.0	0.0	71
Glaze 1	engobe	0.6	1.0	17.4	59.9	4.4	3.8	0.0	0.0	13.0	0.0	66
Glaze 2	engobe	0.7	1.1	16.6	59.9	4.3	4.4	0.0	0.0	13.1	0.0	64
Glaze 2	engobe	0.7	0.8	15.3	65.2	4.0	3.5	0.0	0.0	10.5	0.0	66
Engobe 1	near glaze	0.5	0.5	31.1	34.2	2.3	9.0	0.0	0.0	16.3	6.1	75
Engobe 1	near body	0.0	0.0	31.6	41.0	6.2	1.9	0.0	0.0	19.3	0.0	80
Engobe 1	near body	0.5	0.8	11.9	69.7	3.5	2.1	0.0	0.0	11.6	0.0	76
Engobe 1	inclusion	0.8	1.0	19.6	56.6	4.9	2.5	0.0	0.0	14.5	0.0	82
Engobe 1	inclusion	0.6	0.9	15.5	63.8	4.0	2.8	0.0	1.4	11.1	0.0	59
Engobe 2	engobe	0.5	0.6	10.8	73.2	5.2	0.8	0.0	0.7	8.3	0.0	73
Engobe 2	engobe	0.7	0.5	9.4	79.4	4.7	0.0	0.0	0.7	4.7	0.0	71
Average engobe	all engobe	0.5	0.7	18.0	60.3	4.3	3.3	0.0	0.2	12.1	0.7	
St. Dev.		0.2	0.4	8.1	14.6	1.1	2.6		0.3	4.2	2.1	
St. Error		0.1	0.1	2.7	4.9	0.4	0.9		0.1	1.4	0.7	

Akhsiket 23/11a.3 Body										
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	SO3	AT%
Body 1	0.6	3.0	12.9	58.2	3.8	15.2	5.4	0.0	0.9	64
Body 2	1.1	3.8	12.9	56.4	3.5	16.9	5.4	0.0	0.0	67
Body 3	0.9	3.2	12.0	55.3	3.5	18.3	5.3	0.9	0.8	71
Body 4	0.8	3.2	12.9	52.2	3.6	21.0	5.4	0.9	0.0	68
Average	0.8	3.3	12.7	55.5	3.6	17.9	5.4	0.5	0.4	
St. Deviation	0.2	0.4	0.4	2.5	0.2	2.5	0.1	0.5	0.5	
St. Error	0.1	0.2	0.2	1.3	0.1	1.2	0.0	0.3	0.2	

Akhsiket 23/11b.1



Base sherd of bowl or plate, brown on white rosette motif.



Drawing

Petrofabric

Fabric colour: pinkish-brown

Size: 5-20 μm . Few 50-100 μm

Sorting: Very well-sorted

Shape: sub-rounded and angular inclusions

Density: 15%

Mostly quartz: 90% monocrystalline, 10% polycrystalline

Some mica, calcium-rich inclusions, and possibly grog or mudstone

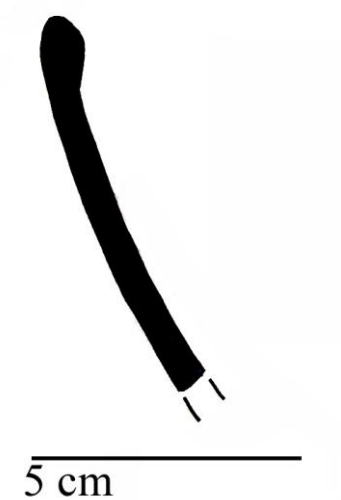
Chemically well-evolved with angular quartz.

Not analysed with SEM-EDS.

Akhsiket 23/11c.1



Rim of bowl or plate, *ishkor* glaze



Drawing of vessel rim.

Petrofabric

Fabric colour: red edged with lighter red

Size: ~10-15% 50-100 μ m, to ~40-50% 5-20 μ m

Sorting: Well-sorted

Shape: sub-angular and angular inclusions

Density: 25%

95% monocrystalline quartz, < 5% polycrystalline quartz

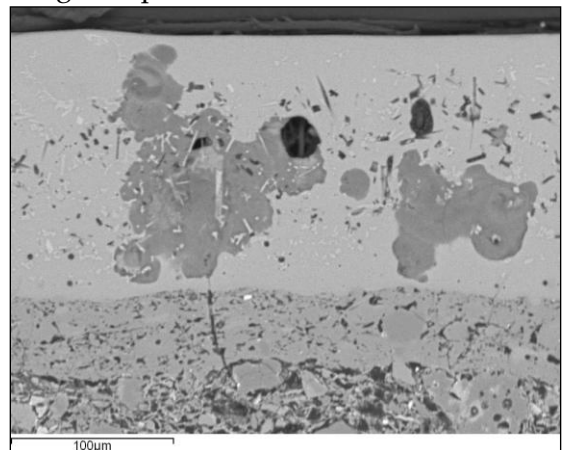
Some polycrystalline quartz ingrown with iron minerals, muscovite and biotite

> 5% biotite and muscovite inclusions (< 20 μ m)

Chemically well-evolved with angular quartz inclusions



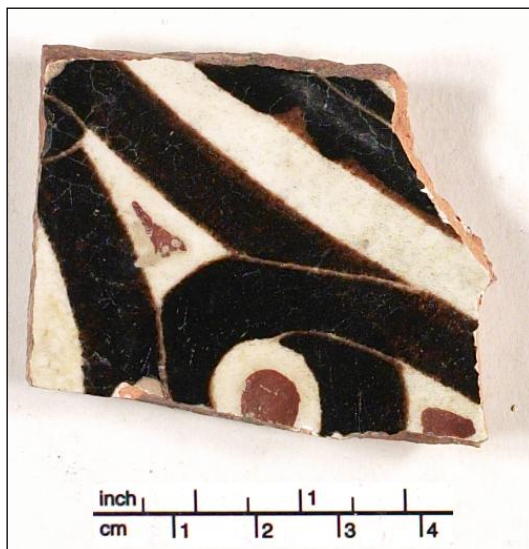
OM: Lilac glaze. Scale is 400 microns.



BSE: Lilac glaze. Scale is 100 microns.

Akhsiket 23/11c.1 Glaze												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	MnO	Cl	AT%
Lilac 1	upper	5.5	3.2	6.3	66.1	9.5	5.2	1.9	0.0	1.8	0.6	100
Lilac 1	lower	5.7	3.3	4.4	68.0	8.8	5.6	1.7	0.0	2.1	0.4	98
Lilac 1	middle (dark)	1.0	0.9	7.4	79.4	5.0	2.4	2.7	0.0	1.2	0.0	72
Lilac 1	interface	11.0	1.0	30.5	49.2	5.7	2.6	0.0	0.0	0.0	0.0	85
Lilac 2	upper	6.1	2.8	4.5	68.9	9.0	4.6	1.6	0.0	2.1	0.5	98
Lilac 2	lower	7.0	2.4	4.8	68.0	9.6	3.9	1.3	0.0	2.2	0.8	95
Lilac 2	upper (dark)	1.2	0.0	8.6	80.4	6.5	0.0	2.9	0.0	0.0	0.4	83
Lilac 2	interface	11.5	0.0	31.1	48.3	5.6	3.0	0.0	0.7	0.0	0.0	85
Average	light areas	6.1	2.9	5.0	67.8	9.2	4.8	1.6	0.0	2.0	0.6	
St. Deviation		0.7	0.4	0.9	1.2	0.4	0.8	0.3	0.0	0.2	0.2	
St. Error		0.4	0.2	0.4	0.6	0.2	0.4	0.1	0.0	0.1	0.1	
Average	dark areas	1.1	0.5	8.0	79.9	5.8	1.2	2.8	0.0	0.6	0.2	
St. Deviation		0.1	0.6	0.9	0.7	1.1	1.7	0.1	0.0	0.8	0.3	
Average	interface	11.2	0.5	30.8	48.8	5.6	2.8	0.0	0.3	0.0	0.0	
St. Deviation		0.3	0.7	0.4	0.6	0.1	0.3	0.0	0.5	0.0	0.0	

Akhsiket 23/11c.2



Petrofabric

Fabric colour: Red

Size: 5-20 μm . Few 50-100 μm

Sorting: Very well-sorted

Shape: mostly angular inclusions

Density: 25%

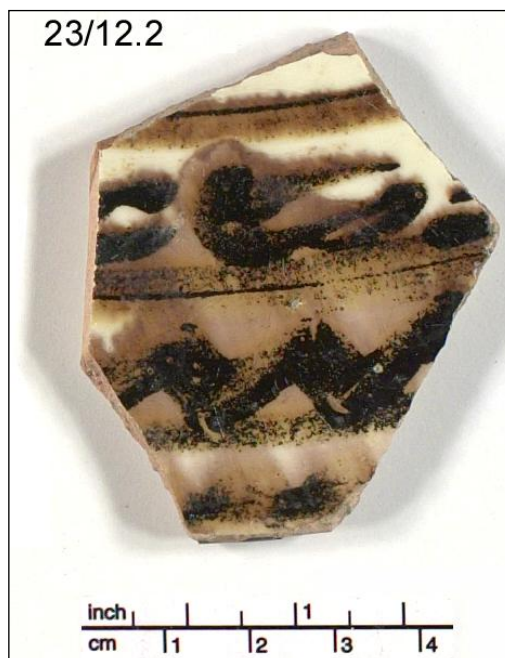
Mostly quartz: 90% monocrystalline, 10% polycrystalline

Some mica

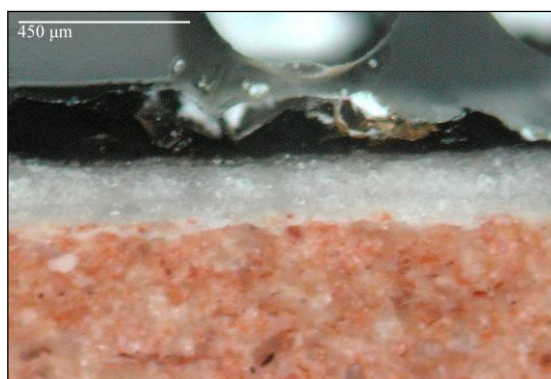
Body sherd of bowl or plate, polychrome
black and red decoration on white.

Not analysed with SEM-EDS.

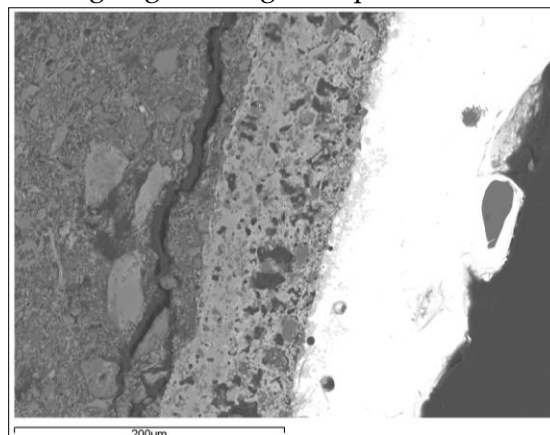
Akhsiket 23/12.2



Wall of bowl/plate, polychrome slipware with zig-zag banding and ?pseudo-kufic



OM: Black glaze over engobe.



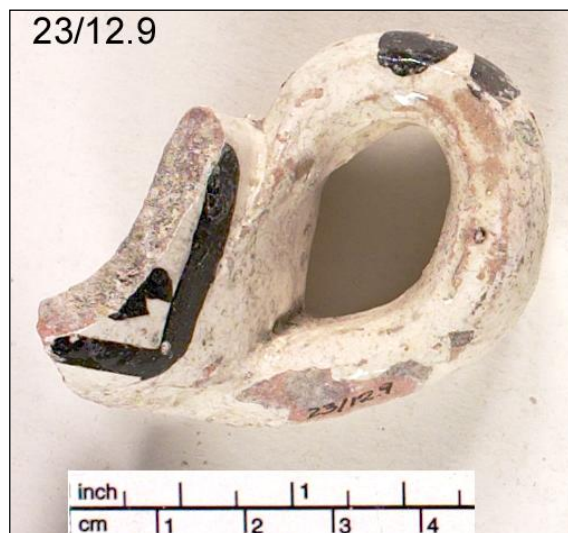
BSE image: brown area, glaze and slips.

Akhsiket 23/12.2 Glaze												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	MnO	AT%
Brown	upper	0.0	0.5	2.9	43.1	0.6	0.9	1.4	0.0	49.2	1.5	94
Brown	upper	0.0	0.0	3.1	44.1	0.9	0.8	1.0	0.0	48.9	1.3	93
Brown	lower	0.0	0.0	7.6	40.9	1.5	0.8	5.0	0.0	43.3	0.9	95
Brown	lower	0.0	0.0	6.9	41.6	1.3	1.0	3.0	0.0	45.2	1.0	95
Brown 2	upper	0.0	0.5	3.2	42.3	0.7	0.8	1.4	0.0	50.2	0.8	92
Brown 2	upper	0.0	0.0	3.0	42.3	0.8	0.8	1.4	0.0	50.9	0.8	92
Brown 2	lower	0.4	0.0	6.2	40.5	1.3	0.7	4.3	0.0	46.0	0.5	94
Brown 2	lower	0.0	0.0	6.6	39.7	1.2	0.8	3.5	0.0	47.5	0.7	93
Brown bleed	upper	0.0	0.0	3.2	41.8	0.7	0.9	1.0	0.0	51.9	0.6	93
Brown bleed	upper	0.0	0.4	2.9	42.5	0.8	0.9	1.1	0.0	51.1	0.5	93
Brown bleed	lower	0.5	0.0	7.2	43.9	1.6	0.9	0.5	0.0	45.3	0.0	95
Brown bleed	lower	0.7	0.0	6.2	45.6	1.5	0.9	0.0	0.0	45.2	0.0	94
C'less reverse	upper	0.0	0.0	3.7	46.3	0.7	0.8	0.0	0.0	48.6	0.0	96
C'less reverse	upper	0.0	0.0	3.5	46.2	0.8	0.8	0.0	0.0	48.8	0.0	94
C'less reverse	upper	0.0	0.5	3.5	46.3	0.7	0.7	0.0	0.0	48.5	0.0	94
C'less reverse	lower	0.4	0.0	7.2	44.7	1.6	0.9	0.0	0.0	45.1	0.0	93
C'less reverse	lower	0.5	0.0	6.6	46.0	1.6	0.8	0.0	0.0	44.5	0.0	93
C'less reverse	lower	0.5	0.0	7.3	44.8	1.5	0.8	0.0	0.0	45.0	0.0	92
C'less reverse 2	upper	0.0	0.0	3.7	46.1	1.0	1.0	0.0	0.0	48.3	0.0	95
C'less reverse 2	upper	0.0	0.0	3.4	46.4	0.8	0.9	0.0	0.0	48.5	0.0	93
C'less reverse 2	lower	0.5	0.0	7.2	45.6	1.6	0.8	0.0	0.0	44.4	0.0	93
C'less reverse 2	lower	0.4	0.0	6.7	46.8	1.6	1.0	0.0	0.0	43.6	0.0	92
C'less 1	interface	0.0	0.0	9.5	41.9	6.1	1.2	0.0	0.0	41.3	0.0	61
Brown 1	interface	0.0	0.0	9.4	35.4	5.2	1.0	16.0	0.6	31.6	0.9	60
Average brown	upper/ lower	0.1	0.1	4.9	41.8	1.1	0.8	2.6	0.0	47.7	0.9	
St. Deviation		0.2	0.2	2.1	1.4	0.3	0.1	1.5		2.7	0.3	
St. Error		0.1	0.1	0.7	0.5	0.1	0.0	0.5		0.9	0.1	
Average brown bleed	upper/ lower	0.3	0.1	4.9	43.4	1.1	0.9	0.7	0.0	48.4	0.3	
St. Deviation		0.4	0.2	2.2	1.7	0.5	0.0	0.5		3.6	0.3	
St. Error		0.2	0.1	1.1	0.8	0.2	0.0	0.3		1.8	0.2	
Average colourless	upper/ lower	0.2	0.1	5.3	45.9	1.2	0.9	0.0	0.0	46.5	0.0	
St. Deviation		0.3	0.1	1.8	0.7	0.4	0.1			2.2		
St. Error		0.1	0.1	0.6	0.2	0.1	0.0			0.7		

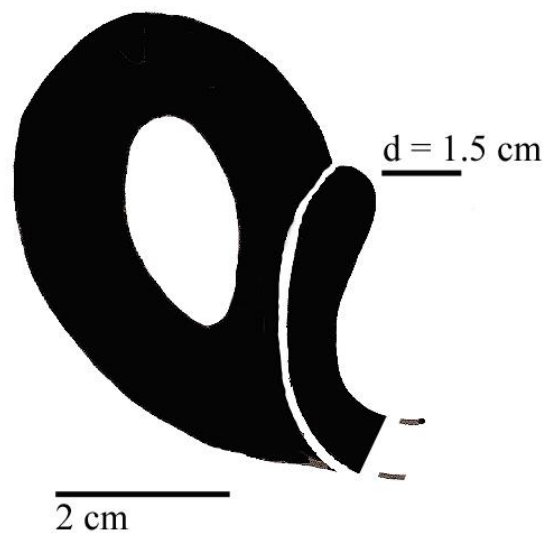
Akhsiket 23/12.2 Engobe											
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	AT%
C'less 1	engobe	0.3	0.0	15.4	58.4	7.2	0.0	0.7	0.7	16.9	47
C'less 2	engobe-upper	0.3	0.0	14.6	58.6	7.3	0.0	0.0	0.0	19.3	36
C'less 2	engobe-lower	0.4	0.0	17.0	61.7	8.3	0.9	0.7	0.6	10.5	50
Brown 1	engobe-upper	0.3	0.0	14.7	62.1	6.7	0.7	0.7	0.0	14.9	47
Brown 1	engobe-lower	0.3	0.0	17.3	61.2	7.7	0.0	0.5	1.8	11.2	49
Brown 2	engobe-upper	0.3	0.0	14.3	59.3	6.8	1.1	0.8	0.9	16.6	52
Brown 2	engobe-lower	0.5	0.0	19.5	57.9	8.3	1.0	0.7	0.6	11.4	51
C'less reverse	engobe-upper	0.4	0.0	13.7	57.6	6.3	1.2	0.7	0.0	20.1	42
C'less reverse	engobe-lower	0.4	0.3	18.0	59.7	7.6	0.0	0.7	0.0	13.3	52
Average	all engobe	0.4	0.0	16.1	59.6	7.4	0.5	0.6	0.5	14.9	
St. Deviation		0.1	0.1	2.0	1.7	0.7	0.5	0.2	0.6	3.6	
St. Error		0.0	0.0	0.7	0.6	0.2	0.2	0.1	0.2	1.2	

Akhsiket 23/12.2 Body										
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	SO3	AT%
Body 1	1.1	1.4	7.8	47.4	5.1	23.9	5.9	0.7	3.3	45
Body 2	1.2	1.4	8.1	49.4	5.2	24.4	6.0	0.7	3.6	26
Average	1.1	1.4	7.9	48.4	5.1	24.2	6.0	0.7	3.5	
St. Deviation		0.0	0.0	0.2	1.4	0.1	0.4	0.1	0.0	0.2

Akhsiket 23/12.9



Handle and part of bowl of *chirag* with black on white Samanid decoration.



Drawing.

Petrofabric

Fabric colour: Red

Size: 5-20 μm . Few 50-100 μm

Sorting: Well-sorted

Shape: mostly angular inclusions

Density: 30%

Mostly quartz: 50% monocrystalline, 50% polycrystalline

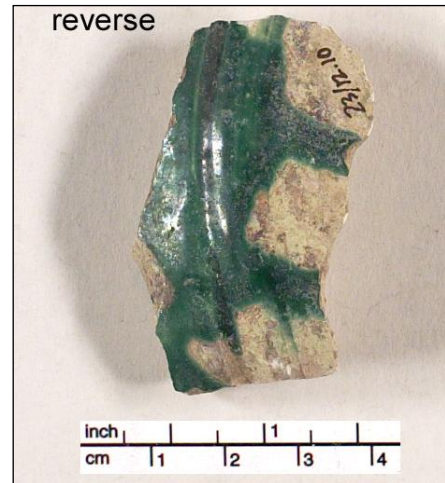
Some mica, ?feldspar

Not analysed with SEM-EDS.

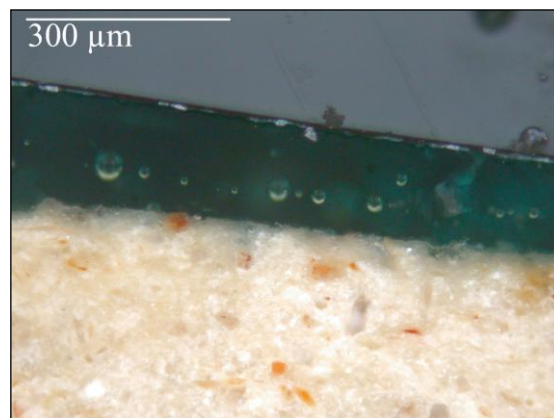
Akhsiket 23/12.10



Body sherd, monochrome green lead
glaze



Reverse



OM image.

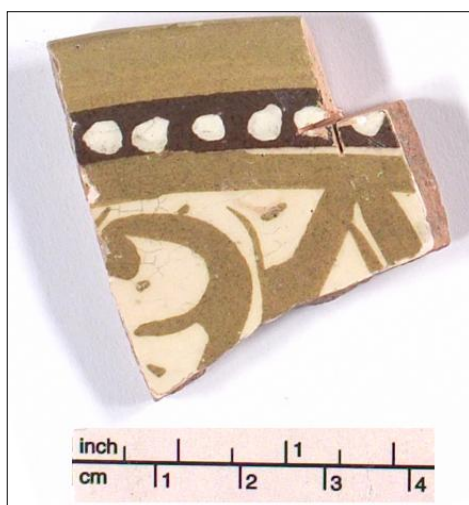


BSE: Green glaze. Scale is 100 microns.

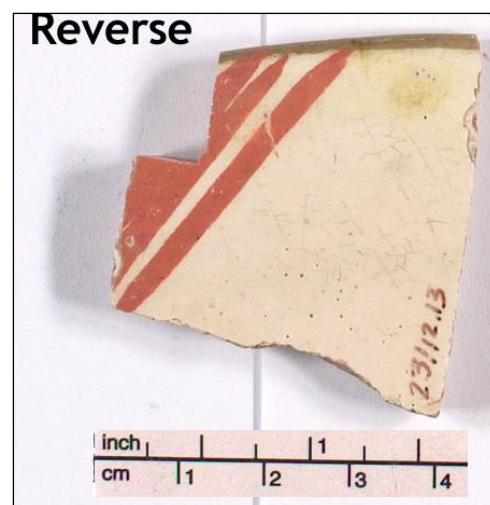
Akhsiket 23/12.10 Glaze													
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	TiO2	Fe2O3	CuO	PbO	P2O5	AT%
Light green 1	upper	0.9	0.4	1.7	38.3	2.5	3.0	0.0	0.8	3.3	49.0	0.0	86
Light green 1	upper	0.9	0.4	1.7	38.0	2.4	3.0	0.0	0.7	3.5	49.4	0.0	87
Light green 1	lower	0.9	0.5	2.6	37.5	2.7	2.9	0.0	1.0	2.9	49.1	0.0	87
Light green 1	lower	1.2	0.4	2.5	38.0	2.8	2.8	0.0	1.0	2.7	48.7	0.0	87
Light green 1	interface	0.7	3.8	8.6	52.1	7.9	11.0	0.0	2.6	1.0	9.1	3.2	98
Light green 1	interface	0.8	1.6	14.0	54.7	9.4	8.1	0.0	3.2	0.0	7.1	1.3	88
Light green 2	upper	1.0	0.6	1.4	37.4	2.4	2.7	0.0	0.8	3.0	50.8	0.0	86
Light green 2	upper	1.1	0.5	1.5	37.5	2.5	2.8	0.0	0.8	3.3	50.1	0.0	87
Green 1	upper	0.7	0.6	1.7	35.6	1.8	3.4	0.0	1.1	4.2	50.8	0.0	88
Green 1	upper	0.8	0.9	2.2	37.4	2.0	4.0	0.0	1.1	3.7	47.9	0.0	87
Green 1	interface	0.9	3.8	10.8	58.6	8.4	10.4	0.0	4.8	0.5	1.7	0.0	90
Green 1	interface	0.0	1.6	3.8	36.2	7.1	16.8	1.3	10.1	6.3	15.4	1.5	84
Green 2	upper	0.6	0.6	2.0	37.0	1.9	3.4	0.0	0.9	3.2	50.3	0.0	86
Green 2	upper	0.7	0.6	1.8	36.7	2.0	3.1	0.0	1.2	3.5	50.4	0.0	87
Average light g.	upper/ lower	1.0	0.5	1.9	37.8	2.6	2.9	0.0	0.8	3.1	49.5	0.0	
St. Deviation		0.1	0.1	0.5	0.4	0.2	0.1		0.1	0.3	0.8		
St. Error		0.1	0.0	0.2	0.2	0.1	0.0		0.0	0.1	0.3		
Average green	upper	0.7	0.7	1.9	36.7	1.9	3.5	0.0	1.1	3.7	49.9	0.0	
St. Error		0.1	0.1	0.2	0.8	0.1	0.4		0.1	0.4	1.3		
St. Error		0.0	0.1	0.1	0.4	0.0	0.2		0.1	0.2	0.7		

Akhsiket 23/12.10 Body										
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	SO3	AT%
Body 1	1.3	3.3	12.3	56.4	3.5	16.3	6.4	0.5	0.0	64
Body 2	1.4	3.3	12.5	55.5	3.2	16.7	6.6	0.8	0.0	65
Body 3	1.6	3.0	11.8	56.5	3.7	15.8	6.0	0.8	0.8	61
Body 4	1.4	3.3	11.5	55.5	3.9	16.4	6.1	0.6	1.3	63
Average	1.4	3.3	12.0	55.9	3.6	16.3	6.3	0.7	0.5	
St. Deviation	0.1	0.1	0.5	0.6	0.3	0.4	0.3	0.1	0.6	
St. Error	0.1	0.1	0.2	0.3	0.1	0.2	0.1	0.1	0.3	

Akhsiket 23/12.13



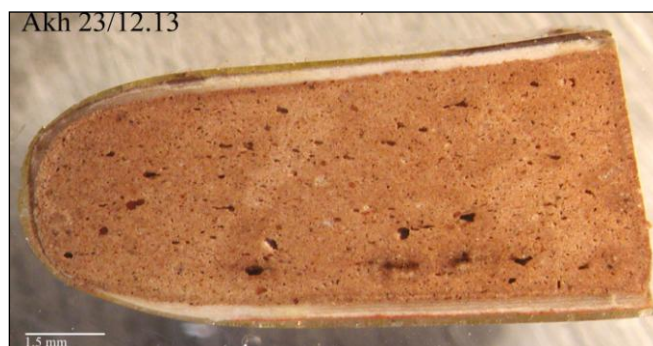
Rim of bowl/plate, polychrome slipware under lead glaze. Black and white dot track, olive linear and vegetal (?) motifs.



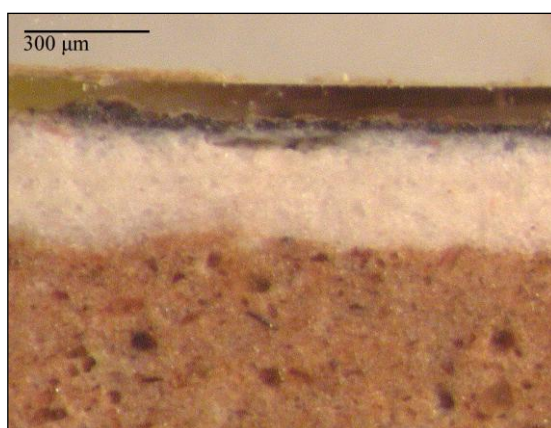
Reverse of sherd showing engobe and lead glaze coverage. Red-orange strokes at angle to rim.



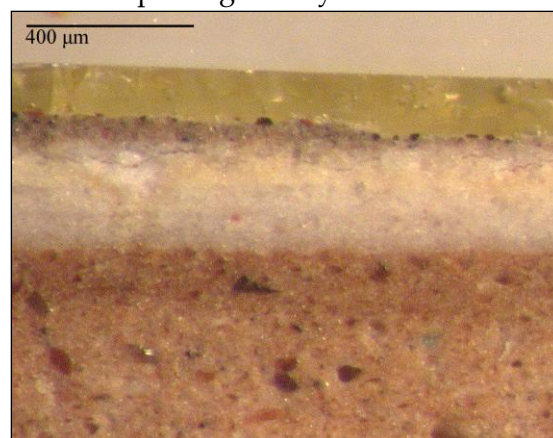
Drawing of vessel rim.



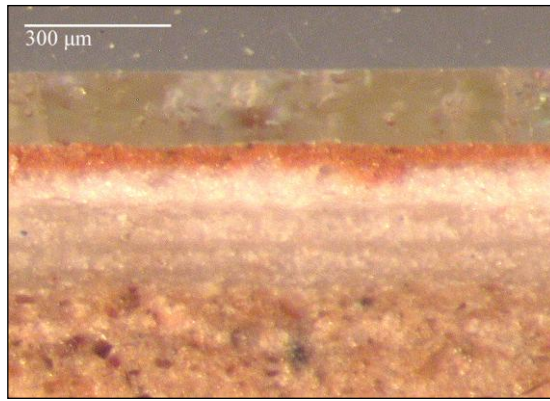
OM: Full cross-section of sample showing different slip and glaze layers.



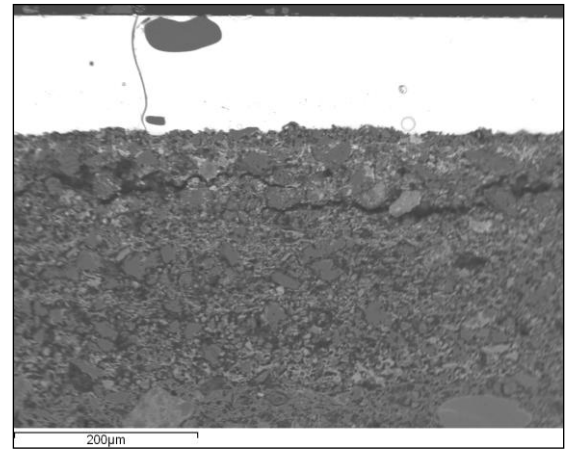
OM: Black decoration.



OM: Olive decoration



OM: Red decoration (reverse).



BSE: Olive decoration. Scale is 200 microns.

Akhsiket 23/12.13 Glaze										
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	PbO	AT%
Colourless/red	upper	0.0	0.0	2.2	34.6	0.4	0.6	0.0	62.2	88
Colourless/red	upper	0.0	0.0	1.9	34.2	0.6	0.6	0.0	62.7	90
Colourless/red	lower	0.0	0.0	2.5	36.8	0.7	1.0	0.6	58.4	94
Colourless/red	lower	0.0	0.0	2.6	37.9	0.7	0.9	0.6	57.4	93
Colourless/red 2	upper	0.0	0.0	2.0	36.4	0.4	0.7	0.0	60.5	92
Colourless/red 2	upper	0.0	0.0	2.3	36.4	0.5	0.6	0.0	60.2	92
Colourless/red 2	lower	0.0	0.0	2.7	39.4	0.8	0.8	0.5	55.8	90
Colourless/red 2	lower	0.0	0.0	3.6	38.6	0.9	0.5	0.8	55.7	90
Colourless/olive	upper	0.0	0.0	2.0	35.9	0.6	0.8	0.0	60.6	93
Colourless/olive	upper	0.0	0.0	2.2	35.1	0.5	0.8	0.0	61.4	91
Colourless/olive	lower	0.0	0.0	3.0	38.0	1.1	0.6	0.0	57.3	90
Colourless/olive	lower	0.0	0.0	2.8	38.1	1.1	0.6	0.5	56.9	90
Colourless	upper	0.0	0.0	2.0	35.4	0.9	0.6	0.0	61.2	91
Colourless	upper	0.0	0.0	2.3	34.9	0.9	0.0	0.0	61.9	90
Colourless	lower	0.0	0.0	2.5	37.6	1.3	0.5	0.0	58.2	92
Colourless	lower	0.5	0.0	2.6	36.9	1.2	0.5	0.6	57.8	92
Average over red	upper/lower	0.0	0.0	2.5	36.8	0.6	0.7	0.3	59.1	
St. Deviation				0.5	1.8	0.2	0.2	0.3	2.7	
St. Error				0.2	0.6	0.1	0.1	0.1	1.0	
Average over olive	upper/lower	0.0	0.0	2.5	36.8	0.8	0.7	0.1	59.1	
St. Deviation				0.5	1.5	0.3	0.1	0.3	2.3	
St. Error				0.2	0.8	0.2	0.1	0.1	1.2	
Average colourless	upper/lower	0.1	0.0	2.3	36.2	1.1	0.4	0.2	59.7	
St. Deviation		0.2		0.3	1.2	0.2	0.3	0.3	2.1	
St. Error		0.1		0.1	0.6	0.1	0.1	0.2	1.1	

Akhsiket 23/12.13 Slip/Engobe												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	Cr2O5	AT%
Red	slip	0.8	0.5	18.0	58.7	5.5	0.7	6.7	1.3	6.9	0.8	62
Red	slip	0.6	0.6	14.4	67.7	4.5	1.2	4.2	0.0	6.8	0.0	57
Red	engobe	0.5	0.8	10.1	74.4	2.7	5.7	0.0	0.0	5.8	0.0	47
Red	engobe	0.9	0.0	14.6	68.2	3.8	3.4	2.0	0.0	7.1	0.0	48
Colourless	engobe	0.8	0.9	11.9	70.2	3.7	4.7	0.0	0.0	7.8	0.0	64
Colourless	engobe	0.8	0.9	14.5	65.9	4.5	4.6	0.0	0.0	8.7	0.0	59
Colourless	engobe	0.8	0.9	12.3	70.7	3.6	3.3	0.0	0.0	8.5	0.0	61
Olive	slip	0.0	1.2	9.6	72.2	2.8	1.5	1.0	2.6	7.5	1.7	63
Olive	slip	0.5	0.8	11.3	71.3	3.0	1.9	0.7	0.0	9.9	0.7	63
Olive	engobe	0.5	1.1	10.5	77.5	3.1	3.2	0.0	0.0	4.3	0.0	57
Olive	engobe	0.5	1.0	13.0	71.6	3.5	4.3	0.0	0.8	5.4	0.0	57
Olive	engobe	0.9	1.1	13.9	70.4	4.3	4.1	0.0	0.0	5.3	0.0	57
Average red	slip	0.7	0.5	16.2	63.2	5.0	1.0	5.4	0.7	6.8	0.4	
St. Deviation		0.2	0.1	2.6	6.4	0.7	0.3	1.8	0.9	0.1	0.6	
Average olive	slip	0.2	1.0	10.4	71.7	2.9	1.7	0.9	1.3	8.7	1.2	
St. Deviation		0.3	0.2	1.2	0.6	0.2	0.2	0.2	1.8	1.7	0.7	
Average engobe	engobe	0.7	0.8	12.6	71.1	3.7	4.2	0.3	0.1	6.6	0.0	
St. Deviation		0.2	0.4	1.7	3.5	0.6	0.9	0.7	0.3	1.6	0.0	
St. Error		0.1	0.1	0.6	1.3	0.2	0.3	0.3	0.1	0.6	0.0	

Akhsiket 23/12.15



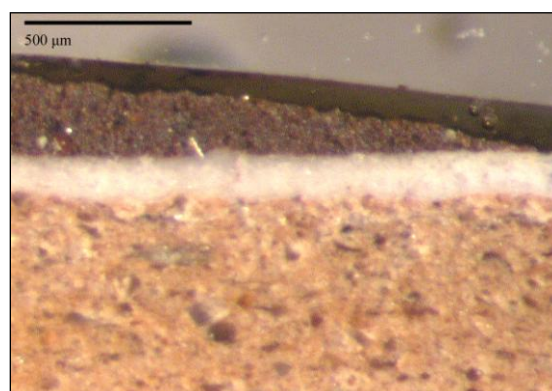
Rim of bowl, polychrome slipware (now grey).



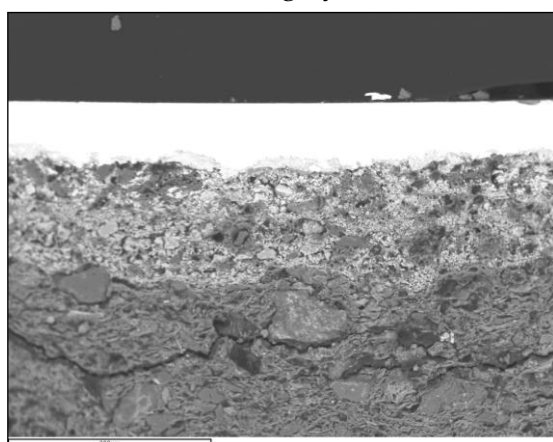
Drawing.



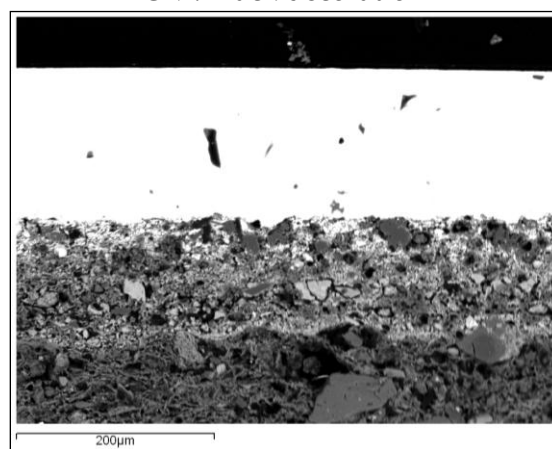
OM: Colourless (grey) decoration.



OM: Black decoration



BSE: Colourless (grey) decoration. Scale is 200 microns.



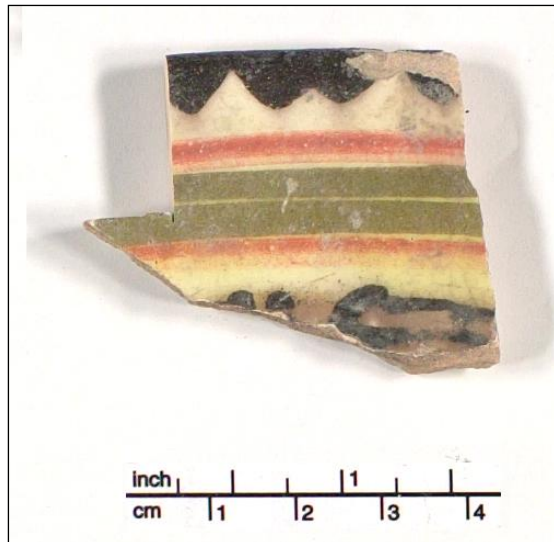
BSE: Black decoration. Scale is 200 microns.

Akhsiket 23/12.15 Glaze												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	MnO	AT%
C'less/black	upper	0.4	0.0	2.3	39.5	0.5	0.5	2.0	0.0	54.4	0.5	91
C'less/black	upper	0.4	0.3	2.0	39.7	0.5	0.3	2.1	0.0	54.3	0.5	93
C'less/black	upper	0.4	0.0	2.2	40.0	0.7	0.5	1.9	0.0	53.9	0.5	93
C'less/black	lower	0.0	0.0	4.5	37.1	0.9	0.5	4.5	0.0	52.5	0.0	91
C'less/black	lower	0.3	0.0	5.0	35.8	0.9	0.6	8.3	0.0	48.7	0.4	95
C'less/black	lower	0.0	0.0	4.9	35.3	0.9	0.5	8.7	0.0	49.3	0.5	95
C'less/black	interface	1.0	1.5	25.3	40.5	3.0	2.9	0.5	1.1	24.3	0.0	91
C'less/black	interface	1.3	1.3	24.7	38.5	3.5	2.0	0.0	1.8	26.2	0.0	95
C'less/black	interface	0.9	1.4	23.3	39.5	3.9	3.9	0.0	0.7	26.0	0.0	95
C'less/black 2	upper	0.4	0.0	2.5	41.9	0.6	0.4	1.9	0.0	51.9	0.4	93
C'less/black 2	upper	0.6	0.0	2.5	42.1	0.5	0.3	1.8	0.0	51.7	0.6	91
C'less/black 2	lower	0.4	0.0	5.6	40.0	0.9	0.3	3.2	0.0	49.3	0.5	93
C'less/black 2	lower	0.6	0.0	5.4	38.6	0.9	0.4	5.8	0.0	48.0	0.4	91
Colourless	upper	0.3	0.0	2.3	39.2	0.5	0.6	0.0	0.0	57.1	0.0	93
Colourless	upper	0.0	0.0	2.3	39.1	0.6	0.8	0.0	0.0	57.3	0.0	93
Colourless	lower	0.3	0.0	5.4	38.4	1.0	1.0	0.0	0.0	53.9	0.0	94
Colourless	lower	0.4	0.0	5.6	37.3	1.0	0.8	0.4	0.0	54.3	0.0	95
Colourless 1	upper	0.4	0.0	2.8	41.5	1.7	0.8	0.0	0.0	52.8	0.0	93
Colourless 1	upper	0.4	0.0	3.6	40.2	0.7	0.9	0.9	0.0	53.3	0.0	90
Colourless 1	lower	0.4	0.0	6.2	39.1	1.1	0.9	1.1	0.0	51.3	0.0	94
Colourless 1	lower	0.0	0.4	3.7	40.1	0.8	0.8	2.0	0.0	52.2	0.0	93
Average c'less/black	upper/lower	0.5	0.4	8.5	39.1	1.3	1.0	3.1	0.0	45.4	0.4	
St. Deviation		0.4	0.6	9.2	2.1	1.2	1.2	2.9		11.6	0.2	
St. Error		0.1	0.2	2.6	0.6	0.3	0.3	0.8		3.2	0.1	
Average colourless	upper/lower	0.3	0.1	4.0	39.4	0.9	0.8	0.5	0.0	54.0	0.0	
St. Deviation		0.2	0.1	1.5	1.3	0.4	0.1	0.7		2.2		
St. Error		0.1	0.1	0.5	0.5	0.1	0.0	0.3		0.8		

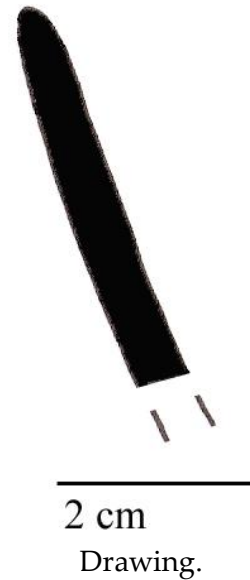
Akhsiket 23/12.15 Engobe												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO		AT%
C'less/black	engobe	1.4	1.2	22.9	50.1	4.3	10.3	0.0	0.9	8.5		64
C'less/black	engobe	1.2	1.0	21.4	47.8	3.6	13.8	1.2	0.8	8.8		65
Colourless	engobe	0.8	1.2	21.4	51.2	3.8	5.4	0.7	1.0	14.4		65
Colourless	engobe	0.8	1.5	20.7	51.6	3.2	7.0	0.7	2.0	12.6		60
Colourless reverse	engobe	0.0	1.6	20.9	47.4	2.3	10.9	0.0	0.8	15.5		70
Colourless reverse	engobe	0.0	1.2	19.5	51.9	3.1	7.5	0.0	0.9	16.0		64
Average	engobe	0.7	1.3	21.1	50.0	3.4	9.2	0.4	1.1	12.6		
St. Dev.		0.6	0.2	1.1	2.0	0.7	3.1	0.5	0.5	3.3		
St. Error		0.2	0.1	0.5	0.8	0.3	1.3	0.2	0.2	1.3		

Akhsiket 23/12.15 Body									
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	AT%
Body 1	1.3	3.5	12.8	54.4	3.7	17.6	6.2	0.6	69
Body 2	1.3	3.5	12.6	53.4	3.6	18.9	5.6	0.8	71
Body 3	1.1	3.3	12.8	55.3	3.7	17.4	5.6	0.6	68
Body 4	1.3	3.6	12.2	54.6	3.3	17.8	6.0	0.8	68
Average bulk	1.2	3.5	12.6	54.4	3.6	17.9	5.8	0.7	
St. Deviation	0.1	0.1	0.3	0.8	0.2	0.7	0.3	0.1	
St. Error	0.1	0.1	0.1	0.4	0.1	0.4	0.2	0.1	

Akhsiket 23/13.1



Rim of bowl or plate, polychrome slipware with black notched rim, red and olive concentric bands and black ?kufic/pseudo-kufic.

**Petrofabric**

Fabric colour: Pinkish buff

Size: ~10-15% 50-100 μ m, to ~40-50% 5-20 μ m

Sorting: Moderate to well-sorted

Shape: sub-angular and angular inclusions, smaller inclusions are sub-rounded to rounded

Density of inclusions: 25%

Mostly quartz: 95% monocrystalline, < 5% polycrystalline

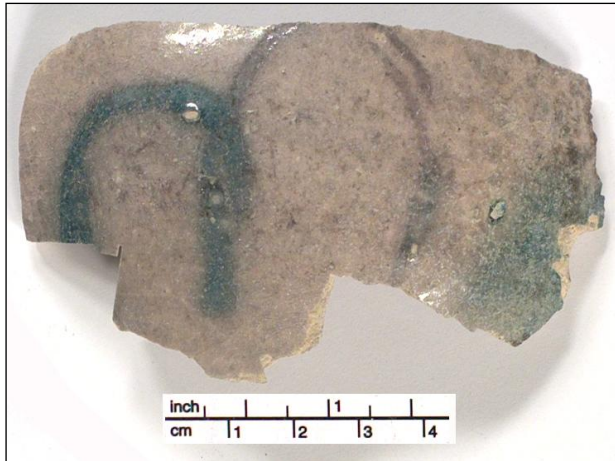
Some quartz ingrown with iron minerals or biotite

Some biotite

Chemically well-evolved with angular quartz grains.

Not analysed with SEM-EDS.

Akhsiket 23/13.2



Body sherd of small closed vessel, *ishkor*
turquoise on lilac.

Not analysed with SEM-EDS.

Petrofabric

Fabric colour: buff with brown areas

Size: 5-20 μ m. Few 50-100 μ m

Sorting: Very well-sorted

Shape: sub-angular and angular inclusions, some sub-rounded, thin curving pores and thin curving opaques

Density: 15%

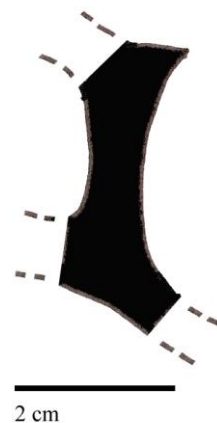
Mostly quartz: 99% monocrystalline quartz

Chemically well-evolved with sub-angular and angular quartz.

Akhsiket 23/13.3



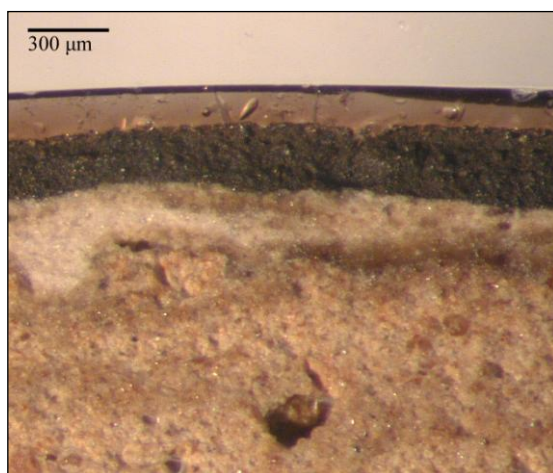
Part of bowl of *chirag*, black spots on white, fire-blackened.



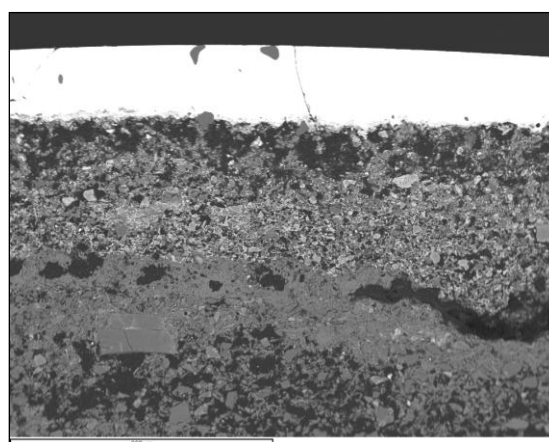
Drawing of cross section (handle to the left).



OM: Entire cross section. Scale is 1.5 mm.



OM: Detail of black decoration.



BSE: Black decoration.

Akhsiket 23/13.3 Glaze											
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	PbO	MnO	AT%
Colourless/black	middle	0.6	0.0	2.8	41.6	1.6	0.5	1.5	50.2	1.3	102
Colourless/black	middle	0.6	0.0	3.1	42.0	1.8	0.6	2.0	48.4	1.6	100
Colourless	middle	0.9	0.0	2.8	39.7	1.6	0.9	0.0	54.1	0.0	77
Colourless	middle	0.7	0.0	2.3	39.9	1.8	1.0	0.0	54.2	0.0	82
Average colourless/black	all glaze	0.6	0.0	2.9	41.8	1.7	0.5	1.8	49.3	1.5	
St. Deviation		0.0		0.2	0.3	0.2	0.0	0.4	1.3	0.2	
Average colourless	all glaze	0.8	0.0	2.6	39.8	1.7	1.0	0.0	54.1	0.0	
St. Deviation		0.1		0.2	0.1	0.1	0.1		0.1		

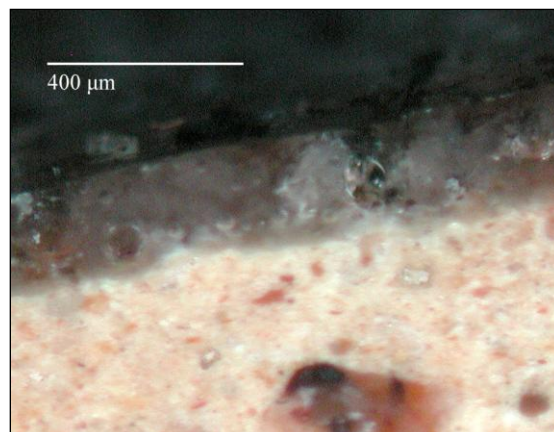
Akhsiket 23/13.3 Slip/engobe														
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	MnO	P2O5	SO3	AT%
C'less/black	slip upper	2.0	1.2	9.8	34.8	3.7	19.5	13.4	0.9	8.6	3.7	0.7	1.8	52
C'less/black	slip upper	2.7	1.5	8.7	33.9	4.0	13.8	18.3	0.5	8.0	5.0	1.0	2.8	41
C'less/black	slip lower	1.8	1.5	16.7	54.2	4.3	6.9	3.8	0.0	8.8	1.2	0.0	0.8	67
C'less/black	slip lower	1.1	3.4	6.8	29.5	1.6	47.7	3.5	0.0	1.4	3.0	0.9	1.2	55
C'less/black	slip lower	1.2	2.7	7.4	38.8	2.0	40.0	3.0	0.0	1.3	1.6	0.8	1.3	59
C'less/black 2	slip upper	1.2	0.0	11.6	40.1	4.1	2.8	20.7	1.0	8.8	7.8	0.0	1.9	35
C'less/black 2	slip upper	1.0	0.0	12.0	37.9	3.9	2.7	21.4	0.9	8.1	9.9	1.0	1.2	36
C'less/black 2	slip lower	1.5	1.7	18.9	58.0	4.5	4.4	0.6	0.0	10.3	0.0	0.0	0.0	37
Average slip	all slip	1.6	1.5	10.4	38.5	3.4	19.0	12.0	0.3	6.4	2.5	0.6	0.9	
St. Deviation		0.6	1.2	4.4	10.0	1.1	17.6	8.8	0.4	3.5	3.3	0.5	0.9	
St. Error		0.2	0.4	1.5	3.5	0.4	6.2	3.1	0.2	1.2	1.2	0.2	0.3	

Akhsiket 23/13.3 Body										
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	SO3	AT%
Body 1	1.8	2.5	12.9	57.0	3.2	14.0	4.5	1.1	3.0	40
Body 3	1.3	2.6	13.4	60.3	3.0	12.6	4.9	0.0	2.0	37
Average	1.0	2.7	13.0	58.5	2.9	13.7	4.8	0.4	2.9	
St. Deviation	0.9	0.3	0.4	1.7	0.3	1.0	0.3	0.7	0.9	
St. Error	0.5	0.2	0.2	1.0	0.2	0.6	0.2	0.4	0.5	

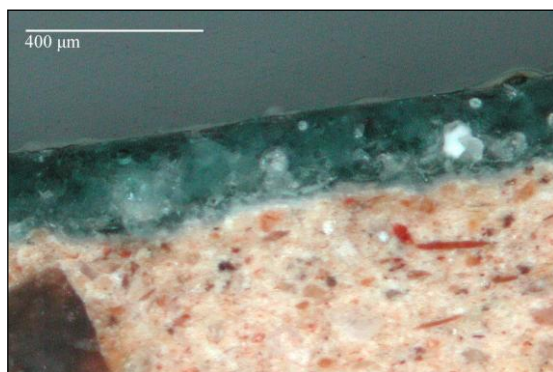
Akhsiket 23/14.1



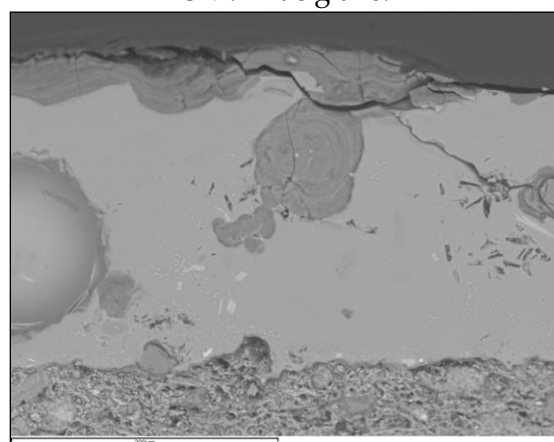
Wall of cup or small bowl, ishkori



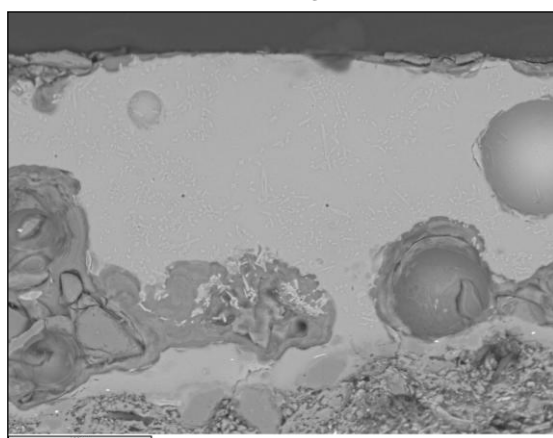
OM: Lilac glaze.



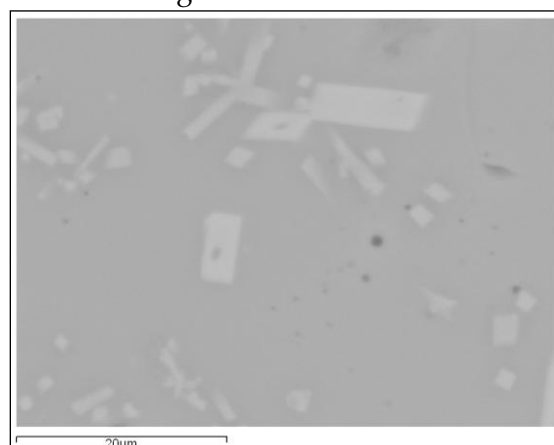
OM: Blue glaze.



BSE: Blue glaze. Scale is 200 microns.



BSE: Blue glaze. Scale is 200 microns.



BSE: Lilac glaze. Scale is 20 microns.

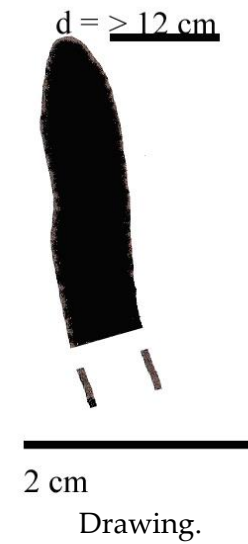
Akhsiket 23/14.1 Glaze																
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	MnO	CuO	P2O5	S2O	Cl	SnO2	AT
Blue 1	upper	5.0	3.2	3.7	66.2	5.7	6.4	1.2	0.0	1.3	6.5	0.6	0.0	0.4	0.0	97
Blue 1	upper	5.1	2.9	3.1	67.3	5.6	6.3	1.2	0.0	1.5	6.7	0.0	0.0	0.3	0.0	96
Blue 1	middle	5.3	2.3	3.3	66.8	5.7	5.7	1.2	0.0	1.4	8.0	0.0	0.0	0.3	0.0	94
Blue 1	dark area	1.1	0.4	7.3	81.4	5.4	0.7	2.4	0.4	0.0	0.7	0.0	0.0	0.3	0.0	76
Blue 2	inclusion	1.3	12.0	0.7	55.4	0.0	23.5	1.7	0.0	2.7	2.8	0.0	0.0	0.0	0.0	91
Blue 2	inclusion	1.3	11.6	0.8	56.4	0.7	21.8	1.6	0.0	2.5	3.4	0.0	0.0	0.0	0.0	93
Blue 3	middle	4.8	3.5	3.9	64.5	5.3	7.6	1.5	0.0	1.6	6.3	0.6	0.0	0.5	0.0	92
Blue 3	upper	5.6	1.9	4.4	67.6	6.3	5.4	1.1	0.0	1.4	6.0	0.0	0.0	0.4	0.0	93
Blue 3	middle	5.5	2.5	3.7	66.4	5.7	6.4	1.1	0.0	1.8	6.5	0.0	0.0	0.5	0.0	92
Lilac 1	upper	6.8	2.5	3.7	71.0	6.3	6.6	1.0	0.0	1.7	0.0	0.0	0.0	0.6	0.0	86
Lilac 1	middle	6.7	2.5	3.5	70.8	6.3	6.5	1.3	0.0	1.7	0.0	0.0	0.0	0.8	0.0	87
Lilac 1	lower	6.3	2.7	5.3	68.5	6.5	6.5	2.1	0.3	1.1	0.0	0.0	0.0	0.7	0.0	90
Lilac 2	inclusion	0.4	1.0	0.0	52.0	0.4	44.6	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	84
Lilac 2	inclusion	2.8	6.6	3.3	65.7	4.3	12.9	1.9	0.0	1.8	0.0	0.0	0.0	0.7	0.0	74
Lilac 2	inclusion	1.9	1.0	1.3	55.0	1.8	36.3	0.4	0.0	1.3	0.0	0.0	0.0	0.0	1.1	86
Lilac 3	dark area	1.2	1.0	6.6	80.7	6.5	0.7	2.5	0.0	0.0	0.0	0.0	0.0	0.8	0.0	66
Lilac 3	dark area	1.1	0.9	6.7	80.1	6.6	0.8	2.7	0.4	0.0	0.0	0.0	0.0	0.7	0.0	65
Lilac 4	upper	6.4	2.5	3.6	70.4	6.7	6.3	1.3	0.0	1.7	0.0	0.0	0.0	0.3	0.0	74
Lilac 4	lower	6.7	2.5	3.7	68.1	6.6	7.2	2.4	0.5	1.6	0.0	0.0	0.0	0.8	0.0	76
Lilac 4	middle	6.4	2.6	4.1	69.0	6.6	7.2	1.5	0.0	1.7	0.0	0.0	0.0	0.8	0.0	74
Lilac 4	dark area	1.3	1.1	6.8	80.5	6.5	0.0	2.3	0.6	0.0	0.0	0.0	0.0	1.0	0.0	74
Lilac 5	inclusion	3.0	10.4	1.9	53.1	1.6	12.7	16.8	0.0	0.4	0.0	0.0	0.0	0.0	0.0	77
Average blue	all light areas	5.2	2.7	3.7	66.5	5.7	6.3	1.2	0.0	1.5	6.7	0.2	0.0	0.4	0.0	
St. Deviation		0.3	0.6	0.5	1.1	0.3	0.8	0.1	0.0	0.2	0.7	0.3		0.1		
St. Error		0.1	0.2	0.2	0.4	0.1	0.3	0.1	0.0	0.1	0.3	0.1		0.0		
Average lilac	all light areas	6.6	2.5	4.0	69.6	6.5	6.7	1.6	0.1	1.6	0.0	0.0	0.0	0.7	0.0	
St. Deviation		0.2	0.1	0.7	1.2	0.2	0.4	0.5	0.2	0.2				0.2		
St. Error		0.1	0.0	0.3	0.5	0.1	0.2	0.2	0.1	0.1				0.1		
Average lilac	dark areas	1.2	1.0	6.7	80.4	6.5	0.5	2.5	0.3	0.0	0.0	0.0	0.0	0.8	0.0	
St.Deviation		0.1	0.1	0.1	0.3	0.0	0.4	0.2	0.3	0.0				0.1		
St. Error		0.0	0.1	0.1	0.2	0.0	0.3	0.1	0.2	0.0				0.1		

Akhsiket 23/14.1 Body										
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	S2O	AT%
Body 1	1.3	3.4	12.3	56.7	3.8	15.5	6.5	0.6	0.0	67
Body 2	1.1	3.1	11.9	58.7	3.7	14.8	5.3	0.7	0.7	71
Body 3	0.9	3.3	12.4	56.8	3.3	16.5	5.9	0.9	0.0	71
Body 4	1.0	3.9	11.5	55.8	3.1	18.5	5.6	0.7	0.0	69
Average	1.1	3.4	12.0	57.0	3.5	16.3	5.8	0.7	0.2	
St. Deviation	0.2	0.4	0.4	1.2	0.3	1.6	0.5	0.1	0.4	
St. Error	0.1	0.2	0.2	0.6	0.2	0.8	0.2	0.1	0.2	

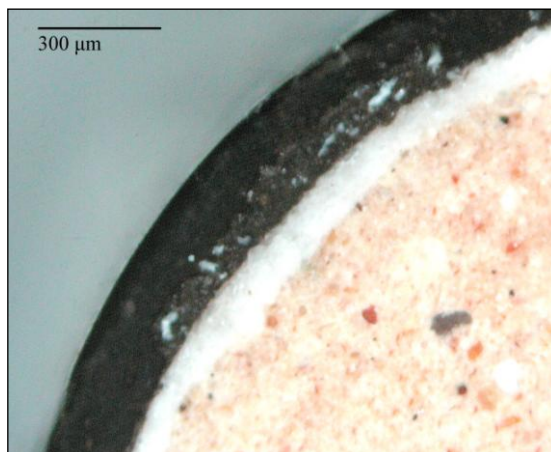
Akhsiket 23/14.4



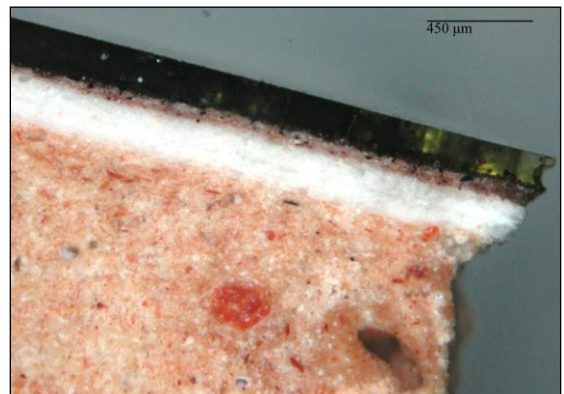
Rim of bowl or plate, polychrome slipware, olive linear band and black crescent rim.



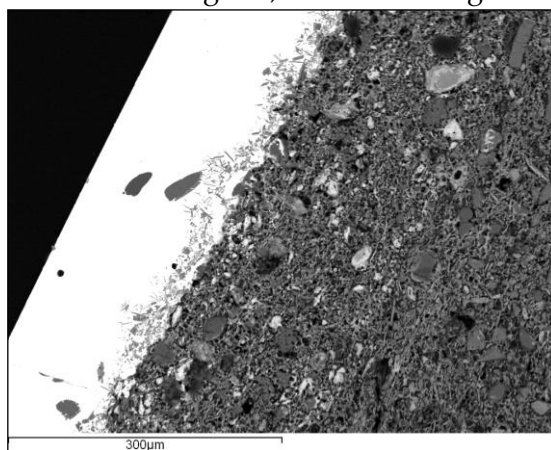
Drawing.



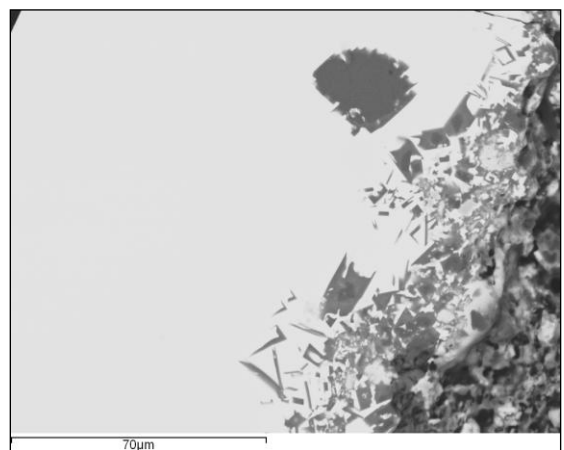
OM: Black glaze, enhanced image.



OM: Olive decoration.



BSE: Black glaze. Scale is 300 microns.



BSE: Black glaze, interface. Scale is 70

microns.

Akhsiket 23/14.4 Glaze													
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	PbO	MnO	Cr2O5	CuO	AT %
C'less/ black	upper	1.2	0.0	3.7	42.6	2.3	2.6	0.7	46.9	0.0	0.0	0.0	91
C'less/ black	upper	1.0	0.6	3.1	42.5	2.3	2.8	1.0	46.8	0.0	0.0	0.0	89
C'less/ black	lower	1.4	0.0	5.7	43.9	3.1	2.6	0.9	42.4	0.0	0.0	0.0	90
C'less / black	lower	1.2	0.0	5.4	44.9	3.1	2.5	1.2	41.8	0.0	0.0	0.0	89
C'less / black 2	inclusion	0.4	0.0	16.8	66.2	16.6	0.0	0.0	0.0	0.0	0.0	0.0	115
C'less / black 2	interface	0.9	0.0	11.0	47.8	7.4	0.0	11.8	20.4	0.7	0.0	0.0	111
C'less / black 3	middle	0.7	0.0	3.1	43.0	2.1	0.6	1.0	49.0	0.7	0.0	0.0	109
C'less / black 3	interface	1.1	0.0	10.1	48.1	7.2	0.0	8.1	25.4	0.0	0.0	0.0	103
C'less / olive	upper	0.7	0.0	2.8	41.5	1.8	0.9	0.0	52.4	0.0	0.0	0.0	86
C'less / olive	upper	0.6	0.4	2.7	41.3	1.7	0.9	0.0	52.3	0.0	0.0	0.0	87
C'less / olive	upper	0.6	0.4	2.6	41.9	1.7	0.9	0.0	52.0	0.0	0.0	0.0	89
C'less / olive	lower	0.8	0.6	4.0	45.7	2.6	0.7	0.7	45.0	0.0	0.0	0.0	91
C'less / olive	lower	0.8	0.6	3.3	43.6	2.1	1.0	0.6	47.6	0.0	0.5	0.0	92
C'less olive 2	middle	0.7	0.0	3.0	42.3	1.7	0.9	0.0	51.4	0.0	0.0	0.0	102
C'less / olive 2	lower/ inclusions	0.0	4.8	7.3	31.9	3.1	0.0	6.3	17.8	0.0	27.6	1.2	114
C'less	upper	0.8	0.0	2.8	39.9	1.8	0.9	0.6	53.3	0.0	0.0	0.0	92
C'less	upper	0.5	0.0	2.7	40.2	1.4	0.9	0.0	54.3	0.0	0.0	0.0	87
C'less	lower	1.0	0.0	4.1	42.7	2.0	0.8	0.0	49.3	0.0	0.0	0.0	90
C'less	lower	0.8	0.0	4.2	42.7	2.0	0.8	0.0	49.5	0.0	0.0	0.0	88
C'less reverse	upper	1.0	0.5	3.3	44.9	2.2	0.9	0.0	47.3	0.0	0.0	0.0	92
C'less reverse	upper	1.0	0.6	3.4	44.7	2.3	1.1	0.0	46.9	0.0	0.0	0.0	92
C'less reverse	lower	1.2	0.5	6.0	48.6	3.5	0.9	0.0	39.2	0.0	0.0	0.0	91
C'less reverse	lower	1.4	0.4	6.2	49.2	3.7	1.0	0.0	38.2	0.0	0.0	0.0	90
Average black	all glaze	1.1	0.1	4.2	43.4	2.6	2.2	1.0	45.4	0.1	0.0	0.0	
St. Deviation		0.3	0.3	1.3	1.0	0.5	0.9	0.2	3.1	0.3			
St. Error		0.1	0.1	0.6	0.5	0.2	0.4	0.1	1.4	0.1			
Average black	interface	1.0	0.0	10.5	48.0	7.3	0.0	10.0	22.9	0.4	0.0	0.0	
St. Deviation		0.2	0.0	0.6	0.2	0.1	0.0	2.6	3.5	0.5			
Average olive	all glaze	0.7	0.3	3.1	42.7	2.0	0.9	0.2	50.1		0.1	0.0	
St. Deviation		0.1	0.3	0.5	1.7	0.4	0.1	0.3	3.1		0.2	0.0	
St. Error		0.0	0.1	0.2	0.7	0.2	0.0	0.1	1.3		0.1	0.0	
Average colourless	all glaze incl. reverse	1.0	0.2	4.1	44.1	2.4	0.9	0.1	47.2	0.00	0.0	0.0	
St. Deviation		0.3	0.3	1.4	3.5	0.8	0.1	0.2	5.9				
St. Error		0.1	0.1	0.5	1.2	0.3	0.0	0.1	2.1				

Akhsiket 23/14.4 Engobe/slip

Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	MnO	CuO	Cr2O5	AT %
C'less / olive	slip	0.9	2.2	11.8	63.2	4.7	3.7	2.2	0.9	4.7	0.0	0.0	5.8	85
C'less / olive	engobe	1.0	1.5	16.5	64.2	6.0	4.6	0.0	0.6	5.6	0.0	0.0	0.0	74
C'less / black	engobe/ upper	0.9	1.9	16.3	62.1	5.8	4.4	0.0	0.0	8.5	0.0	0.0	0.0	80
C'less / black	engobe/ lower	1.0	2.1	17.8	59.0	6.3	6.5	0.7	0.0	6.8	0.0	0.0	0.0	78
Average engobe	all engobe	1.0	1.8	16.9	61.8	6.0	5.2	0.2	0.2	7.0	0.0	0.0	0.0	
St. Deviation		0.0	0.3	0.8	2.6	0.3	1.2	0.4	0.4	1.5				
St. Error		0.0	0.2	0.5	1.5	0.1	0.7	0.2	0.2	0.9				

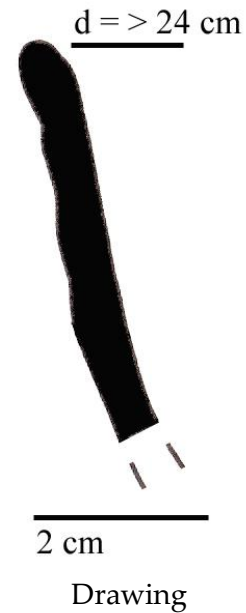
Akhsiket 23/14.4 Body

Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	AT%
Body 1	1.0	3.9	12.7	60.8	3.1	12.6	4.9	1.0	80
Body 2	1.2	4.0	13.7	58.9	2.5	13.3	5.7	0.7	75
Average	1.1	3.9	13.2	59.9	2.8	13.0	5.3	0.8	
St. Deviation	0.1	0.0	0.7	1.3	0.4	0.5	0.6	0.2	

Akhsiket 23/14.16



Rim sherd of bowl or plate, black on white
?kufic design.



Petrofabric

Fabric colour: buff

Size: 5-20 μm . Few 50-100 μm

Sorting: Very well-sorted

Shape: sub-angular and angular inclusions

Density: < 10%

Mostly quartz: 90% monocrystalline, 10% polycrystalline

Some mica and calcium-rich inclusions

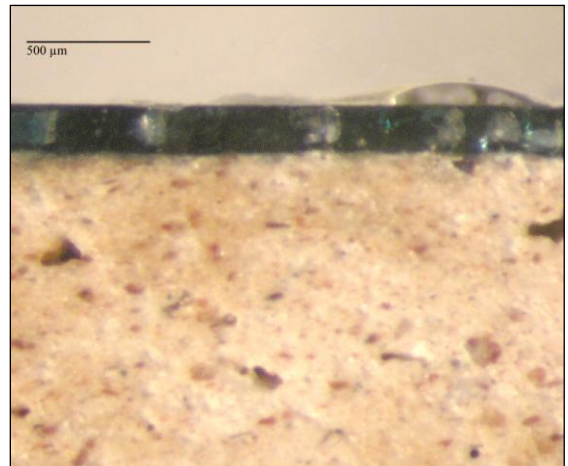
Chemically well-evolved with angular quartz.

Not analysed with SEM-EDS.

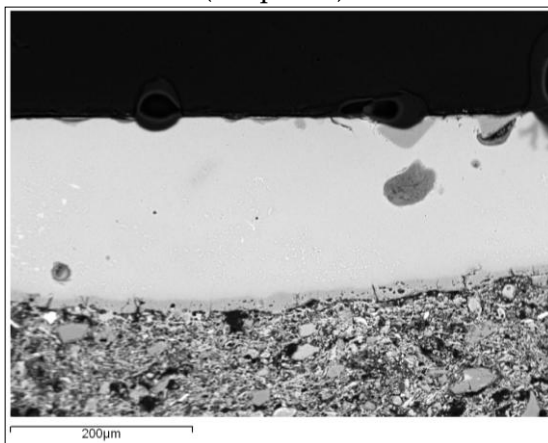
Akhsiket 23/14.17



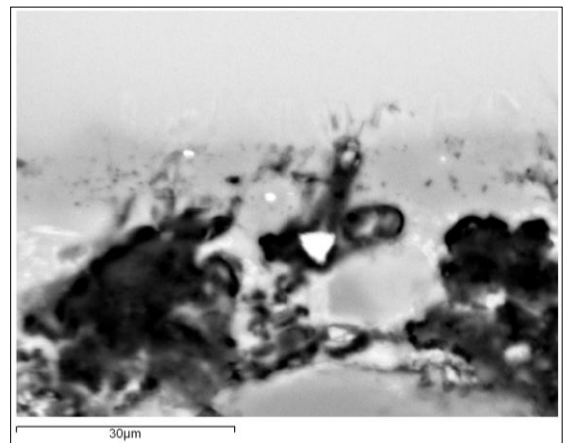
Body sherd, *ishkor* light and dark blue (turquoise).



OM: Glaze. Scale is 500 microns.



BSE: Dark blue glaze. Scale is 200 microns.

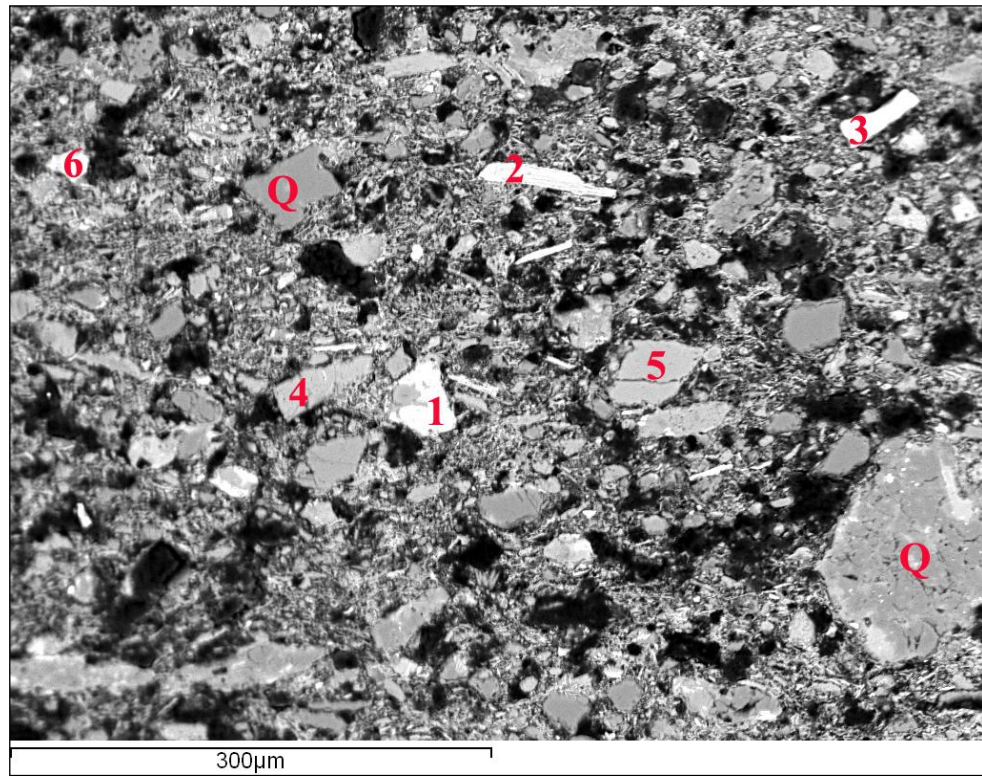


BSE: detail of darker band across bottom of dark blue glaze layer. Scale is 30 microns.

Akhsiket 23/14.17 Glaze													
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	MnO	CuO	Cl	AT%
Dark blue 1	middle	6.9	2.0	3.0	70.6	5.3	4.1	0.9	0.0	1.0	5.9	0.4	107
Dark blue 1	middle	7.2	2.1	2.9	69.7	5.1	4.7	0.8	0.0	0.9	6.1	0.4	108
Dark blue 2	lower	5.1	1.4	6.4	70.9	5.7	3.5	0.7	0.0	0.7	5.3	0.3	111
Dark blue 2	lower	5.1	1.4	7.3	70.5	5.7	3.1	0.8	0.0	0.7	4.9	0.4	106
Dark blue 2	lower	5.1	1.5	6.8	70.2	5.5	3.6	0.9	0.0	0.9	5.2	0.4	112
Dark blue 2	interface	12.6	0.0	31.8	48.4	5.3	1.5	0.5	0.0	0.0	0.0	0.0	106
Dark blue 2	interface	13.5	0.0	32.9	46.9	5.0	1.2	0.5	0.0	0.0	0.0	0.0	107
Dark blue 2	interface	11.2	0.0	27.9	54.0	4.8	1.3	0.9	0.0	0.0	0.0	0.0	107
Light blue 1	middle	7.2	2.6	3.5	70.3	5.6	5.7	1.1	0.0	1.4	2.1	0.7	108
Light blue 1	middle	7.7	2.8	3.6	68.4	5.2	6.6	1.2	0.0	1.7	2.1	0.7	110
Light blue 1	middle	7.2	2.5	3.9	70.0	5.3	6.1	1.1	0.0	1.3	2.2	0.6	110
Light blue 3	middle	7.7	2.8	3.3	70.0	5.5	5.8	0.9	0.0	1.4	2.2	0.6	109
Light blue 3	middle	6.7	3.1	3.8	70.3	5.5	6.1	0.9	0.0	1.3	1.8	0.6	108
Average dark blue	middle/lower	5.9	1.7	5.3	70.4	5.5	3.8	0.8	0.0	0.8	5.5	0.4	
St. Deviation		1.1	0.4	2.2	0.5	0.3	0.6	0.1		0.1	0.5	0.0	
St. Error		0.5	0.2	1.0	0.2	0.1	0.3	0.0		0.1	0.2	0.0	
Average light blue	middle	7.3	2.8	3.6	69.8	5.4	6.0	1.0	0.0	1.4	2.1	0.6	
St. Deviation		0.4	0.2	0.3	0.8	0.2	0.4	0.1		0.2	0.2	0.1	
St. Error		0.2	0.1	0.1	0.4	0.1	0.2	0.1		0.1	0.1	0.0	
Average interface		12.4	0.0	30.9	49.8	5.0	1.3	0.6	0.0	0.0	0.0	0.0	
St.Dev.		1.2		2.7	3.8	0.3	0.1	0.2					
St. Error		0.7		1.5	2.2	0.2	0.1	0.1					

Akhsiket 23/14.17 Body											
Bulk	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	S2O	AT%	
Body 1	2.2	4.1	12.6	57.8	2.2	14.5	5.5	0.6	0.0	70	
Body 2	1.7	4.1	12.4	59.2	2.3	13.8	5.4	0.6	0.0	72	
Body 3	1.7	4.0	12.3	57.8	2.1	15.9	5.1	0.6	0.0	72	
Body 4	1.9	3.8	11.8	56.6	1.9	17.2	5.2	0.6	0.6	74	
Average	1.9	4.0	12.3	57.8	2.1	15.4	5.3	0.6	0.2		
St. Deviation	0.2	0.2	0.3	1.0	0.2	1.5	0.2	0.0	0.3		
St. Error	0.1	0.1	0.2	0.5	0.1	0.8	0.1	0.0	0.2		

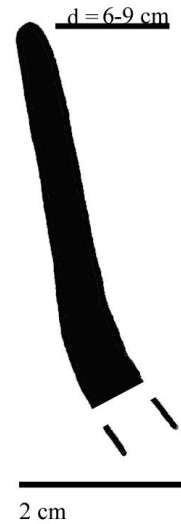
Akhsiket 23/14.17 Inclusions											
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	P2O5	MnO	At%
Inclusion 1	0.6		22.3	39.5		24.5	12.8			0.3	105
Inclusion 2	1.2	9.7	14.0	38.5	8.5	0.8	24.4	2.4		0.5	101
Inclusion 3						56.8			43.2		104
Inclusion 4	1.1		17.6	66.1	15.2						108
Inclusion 5	1.6		17.2	67.1	14.2						109
Inclusion 6	1.1	5.0	23.7	33.7	11.1	1.2	24.2				104
Q=quartz											



Akhsiket 23/15.1



Rim sherd of bowl or plate, pseudo-kufic
in black and red.



Drawing.

Petrofabric

Fabric colour: Red

Size: ~10-15% 50-100 μ m, to ~40-50% 5-20 μ m

Sorting: Moderately-sorted

Shape: sub-angular and angular inclusions

Density: 25%

Mostly quartz: 95% monocrystalline, < 5% polycrystalline

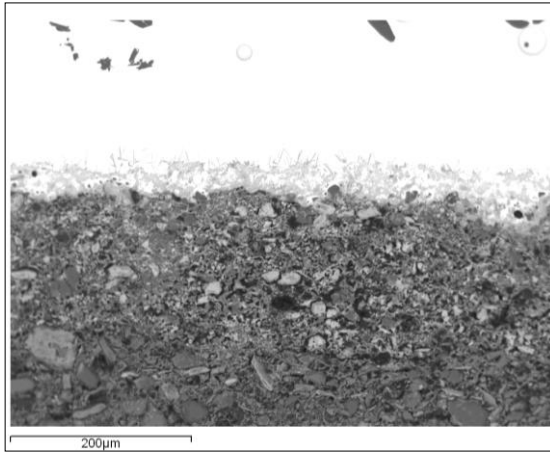
Some polycrystalline quartz ingrown with iron minerals and biotite

> 5% biotite and calcium-rich inclusions (< 20 μ m)

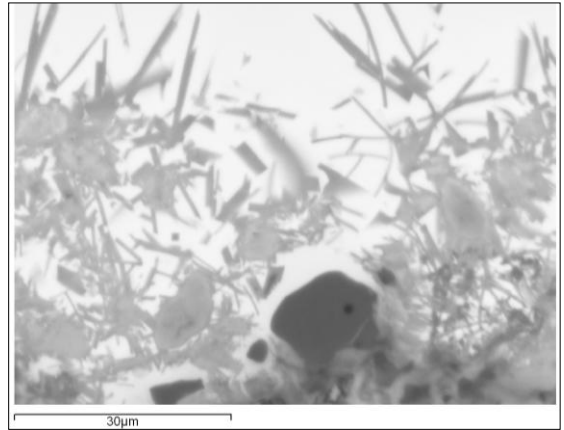
Chemically well-evolved with angular quartz inclusions



OM: Entire cross section.



BSE: black glaze. Scale is 200 microns.



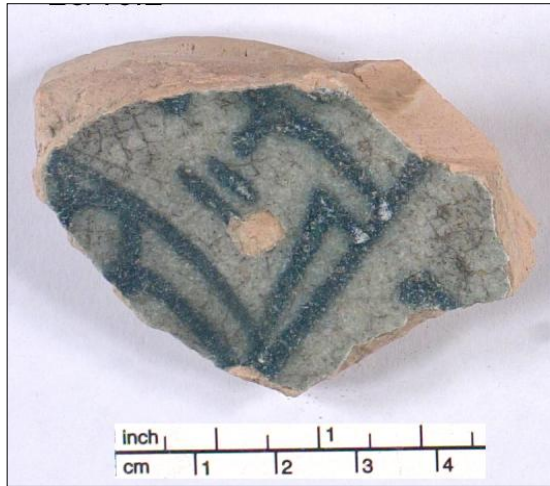
BSE: Detail of crystalline matrix at interface. Scale is 30 microns.

Akhsiket 23/15.1 Glaze													
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	MnO	P2O5	AT %
Black	middle	0.0	0.0	3.2	43.7	1.4	0.5	1.7	0.0	48.9	0.6	0.0	90
Black	middle	0.5	0.0	4.0	44.6	1.9	0.5	2.7	0.0	45.1	0.7	0.0	90
Black 2	inclusions	1.0	0.6	25.8	44.1	5.3	2.1	0.9	0.0	20.3	0.0	0.0	85
Black 2	inclusions	0.9	0.6	22.2	42.5	5.5	2.1	1.8	0.0	23.2	0.0	1.3	85
Black 2	inclusions	0.8	0.0	12.3	49.3	7.6	0.0	3.5	0.0	26.5	0.0	0.0	85
Black 2	inclusions	0.8	0.4	13.4	50.9	8.5	0.0	3.2	0.0	22.8	0.0	0.0	85
Black 2	inclusions	0.9	0.8	26.3	42.8	5.0	1.9	0.5	0.0	21.9	0.0	0.0	84
C'less/red	middle	0.4	0.0	2.9	43.1	1.1	0.5	0.9	0.0	51.2	0.0	0.0	88
C'less/red	middle	0.0	0.0	2.7	43.7	1.2	0.0	0.8	0.0	51.5	0.0	0.0	87
C'less/red 2	inclusions	0.6	0.0	14.6	41.2	6.2	0.0	17.3	0.5	19.6	0.0	0.0	88
C'less/red 2	inclusions	0.6	0.0	17.4	40.3	5.5	0.0	11.5	0.0	24.6	0.0	0.0	87
Colourless	middle	0.0	0.4	3.8	42.8	1.5	0.6	1.2	0.0	49.7	0.0	0.0	91
Colourless	middle	0.0	0.4	4.0	42.5	1.6	0.5	1.6	0.0	49.5	0.0	0.0	90
Colourless	middle	0.0	0.3	3.1	42.9	1.3	0.5	1.3	0.0	50.3	0.4	0.0	91
Colourless	inclusions	0.7	0.0	17.2	65.2	15.7	0.0	0.0	0.0	1.1	0.0	0.0	97
Average black	middle	0.3	0.0	3.6	44.1	1.7	0.5	2.2	0.0	47.0	0.6	0.0	
St. Dev.		0.4	0.0	0.6	0.7	0.3	0.0	0.7		2.7	0.1		
Average c'less/red	middle	0.2	0.0	2.8	43.4	1.2	0.2	0.9	0.0	51.4	0.0	0.0	
St. Dev.		0.3	0.0	0.1	0.5	0.1	0.3	0.1		0.2	0.0		
Average c'less	middle	0.0	0.4	3.6	42.7	1.5	0.5	1.4	0.0	49.8	0.1	0.0	
St. Dev.		0.0	0.0	0.5	0.2	0.1	0.1	0.2		0.4	0.3		
St. Error		0.0	0.0	0.3	0.1	0.1	0.0	0.1		0.2	0.1		

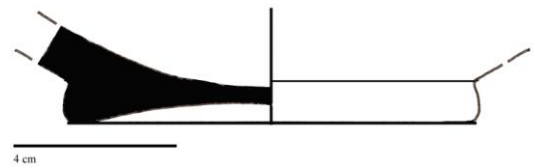
Akhsiket 23/15.1 Slip/engobe													
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	MnO		AT %
Black	engobe/ upper	1.0	1.8	20.7	53.9	4.3	4.6	0.5	0.7	12.3	0.0		60
Black	engobe/ lower	0.7	2.8	16.6	61.3	3.4	5.7	0.5	0.9	7.8	0.0		60
Black	engobe/ lower	0.9	2.4	17.1	60.4	3.7	5.4	0.0	0.0	8.7	0.0		69
C'less/red	engobe/ upper (slip?)	0.8	2.8	19.1	48.4	4.3	3.9	4.9	0.0	15.2	0.0		62
C'less/red	engobe/ lower	0.9	2.3	15.1	63.2	3.2	6.8	1.4	0.5	6.3	0.0		66
C'less/red	engobe/ lower	1.0	2.3	18.1	58.4	4.2	6.5	1.1	0.0	7.4	0.0		61
Average black	all engobe	0.9	2.3	18.1	58.5	3.8	5.2	0.4	0.5	9.6	0.0		
St. Dev.		0.2	0.5	2.2	4.1	0.5	0.6	0.3	0.5	2.4			
St. Error		0.1	0.3	1.3	2.3	0.3	0.4	0.2	0.3	1.4			
Average c'less/red	engobe/ lower	0.9	2.3	16.6	60.8	3.7	6.6	1.3	0.2	6.8	0.0		
St. Dev.		0.1	0.0	2.1	3.4	0.7	0.2	0.2	0.3	0.8			

Akhsiket 23/15.1 Body										
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	SO3	AT%
Body 1	1.3	3.4	13.9	53.0	2.4	17.6	6.4	0.8	0.5	62
Body 2	1.4	2.7	13.7	57.6	3.2	13.9	5.9	1.1	0.0	69
Body 3	1.4	3.0	13.3	57.5	2.5	14.7	6.0	0.7	0.0	63
Body 4	1.3	3.0	12.9	55.7	2.5	15.7	6.4	1.1	0.5	62
Average	1.3	3.0	13.4	56.0	2.7	15.5	6.2	0.9	0.3	
St. Deviation	0.1	0.3	0.5	2.2	0.3	1.6	0.3	0.2	0.3	
St. Error	0.0	0.1	0.2	1.1	0.2	0.8	0.1	0.1	0.2	

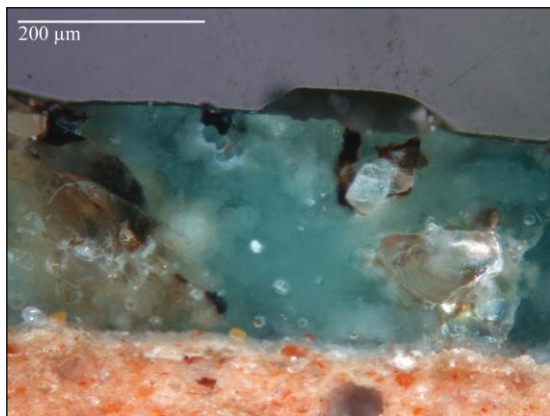
Akhsiket 23/15.2



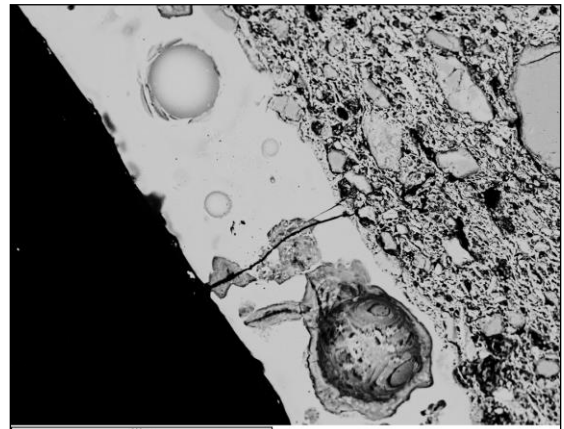
Base sherd, *ishkori* glaze, dark and light blue/turquoise.



Drawing. Scale is 4 cm.



OM image.

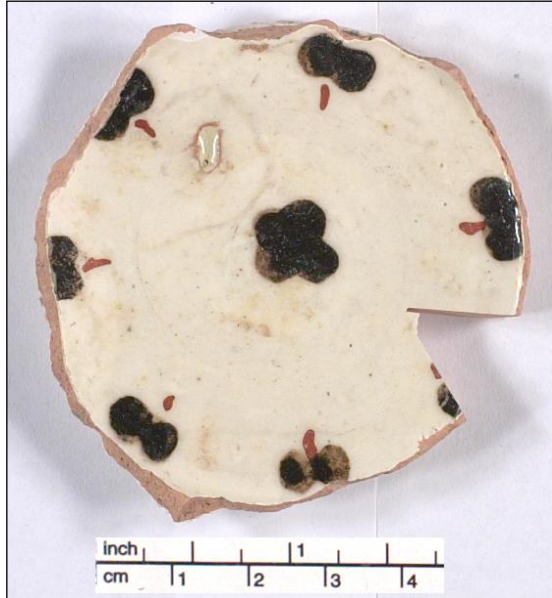


BSE: Light blue glaze. Scale is 300 microns.

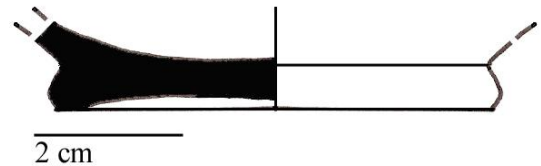
Akhsiket 23/15.2 Glaze												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	MnO	CuO	Cl	AT%
Dark blue 1	middle	6.6	2.3	3.3	69.1	6.4	5.4	1.2	1.4	3.5	0.9	93
Dark blue 2	middle	8.0	2.9	3.3	67.3	5.7	6.5	1.0	1.8	2.6	1.0	89
Light blue 1	middle	7.4	2.4	3.6	69.3	6.7	5.8	1.2	1.7	1.0	1.0	90
Light blue 2	middle	6.5	3.1	3.4	68.9	6.1	8.0	1.0	1.9	0.0	1.0	86
Average dark blue		7.3	2.6	3.3	68.2	6.0	6.0	1.1	1.6	3.0	1.0	
St. Deviation		0.9	0.4	0.0	1.3	0.5	0.7	0.1	0.3	0.6	0.1	
Average light blue		6.9	2.8	3.5	69.1	6.4	6.9	1.1	1.8	0.5	1.0	
St. Deviation		0.6	0.5	0.2	0.3	0.4	1.5	0.1	0.1	0.7	0.0	

Akhsiket 23/15.2 Body										
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	AT%	
Body 1	1.5	2.9	11.7	55.7	3.9	17.3	6.1	1.0	78	
Body 2	1.0	3.2	12.7	55.3	3.7	17.6	6.3	0.0	74	
Average	1.3	3.1	12.2	55.5	3.8	17.5	6.2	0.5		
St. Deviation	0.3	0.3	0.7	0.3	0.1	0.2	0.2	0.7		

Akhsiket 23/15.5



Base of bowl, polychrome black ?fruit and central 'club' on white.



Drawing.

Petrofabric

Fabric colour: Red

Size: 5-20 μm . Few 50-100 μm

Sorting: Very well-sorted

Shape: mostly sub-angular inclusions

Density: 15%

Mostly quartz: 90% monocrystalline, 10% polycrystalline

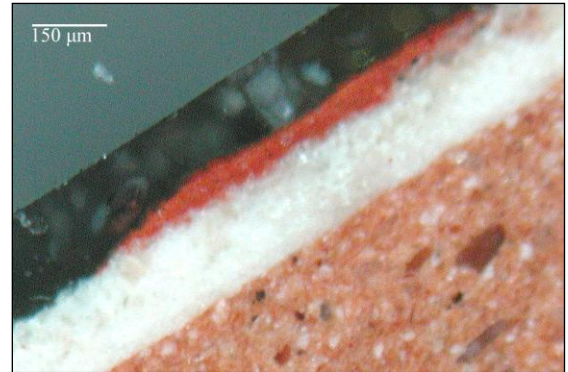
Many mica inclusions

Not analysed with SEM-EDS.

Akhsiket 23/16.1



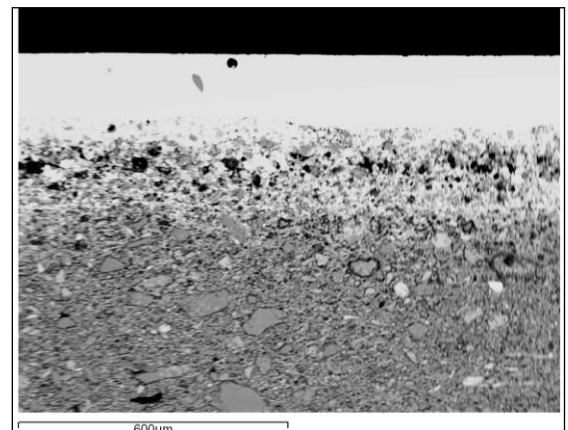
Body sherd, broken into two pieces, olive pseudo rope outlined in red, lead glaze.



OM: Red decoration.



OM: Olive decoration.



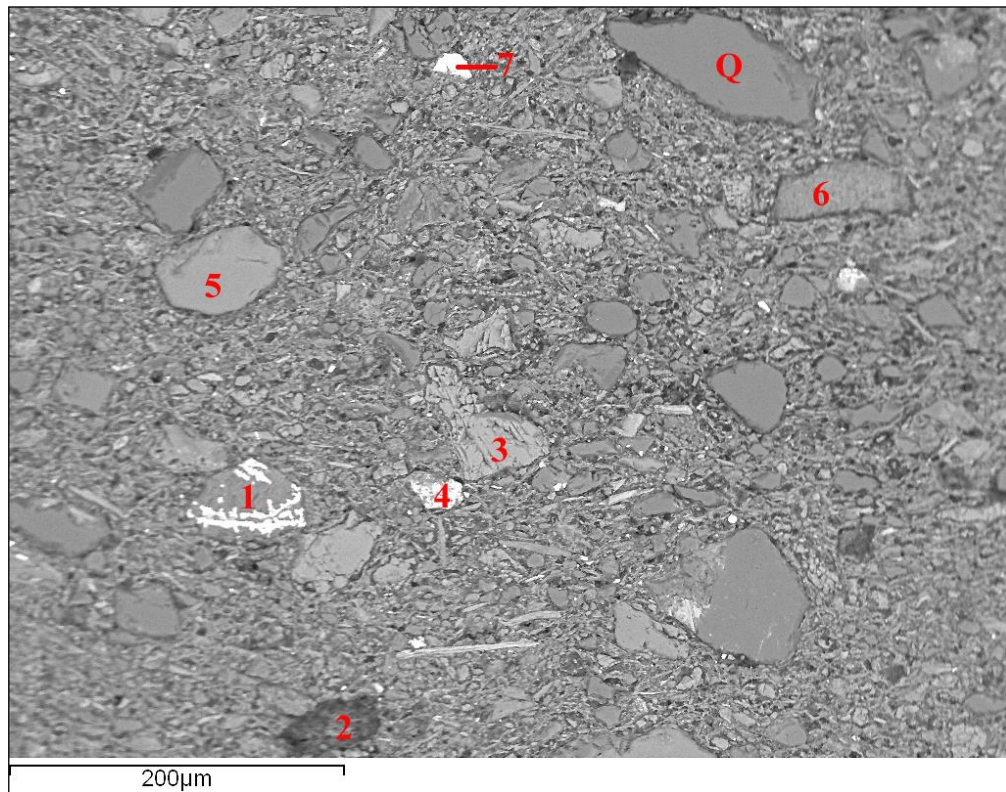
BSE: Olive decoration. Scale is 600 microns.

Akhsiket 23/16.1 Glaze										
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	PbO	AT%
Colourless/olive	middle	0.0	0.0	1.2	28.3	0.0	0.6	1.3	68.6	70
Colourless/olive	middle	0.0	0.0	1.3	28.5	0.0	0.0	0.0	70.3	70
Colourless/olive 2	middle	0.0	0.0	0.9	29.3	0.0	0.0	0.0	69.8	68
Colourless/red	middle	0.0	0.0	0.7	29.0	0.0	0.0	0.0	70.3	68
Colourless/red 2	middle	0.0	0.0	1.1	29.2	0.0	0.0	0.0	69.7	70
Colourless/red 2	interface	1.1	0.0	9.4	38.3	4.9	1.7	17.3	27.5	80
Colourless/red 2	interface	0.9	0.0	12.4	42.8	5.5	0.0	4.0	34.3	76
Colourless/red 2	interface	1.1	0.0	13.1	43.5	5.2	0.0	8.7	28.4	76
Average c'less/olive	middle	0.0	0.0	1.1	28.7	0.0	0.2	0.4	69.6	
St. Deviation				0.2	0.5		0.4	0.7	0.9	
St. Error				0.1	0.3		0.2	0.4	0.5	
Average c'less/red	middle	0.0	0.0	0.9	29.1	0.0	0.0	0.0	70.0	
St. Deviation				0.3	0.1		0.0	0.0	0.4	
Average c'less/red	interface	1.1	0.0	11.6	41.5	5.2	0.6	10.0	30.1	
St. Deviation		0.1		2.0	2.9	0.3	1.0	6.7	3.7	
St. Error		0.1		1.1	1.7	0.2	0.6	3.9	2.1	

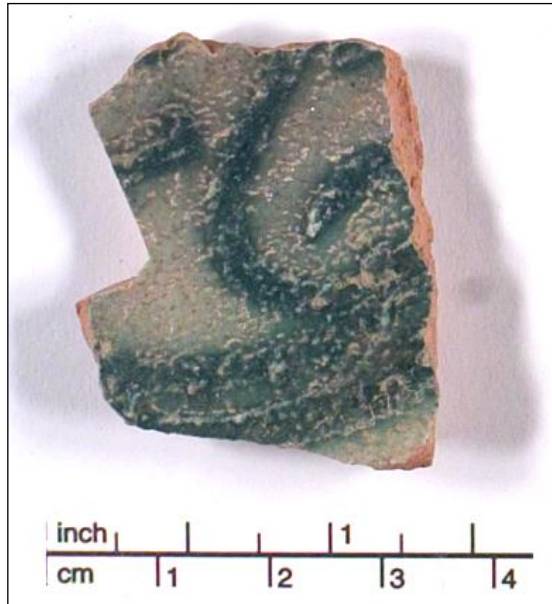
Akhsiket 23/16.1 Slip/engobe													
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	P2O5	Cr2O5	AT%
C'less/olive	slip	0.0	1.8	10.3	62.1	2.6	1.5	5.8	0.0	15.1	0.0	0.9	57
C'less/olive	slip	0.0	0.9	8.5	71.6	2.6	1.3	2.0	0.0	10.6	0.0	2.6	60
C'less/olive	engobe	0.0	0.9	9.5	73.2	3.1	2.4	1.0	0.0	10.0	0.0	0.0	53
C'less/olive	engobe	0.0	1.5	9.4	70.8	2.8	2.0	0.0	2.6	10.9	0.0	0.0	52
C'less/olive 2	slip	0.0	1.4	10.9	61.6	2.9	1.0	2.6	0.0	16.0	0.0	3.7	58
C'less/olive 2	slip	0.7	1.2	10.4	60.5	2.7	1.0	3.3	0.0	13.4	0.0	6.9	62
C'less/red	slip	0.7	0.0	13.8	40.4	2.6	1.5	17.4	0.9	21.6	1.0	0.0	56
C'less/red	slip	0.8	0.0	12.3	45.3	2.5	1.0	16.7	0.0	21.1	0.0	0.0	56
Average c'less/olive	slip	0.2	1.3	10.0	63.9	2.7	1.2	3.4	0.0	13.8	0.0	3.5	
St. Dev.		0.3	0.4	1.0	5.1	0.2	0.3	1.7	0.0	2.4		2.5	
St. Error		0.2	0.2	0.5	2.6	0.1	0.1	0.9	0.0	1.2		1.3	
Average c'less/olive	engobe	0.0	1.2	9.4	72.0	2.9	2.2	0.5	1.3	10.5	0.0	0.0	
St. Dev.		0.0	0.4	0.1	1.7	0.2	0.3	0.7	1.9	0.6		0.0	
Average c'less/red	slip	0.7	0.0	13.1	42.8	2.5	1.2	17.1	0.5	21.4	0.5	0.0	
St. Dev.		0.1	0.0	1.1	3.5	0.1	0.4	0.5	0.7	0.4	0.7		

Akhsiket 23/16.1 Body										
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	AT%	
Body 1	0.8	3.7	12.5	56.2	3.7	15.4	6.7	0.8	59	
Body 2	1.0	3.4	11.9	57.4	3.5	16.6	6.3	0.0	60	
Body 3	1.8	2.8	14.1	55.9	4.3	14.8	5.7	0.6	60	
Body 4	0.8	3.4	11.7	57.8	3.6	15.2	6.5	0.7	59	
Average	1.1	3.3	12.5	56.8	3.8	15.5	6.3	0.5		
St. Deviation	0.5	0.4	1.1	0.9	0.4	0.8	0.4	0.4		
St. Error	0.2	0.2	0.6	0.5	0.2	0.4	0.2	0.2		

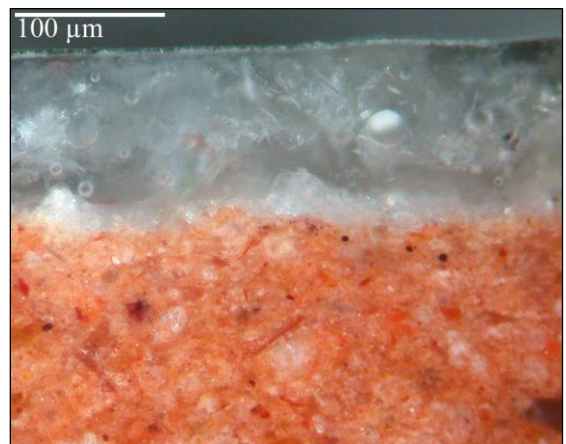
Akhsiket 23/16.1 Inclusions											
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	SO3	MnO	AT%
Inclusion 1	0.7	30.6	18.8	41.3	2.5	0.6	5.6				76
Inclusion 3		1.0				98.0				1.0	46
Inclusion 4	3.3		4.6	17.7	0.7	0.5	1.2	71.9			91
Inclusion 5	0.7		17.3	65.4	16.7						76
Inclusion 6		10.6				88.4			1.0		41
Inclusion 7			2.2			0.5	93.0	4.3			84
Q=quartz											



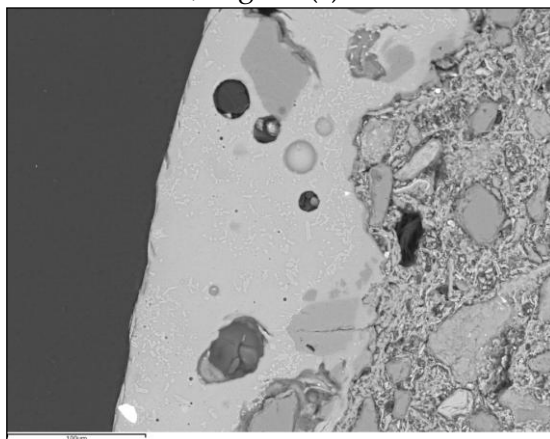
Akhsiket 23/16.2



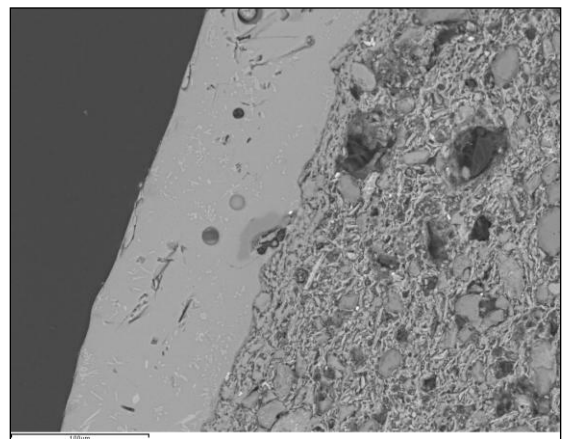
Body sherd, *ishkor*, light blue and dark blue, vegetal (?) motif.



OM image: light blue glaze.



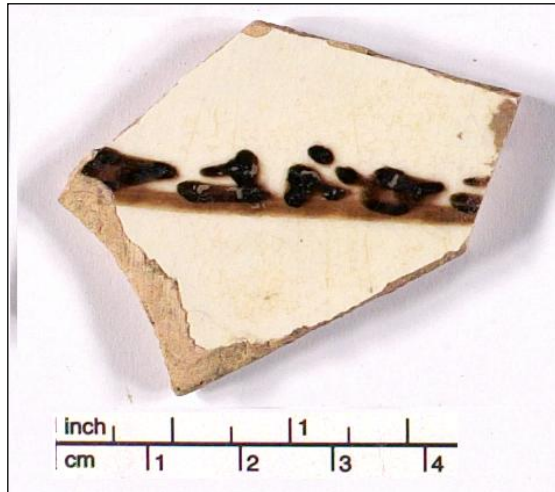
BSE: Dark blue glaze. Scale is 100 microns.



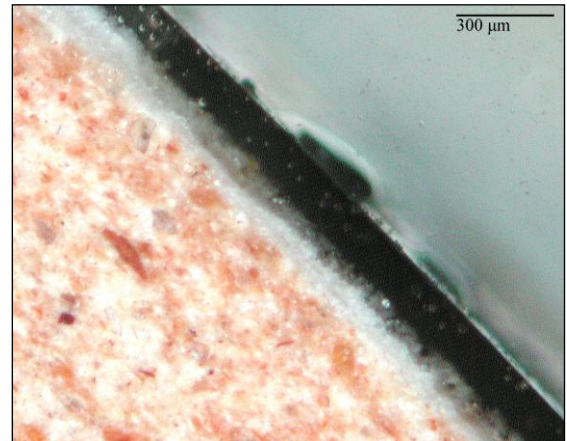
BSE: Light blue glaze. Scale is 100 microns.

SEM-EDS analysis not carried out.

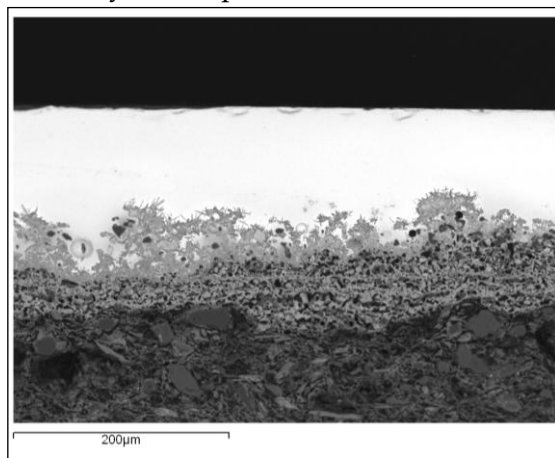
Akhsiket 23/16.3



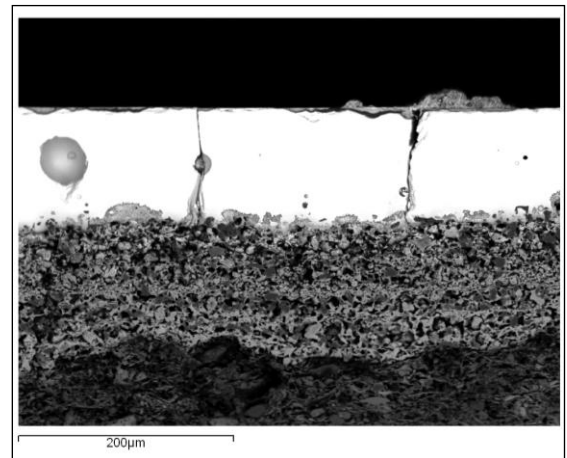
Body sherd, pseudo kufic or kufic.



OM: Black decoration.



BSE: Brown decoration. Scale is 200 microns.



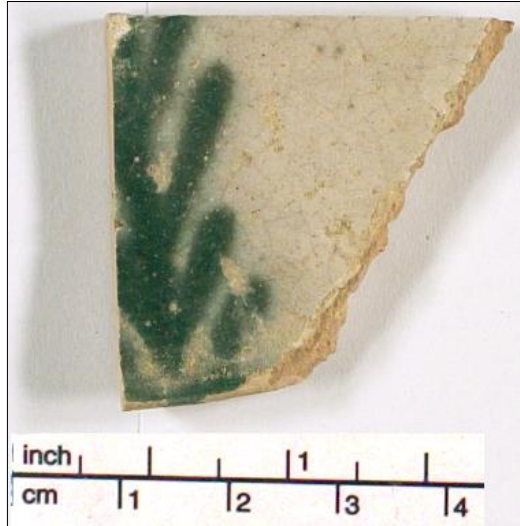
BSE: Colourless glaze. Scale is 200 microns.

Akhsiket 23/16.3 Glaze											
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	PbO	MnO	AT%
Brown	middle	0.5		2.6	43.1	1.5	0.5	2.3	48.6	0.9	90
Brown	middle	0.4		3.7	43.0	1.8	0.4	3.9	45.8	0.9	92
Brown 2	middle	0.4		2.7	42.4	1.3	0.6	1.4	50.6	0.7	87
Brown 2	middle	0.0	0.3	3.3	42.4	1.3	0.4	0.5	51.8	0.0	87
Brown 3	middle	0.4		2.9	42.1	1.5	0.5	3.4	47.9	1.2	87
Brown 3	middle	0.4		3.4	41.1	1.5	0.5	3.2	49.1	0.8	87
Colourless	middle	0.0		2.8	43.1	1.4	0.5		52.2		85
Colourless	middle	0.0		3.2	43.5	1.4	0.5		51.3		85
Averagebrown	middle	0.4		3.1	42.3	1.5	0.5	2.4	49.0	0.7	
St. Deviation		0.2		0.4	0.7	0.2	0.1	1.3	2.1	0.4	
St. Error		0.1		0.2	0.3	0.1	0.0	0.5	0.9	0.2	
Average c'less	middle	0.0		3.0	43.3	1.4	0.5		51.8		
St. Deviation		0.0		0.3	0.3	0.0	0.1		0.6		

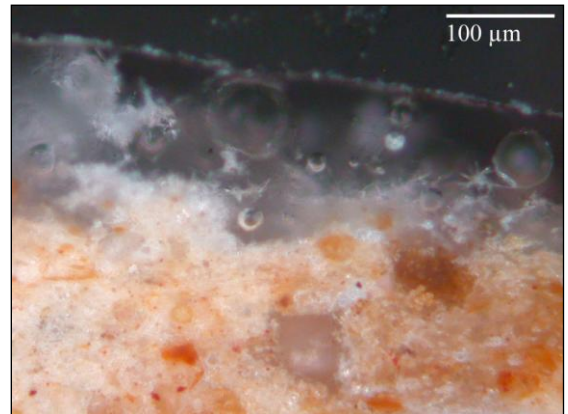
Akhsiket 23/16.3 Engobe											
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	AT%
Brown	engobe	0.8	0.5	18.0	57.5	5.2	0.0	0.0	0.0	17.6	72
Brown	engobe	0.9	0.6	19.1	57.6	5.2	0.0	0.7	0.0	16.1	77
Brown 2	engobe	0.9	0.6	22.9	50.2	5.4	0.0	0.4	0.8	18.8	74
Brown 2	engobe	0.8	0.6	20.4	54.4	5.8	0.0	0.5	0.0	17.4	73
Brown 2	engobe	0.6	0.0	12.5	67.6	4.3	0.6	0.0	0.0	14.3	63
Brown 3	engobe	0.8	0.7	19.7	54.0	5.0	0.0	0.7	1.2	17.8	77
Brown 3	engobe	0.9	0.8	19.7	54.1	5.3	0.6	0.6	0.0	17.7	72
Brown 3	engobe	0.6	0.5	17.2	57.0	4.6	0.0	0.0	0.5	19.6	77
Colourless	engobe	0.8	0.5	17.7	58.2	5.2	0.0	0.6	0.0	17.2	60
Colourless	engobe	0.9	0.5	19.1	56.7	5.8	0.8	0.5	0.0	15.6	66
Average	engobe	0.8	0.5	18.6	56.7	5.2	0.2	0.4	0.2	17.2	
St. Deviation		0.1	0.2	2.7	4.5	0.5	0.3	0.3	0.4	1.5	
St. Error		0.0	0.1	0.9	1.4	0.2	0.1	0.1	0.1	0.5	

Akhsiket 23/16.3 Body										
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	SO3	AT%
Body 1	1.3	3.5	12.9	56.9	2.4	16.1	6.0	0.7	0.0	73
Body 2	1.4	3.5	13.2	56.8	2.6	16.2	5.6	0.7	0.0	71
Body 3	1.2	4.2	12.5	53.2	2.2	19.4	5.9	0.7	0.5	72
Body 4	1.3	3.6	12.8	55.0	2.3	18.1	5.6	0.6	0.6	71
Average	1.3	3.7	12.8	55.5	2.4	17.4	5.8	0.7	0.3	
St. Deviation	0.1	0.3	0.3	1.8	0.1	1.6	0.2	0.1	0.3	
St. Error	0.0	0.2	0.1	0.9	0.1	0.8	0.1	0.0	0.2	

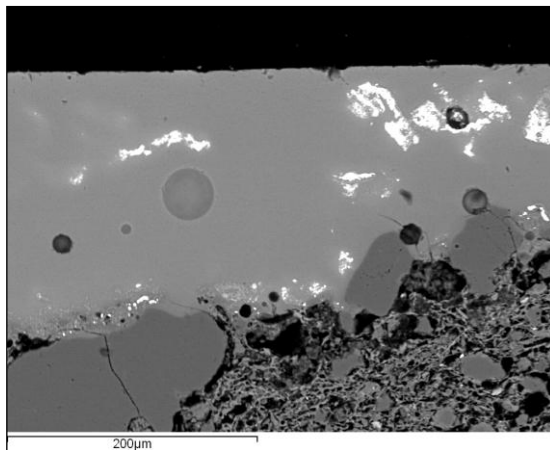
23/20.2



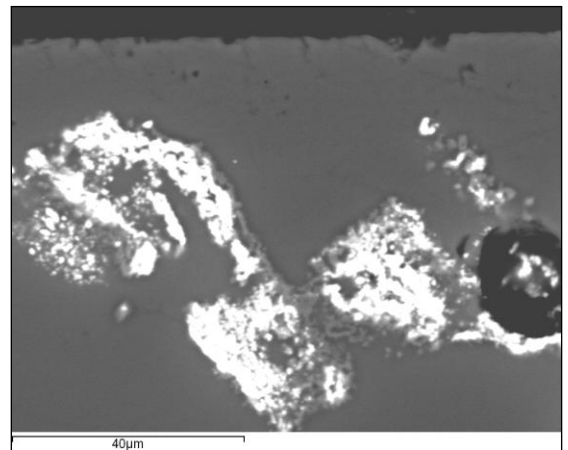
Body sherd, *ishkor*, dark blue on lilac, frond motif.



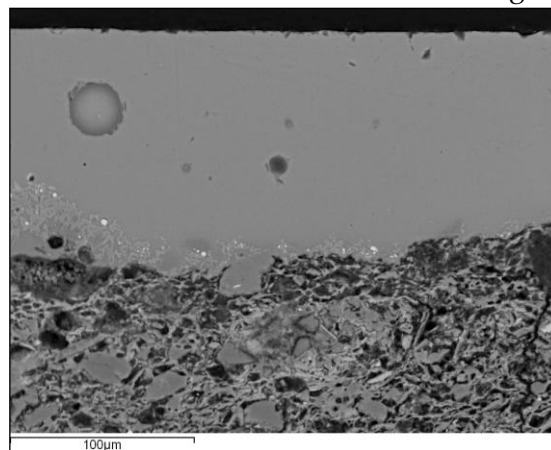
OM image: lilac glaze.



BSE: Dark blue glaze. Scale is 200 microns.



BSE: Dark blue glaze. Scale is 40 microns.



BSE. Lilac glaze. Scale is 100 microns.

Akhsiket 23/20.2 Glaze																			
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	MnO	CuO	PbO	P2O5	SO3	Cl	SnO2	BaO	Cr2O3	AT%
Lilac 1	upper	12.2	3.1	2.6	67.3	3.6	6.5	0.9	0.0	0.9	1.8	0.0	0.0	0.0	0.5	0.0	0.5	0.0	96
Lilac 1	upper	11.8	3.2	2.3	67.5	3.6	6.4	0.7	0.0	0.9	2.7	0.0	0.0	0.6	0.3	0.0	0.0	0.0	95
Lilac 1	lower	11.7	3.0	5.9	66.7	3.9	5.8	0.7	0.0	0.9	0.6	0.0	0.0	0.0	0.8	0.0	0.0	0.0	94
Lilac 2	upper	11.9	2.7	2.8	68.9	3.6	6.4	1.0	0.0	1.0	0.6	0.0	0.5	0.0	0.5	0.0	0.0	0.0	95
Lilac 2	upper	11.6	2.8	3.0	69.6	3.7	6.2	0.8	0.0	1.2	0.7	0.0	0.0	0.0	0.4	0.0	0.0	0.0	93
Lilac 2	lower	12.3	3.2	3.3	68.8	3.6	6.1	0.9	0.0	0.9	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	93
Lilac 2	crystals	3.9	1.6	1.1	58.7	1.6	30.6	0.4	0.0	0.8	0.0	0.0	0.0	0.0	0.3	1.0	0.0	0.0	96
Lilac 2	crystals	4.6	9.9	3.0	63.0	1.9	14.6	1.2	0.0	0.9	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	95
Lilac 2	crystals	1.8	16.9	1.3	59.2	0.8	18.8	0.7	0.0	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	95
Average lilac	upper/lower	11.9	3.0	3.3	68.1	3.7	6.3	0.8	0.0	1.0	1.3		0.1	0.1	0.5	0.0	0.1	0.0	
St. Deviation		0.3	0.2	1.3	1.1	0.1	0.3	0.1		0.1	0.9		0.2	0.3	0.2		0.2		
St. Error		0.1	0.1	0.5	0.5	0.1	0.1	0.1		0.1	0.4		0.1	0.1	0.1		0.1		

Akhsiket 23/20.2 Body										
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	SO3	AT%
Body	1.0	3.2	12.2	56.2	3.6	17.6	5.6	0.7	0.0	78
Body	1.0	3.4	12.6	55.9	3.5	17.6	5.5	0.6	0.0	70
Body	0.9	3.2	11.2	57.0	3.6	17.7	4.9	0.5	1.1	76
Body	1.2	3.0	12.9	55.3	4.5	17.5	5.0	0.6	0.0	58
Average	1.0	3.2	12.2	56.1	3.8	17.6	5.3	0.6	0.3	
St. Deviation	0.1	0.1	0.7	0.7	0.5	0.1	0.3	0.1	0.6	
St. Error	0.1	0.1	0.4	0.3	0.2	0.0	0.2	0.0	0.3	

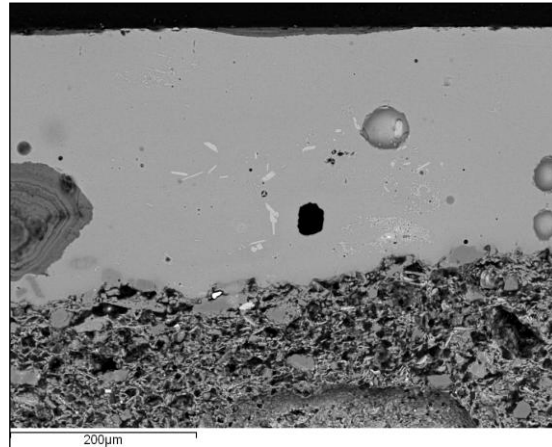
23/20.6



Body sherd, *ishkor*, blue and light blue (?).



OM image.



BSE: Blue glaze. Scale is 200 microns.

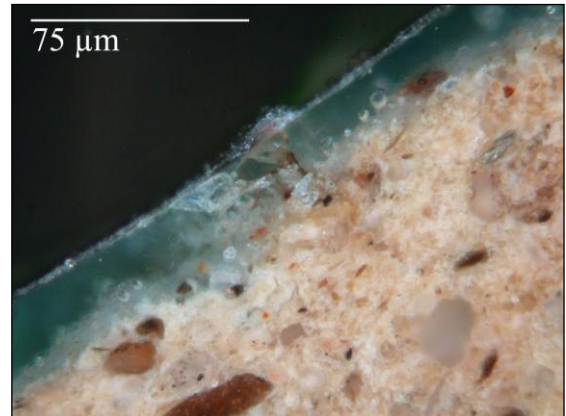
Akhsiket 23/20.6 Glaze														
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	MnO	CuO	P2O5	Cl	AT%
Blue 1	upper	9.8	2.6	2.9	70.0	4.2	4.3	1.2	0.0	1.1	3.4	0.0	0.5	98
Blue 1	upper	9.3	2.4	3.2	69.7	4.2	4.5	0.9	0.0	1.1	4.1	0.0	0.6	95
Blue 1	lower	10.2	2.6	3.2	67.9	3.9	5.4	1.3	0.0	1.0	2.7	0.6	1.0	95
Blue 2	upper	10.1	2.8	2.7	68.4	3.9	6.0	1.1	0.0	1.0	3.0	0.0	1.0	96
Blue 2	upper	9.7	2.7	3.1	69.2	4.1	5.0	1.1	0.0	1.1	3.3	0.0	0.8	96
Blue 2	lower	9.9	2.8	3.6	70.3	4.0	4.9	1.1	0.0	0.9	1.6	0.0	0.9	95
Light blue 1	upper	5.9	2.9	3.7	71.1	7.8	5.0	1.3	0.3	1.5	0.0	0.0	0.5	95
Light blue 1	lower	5.5	2.9	3.3	72.8	7.8	4.4	1.4	0.0	1.2	0.0	0.0	0.7	95
Light blue 2	upper	10.0	2.8	3.3	69.9	4.4	5.1	1.2	0.0	1.2	1.3	0.0	0.8	97
Light blue 2	upper	10.1	3.0	3.1	68.4	4.6	5.4	1.2	0.0	1.3	1.2	0.7	1.1	94
Light blue 2	lower	9.8	2.5	3.4	71.0	4.6	4.7	1.3	0.0	1.1	0.7	0.0	0.9	95
Average blue	upper/lower	9.8	2.7	3.1	69.3	4.1	5.0	1.1	0.0	1.1	3.0	0.1	0.8	
St. Deviation		0.3	0.1	0.3	0.9	0.1	0.6	0.1	0.0	0.1	0.8	0.3	0.2	
St. Error		0.1	0.1	0.1	0.4	0.1	0.3	0.1	0.0	0.0	0.3	0.1	0.1	
Average Light blue	upper/lower	8.3	2.8	3.4	70.6	5.9	4.9	1.3	0.1	1.3	0.6	0.1	0.8	
St. Deviation		2.3	0.2	0.2	1.6	1.8	0.4	0.1	0.2	0.2	0.6	0.3	0.3	
St. Error		1.0	0.1	0.1	0.7	0.8	0.2	0.0	0.1	0.1	0.3	0.1	0.1	

Akhsiket 23/20.6 Body										
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	AT%	
Body 1	1.0	3.3	12.6	54.5	3.5	18.5	5.7	1.0	70	
Body 2	1.0	3.4	12.9	55.8	3.6	17.1	5.7	0.7	69	
Body 3	1.1	3.2	13.3	55.4	3.5	16.6	6.1	0.8	70	
Body 4	1.2	3.5	13.4	54.9	3.6	16.8	6.0	0.6	68	
Average	1.0	3.4	13.0	55.1	3.6	17.3	5.9	0.8		
St. Deviation		0.1	0.1	0.4	0.6	0.1	0.9	0.2	0.2	
St. Error		0.1	0.1	0.2	0.3	0.0	0.4	0.1	0.1	

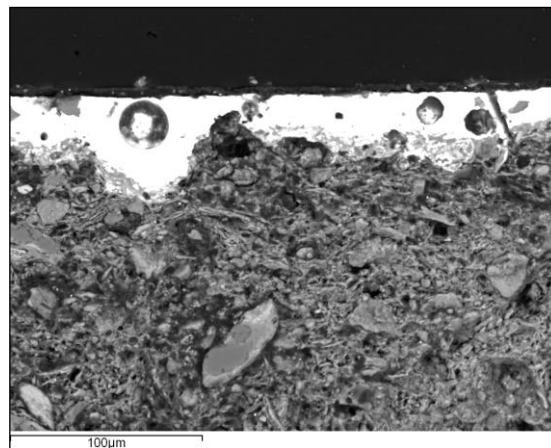
23/20.7



Body sherd, monochrome green lead glaze.



OM image.



BSE: Green glaze.

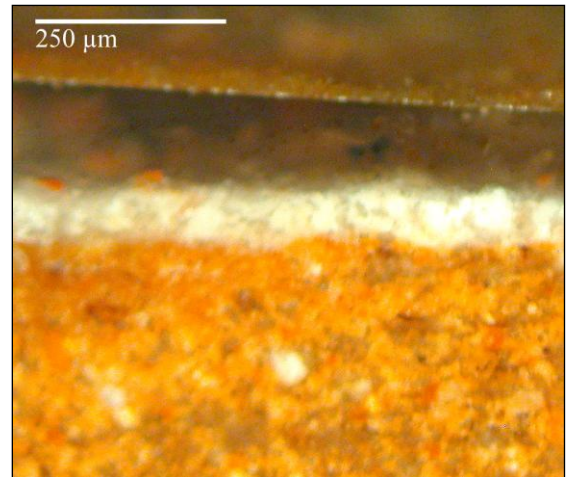
Akhsiket 23/20.7 Glaze												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	CuO	AT%
Green 1	upper	1.0	0.3	1.6	37.6	2.7	2.6	1.0	0.0	51.7	1.5	88
Green 1	upper	0.9	0.4	1.8	36.6	2.4	3.0	1.2	0.0	52.6	1.3	89
Green 1	upper	0.8	0.0	1.7	36.1	2.5	3.0	1.2	0.0	53.5	1.3	89
Green 1	lower	0.9	0.0	1.6	39.5	2.9	2.3	1.6	0.5	49.5	1.3	90
Green 1	lower	0.8	0.0	1.6	35.5	2.4	2.5	1.2	0.0	54.5	1.5	90
Green 1	interface	0.5	0.7	19.9	50.0	12.7	1.4	3.3	0.9	10.6	0.0	86
Green 1	interface	0.8	1.9	8.4	56.2	9.6	4.6	2.2	0.0	16.3	0.0	88
Green 2	upper	0.8	0.4	1.7	36.2	2.4	3.0	1.0	0.0	53.4	1.2	90
Green 2	upper	1.0	0.5	1.7	36.1	2.3	3.0	1.1	0.0	53.2	1.3	91
Average glaze	upper/lower	0.9	0.2	1.6	36.8	2.5	2.8	1.2	0.1	52.6	1.3	
St. Dev.		0.1	0.2	0.1	1.4	0.2	0.3	0.2	0.2	1.6	0.1	
St. Error		0.0	0.1	0.0	0.5	0.1	0.1	0.1	0.1	0.6	0.0	
Average	interface	0.6	1.3	14.2	53.1	11.2	3.0	2.7	0.5	13.4	0.0	
St. Dev.		0.2	0.9	8.2	4.4	2.2	2.3	0.7	0.7	4.0	0.0	

Akhsiket 23/20.7 Body											
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	P2O5	SO3	AT%
Body 1	1.3	3.9	12.6	51.7	4.3	17.0	6.9	0.5	0.7	1.2	64
Body 2	1.1	3.7	12.6	54.3	4.1	16.1	6.0	0.6	0.0	1.4	60
Body 3	1.3	3.1	13.0	53.6	4.6	16.1	6.0	0.8	0.6	1.1	61
Body 4	0.9	3.1	12.1	59.5	3.6	13.7	5.8	0.6	0.0	0.8	62
Average	1.1	3.5	12.6	54.8	4.2	15.7	6.1	0.6	0.3	1.1	
St. Deviation	0.2	0.4	0.4	3.3	0.4	1.4	0.5	0.1	0.4	0.3	
St. Error	0.1	0.2	0.2	1.7	0.2	0.7	0.3	0.1	0.2	0.1	

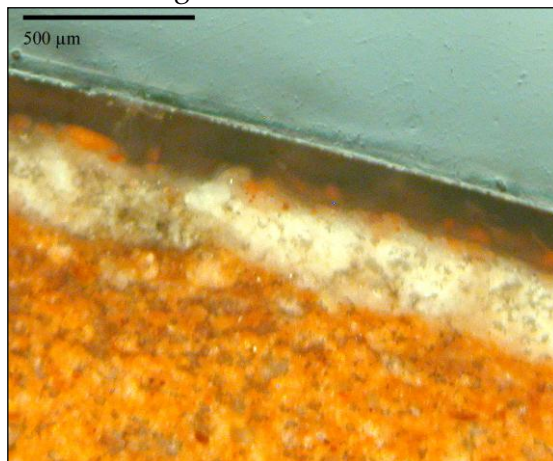
24/26



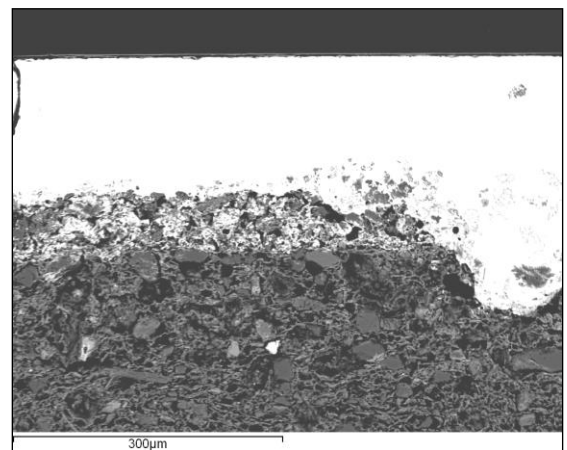
Rim sherd of bowl or plate, red and black geometric motif.



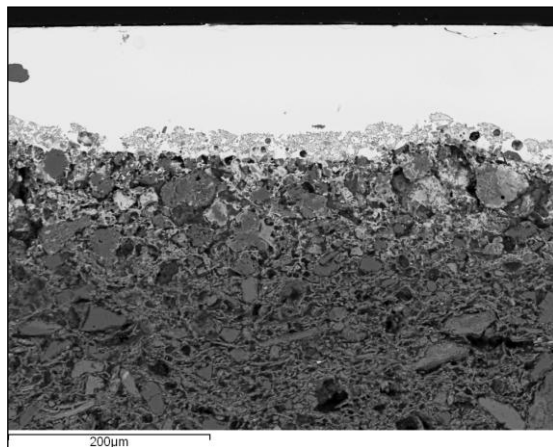
OM: Black decoration (XPL).



OM: Red decoration (XPL).



BSE: Black decoration. Scale is 300 microns.



BSE: Red decoration. Scale is 200 microns.

Akhsiket 24/26 Glaze												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	MnO	AT%
C'less/red	upper	0.5	0.4	1.8	34.8	0.7	2.2	0.7	0.0	58.9	0.0	82
C'less /red	upper	0.5	0.0	2.1	35.1	0.9	1.5	0.6	0.0	59.4	0.0	82
C'less /red	lower	0.7	0.0	4.2	37.0	1.5	1.4	1.3	0.0	54.0	0.0	83
C'less /red	interface	1.5	0.0	9.6	46.2	6.0	0.7	3.3	0.5	32.2	0.0	84
C'less /red	interface	1.7	0.0	13.6	55.8	9.9	0.0	2.1	0.0	16.9	0.0	78
C'less /black	upper	0.5	0.0	2.0	35.8	0.9	1.1	0.8	0.0	58.1	0.8	82
C'less /black	upper	0.4	0.4	2.0	35.9	0.9	1.2	1.1	0.0	57.6	0.6	83
C'less /black	lower	0.7	0.0	3.5	37.0	1.3	1.1	1.2	0.0	54.6	0.5	82
C'less /rose	upper	0.5	0.0	2.0	35.2	0.8	1.0	0.0	0.0	60.5	0.0	80
C'less /rose	upper	0.5	0.0	2.4	35.2	0.9	1.2	0.5	0.0	59.4	0.0	82
C'less /rose	lower	0.6	0.0	3.2	36.3	1.2	0.8	0.8	0.0	57.1	0.0	80
Colourless	upper	0.4	0.0	2.0	34.9	0.9	1.1	0.0	0.0	60.6	0.0	80
Colourless	upper	0.6	0.0	2.0	35.9	0.9	0.9	0.0	0.0	59.7	0.0	80
Average c'less red	upper/ lower	0.6	0.1	2.7	35.6	1.0	1.7	0.9	0.0	57.4	0.0	
St. Deviation		0.1	0.3	1.3	1.2	0.4	0.4	0.4	0.0	3.0		
St. Error		0.1	0.1	0.8	0.7	0.2	0.3	0.2	0.0	1.7		
Average c'less red	interface	1.6	0.0	11.6	51.0	8.0	0.3	2.7	0.3	24.6	0.0	
St. Deviation		0.2	0.0	2.9	6.8	2.7	0.5	0.9	0.4	10.8		
Average c'less black	upper/ lower	0.5	0.1	2.5	36.2	1.1	1.1	1.0	0.0	56.8	0.6	
St. Deviation		0.2	0.2	0.9	0.7	0.3	0.0	0.2		1.9	0.2	
St. Error		0.1	0.1	0.5	0.4	0.1	0.0	0.1		1.1	0.1	
Average c'less rose	upper/ lower	0.6	0.0	2.5	35.6	1.0	1.0	0.4	0.0	59.0	0.0	
St. Deviation		0.1		0.6	0.6	0.2	0.2	0.4		1.7		
St. Error		0.0		0.4	0.4	0.1	0.1	0.2		1.0		
Average c'less	upper	0.5	0.0	2.0	35.4	0.9	1.0	0.0	0.0	60.1	0.0	
St. Deviation		0.1		0.0	0.7	0.0	0.2	0.0		0.6		

Akhsiket 24/26 Engobe														
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	P2O5	SO3	MnO	AT %
C'less/red	engobe	1.3	0.6	12.5	62.7	5.5	7.0	0.5	0.0	8.6	1.4	0.0	0.0	63
C'less /red	engobe	1.4	0.7	13.7	53.2	6.3	9.5	0.6	0.7	8.8	1.0	3.4	0.6	59
C'less /black	engobe	1.0	0.5	13.8	58.9	4.6	4.3	0.7	0.5	15.8	0.0	0.0	0.0	59
C'less /black	engobe	1.2	0.7	14.2	56.5	5.5	4.3	0.9	0.7	16.1	0.0	0.0	0.0	54
C'less /rose	engobe	1.2	0.4	11.4	68.3	4.3	3.3	0.8	0.5	9.8	0.0	0.0	0.0	62
C'less /rose	engobe	1.1	0.7	13.6	61.1	5.1	6.8	1.1	0.8	9.8	0.0	0.0	0.0	58
Colourless	engobe	1.2	0.7	14.8	57.3	5.8	2.7	1.6	1.6	14.2	0.0	0.0	0.0	56
Colourless	engobe	0.9	0.5	13.5	57.2	4.7	4.6	1.2	0.0	16.5	0.9	0.0	0.0	47
Average c'less/red	engobe	1.3	0.7	13.1	58.0	5.9	8.3	0.6	0.3	8.7	1.2	1.7	0.3	
St. Deviation		0.0	0.1	0.9	6.7	0.6	1.8	0.1	0.5	0.2	0.2	2.4	0.4	
Average c'less/black	engobe	1.1	0.6	14.0	57.7	5.1	4.3	0.8	0.6	15.9	0.0	0.0	0.0	
St. Deviation		0.2	0.2	0.3	1.7	0.6	0.0	0.1	0.1	0.2				
Average c'less/rose	engobe	1.1	0.5	12.5	64.7	4.7	5.0	0.9	0.7	9.8	0.0	0.0	0.0	
St. Deviation		0.1	0.3	1.6	5.2	0.6	2.5	0.2	0.2	0.0				
Average c'less	engobe	1.0	0.6	14.2	57.3	5.3	3.6	1.4	0.8	15.4	0.4	0.0	0.0	
St. Deviation		0.2	0.2	0.9	0.1	0.8	1.3	0.3	1.2	1.6	0.6	0.0	0.0	
Average all	engobe	1.1	0.6	13.5	59.4	5.2	5.3	0.9	0.6	12.5	0.4	0.0	0.0	
St. Deviation		0.1	0.1	1.0	4.6	0.7	2.3	0.4	0.5	3.5	0.6			
St. Error		0.1	0.1	0.4	1.6	0.2	0.8	0.1	0.2	1.2	0.2			

Akhsiket 24/26 Body										
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	AT%	
Body 1	1.0	2.5	12.3	56.7	4.4	16.0	6.4	0.7	60	
Body 2	0.9	2.8	12.0	58.3	4.3	15.4	5.7	0.7	61	
Body 3	1.1	2.6	12.5	55.8	4.3	16.4	6.7	0.9	60	
Body 4	1.0	2.8	12.5	55.6	4.4	16.2	6.8	0.9	61	
Average	1.0	2.7	12.3	56.6	4.3	16.0	6.4	0.8		
St. Deviation	0.1	0.2	0.2	1.2	0.0	0.4	0.5	0.1		
St. Error	0.0	0.1	0.1	0.6	0.0	0.2	0.2	0.1		

Akhsiket 24/29



Base of 12th century polychrome sherd
with incised decoration.



Drawing.

Petrofabric

Fabric colour: Red

Size: 5-20 μm . Few 50-100 μm

Sorting: Poorly-sorted

Shape: mostly angular inclusions

Density: 20%

Mostly quartz: 90% monocrystalline, 10% polycrystalline

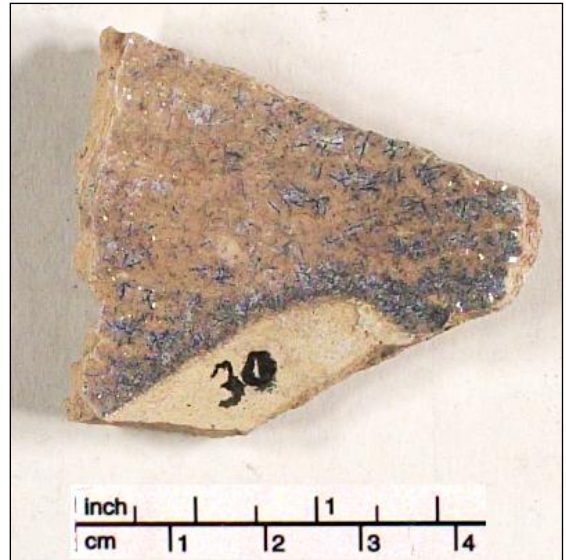
Many mica inclusions

Not analysed with SEM-EDS.

Akhsiket 24/30



Body sherd of cup or bowl, weathered
ishkor.



Reverse of same sherd.

Petrofabric

Fabric colour: pinkish-brown, lighter buff at edges

Size: 5-20 μm . Few 50-100 μm

Sorting: Well-sorted

Shape: sub-angular and angular inclusions

Density: 15%

Mostly quartz: 90% monocrystalline, 10% polycrystalline

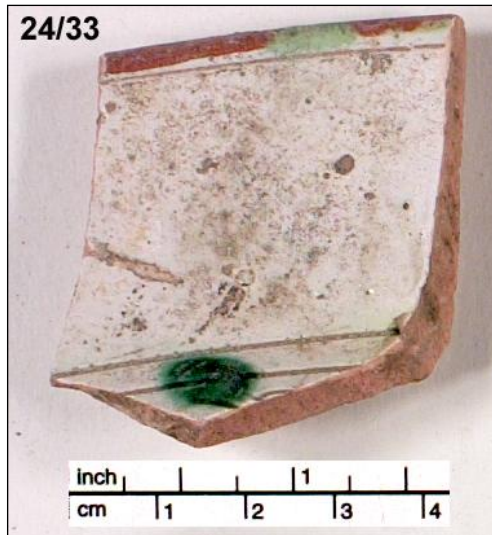
Some mica, calcium-rich inclusions

Rare granite rock inclusions

Chemically well-evolved with angular quartz.

Not analysed with SEM-EDS.

24/33



Rim sherd of sectional bowl, 12th century
polychrome with sgraffito designs.



Drawing

Petrofabric

Fabric colour: Dark red

Size: ~10-15% 50-100 μ m, to ~40-50% 5-20 μ m

Sorting: Moderately-sorted

Shape: sub-angular and angular inclusions

Density: 25%-35%

Mostly quartz: 95% monocrystalline, < 5% polycrystalline

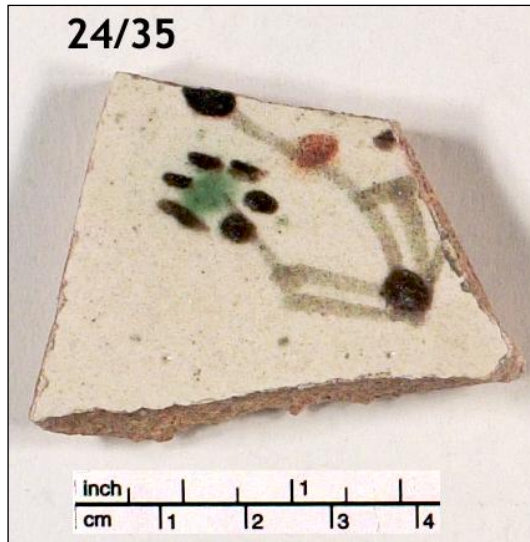
Some polycrystalline quartz ingrown with iron minerals and biotite

> 5% biotite and calcium-rich inclusions (< 20 μ m)

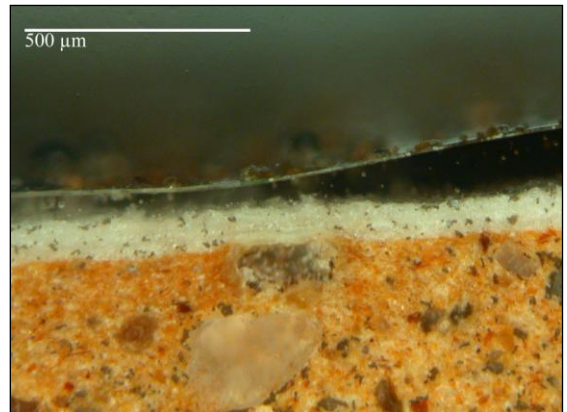
Chemically well-evolved with angular quartz inclusions

Not analysed with SEM-EDS

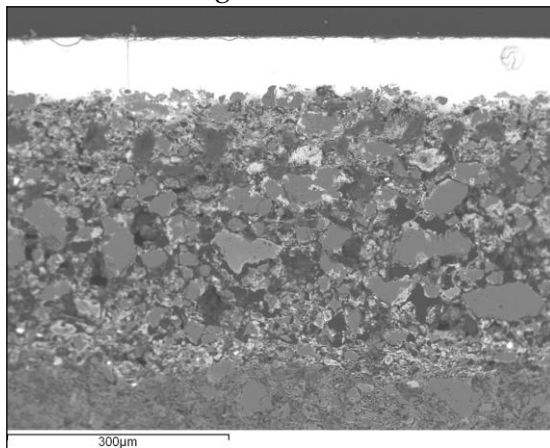
24/35



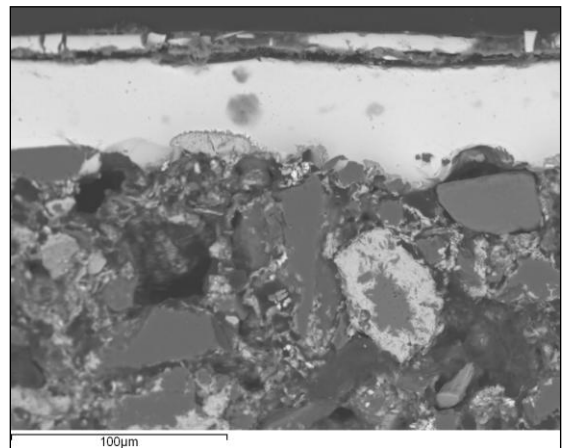
Body sherd, 12th century polychrome ware with vegetal/floral motif.



OM: Glaze over engobe.



BSE: Black decoration. Scale is 300 microns.



BSE: Colourless decoration. Scale is 100 microns.

Akhsiket 24/23 Glaze												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	PbO	CuO	MnO	AT%
Colourless	upper	0.7	0.6	3.3	49.1	2.8	2.8	1.0	39.9	0.0	0.0	71
Colourless	upper	0.7	0.7	3.0	49.6	2.7	2.8	1.0	39.5	0.0	0.0	71
Colourless	upper	0.7	0.7	3.3	49.1	2.5	2.9	0.9	39.9	0.0	0.0	71
Colourless	lower	0.5	0.7	3.4	48.7	2.5	2.7	1.3	40.1	0.0	0.0	71
Colourless	lower	0.6	0.8	3.6	48.0	2.6	2.6	0.9	41.0	0.0	0.0	71
Green	upper	0.8	0.7	4.0	44.9	2.3	2.2	1.8	41.5	1.8	0.0	68
Green	upper	0.0	0.8	3.7	46.2	2.9	2.3	1.1	41.2	1.8	0.0	68
Green	upper	0.0	0.8	4.1	46.0	2.7	1.9	1.5	41.3	1.9	0.0	69
Green	lower	0.0	0.6	4.3	46.8	2.9	2.2	0.0	41.2	2.1	0.0	68
Green	lower	0.0	0.0	5.4	46.6	2.6	1.9	1.0	40.6	2.0	0.0	70
Black	upper	0.6	0.7	3.4	45.8	2.9	1.9	1.6	39.5	0.0	3.7	68
Black	upper	0.0	0.9	3.6	46.5	2.7	2.1	2.0	38.7	0.0	3.6	68
Black	upper	0.6	0.8	3.9	45.6	2.6	2.0	1.8	39.2	0.0	3.6	68
Black	lower	0.8	0.6	5.3	45.2	2.9	1.9	1.8	38.2	0.0	3.3	69
Black	lower	0.0	0.6	5.0	46.0	2.9	1.9	1.3	38.6	0.0	3.7	68
Black 2	upper	0.0	0.8	4.2	46.3	2.9	2.1	2.1	37.8	0.0	3.9	68
Black 2	upper	0.5	0.6	3.9	45.7	2.7	2.2	2.1	38.5	0.0	3.9	68
Black 2	lower	0.7	0.8	4.0	43.5	2.8	2.2	2.4	40.1	0.0	3.6	68
Average c'less	upper/ lower	0.6	0.7	3.3	48.9	2.6	2.7	1.0	40.1	0.0	0.0	
St. Deviation		0.1	0.1	0.2	0.6	0.1	0.1	0.2	0.5			
St. Error		0.0	0.0	0.1	0.3	0.1	0.1	0.1	0.2			
Average green	upper/ lower	0.2	0.6	4.3	46.1	2.7	2.1	1.1	41.2	1.9	0.0	
St. Deviation		0.3	0.3	0.6	0.7	0.2	0.2	0.7	0.3	0.1		
St. Error		0.2	0.1	0.3	0.3	0.1	0.1	0.3	0.2	0.1		
Average black	upper/ lower	0.4	0.7	4.2	45.6	2.8	2.0	1.9	38.8	0.0	3.6	
St. Deviation		0.3	0.1	0.7	0.9	0.1	0.1	0.4	0.7		0.2	
St. Error		0.1	0.0	0.2	0.3	0.0	0.1	0.1	0.3		0.1	

Akhsiket 24/35 Engobe/slip													
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	MnO	Cr2O5	AT%
Colourless	inclusion	1.8	0.0	30.5	53.8	11.0	0.0	0.0	0.0	2.9	0.0	0.0	70
Colourless	inclusion	0.9	0.0	21.2	39.9	4.1	0.7	0.0	0.0	33.2	0.0	0.0	70
Green	engobe	1.4	0.0	9.3	69.5	4.8	2.2	1.4	0.0	11.5	0.0	0.0	44
Green	engobe	2.1	0.0	11.6	65.0	5.9	1.9	1.7	0.7	11.3	0.0	0.0	44
Black	engobe	3.0	0.0	7.7	71.0	5.2	1.8	2.3	1.0	7.3	0.0	0.6	40
Black	engobe	2.6	0.0	7.9	71.8	4.5	2.0	1.2	0.4	7.4	2.2	0.0	45
Black 2	engobe	3.0	0.0	8.5	71.2	4.7	2.0	0.0	0.8	8.7	1.2	0.0	37
Black 2	engobe	3.0	0.0	11.4	63.6	5.5	1.7	2.2	0.7	8.7	1.1	2.2	40
Average green	engobe	1.7	0.0	10.4	67.3	5.3	2.0	1.5	0.3	11.4	0.0	0.0	
St. Dev.		0.5		1.6	3.1	0.8	0.2	0.2	0.5	0.1			
Average black	engobe	2.9	0.0	8.8	69.4	5.0	1.9	1.4	0.7	8.0	1.1	0.7	
St. Dev.		0.2		1.7	3.9	0.4	0.2	1.1	0.2	0.8	0.9	1.0	
St. Error		0.1		0.9	2.0	0.2	0.1	0.5	0.1	0.4	0.5	0.5	

Akhsiket 24/35 Body										
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	SO3	AT %
Body 1	5.4	2.6	10.8	55.3	4.3	13.8	5.9	0.8	1.3	48
Body 2	5.6	2.6	11.0	54.1	4.1	15.2	6.8	0.7	0.0	47
Body 3	4.7	2.8	10.7	54.7	3.7	15.4	7.4	0.7	0.0	48
Average	5.2	2.7	10.8	54.7	4.0	14.8	6.7	0.7	0.4	
St. Deviation	0.5	0.1	0.2	0.6	0.3	0.9	0.7	0.1	0.7	
St. Error	0.3	0.1	0.1	0.3	0.2	0.5	0.4	0.0	0.4	

Appendix B

Akhsiket unglazed ceramics: analytical data

In the following appendix, results of the analytical data for each sherd is presented in numerical order according to object, layer and sherd number.

The information given includes:

Full SEM results in wt. %, for bulk body scans and inclusions (not including quartz inclusions). Standard deviations (showing the deviation of an individual value from the mean) and standard errors (showing the accuracy of the mean) are given for each significant set of values (from p. 399).

Averaged XRF results, showing all analysed elements detected in wt. % and $\mu\text{g/g}$ with standard deviations (from p. 403).

The key to the ‘type’ code in the following sections is as follows:

- DF – domestic fineware
- CC – coarse cooking ware
- SC – sphero-conical wares
- B – brick
- EFC – experimental fired clay

Akhsiket unglazed body analyses													
Sample	Type/colour	Scan	NaO2	MgO	Al2O3	Si2O	K2O	CaO	Fe2O3	TiO2	P2O5	SO3	AT%
9/3.1	FK yellow	Body 1	1.80	3.53	13.32	55.89	2.73	14.67	6.99	1.08	0.00	0.00	64
		Body 2	1.48	3.40	13.29	56.34	3.27	15.77	6.46	0.00	0.00	0.00	66
		Body 3	1.39	3.51	13.93	57.29	3.34	12.25	8.29	0.00	0.00	0.00	67
		Average	1.56	3.48	13.51	56.51	3.11	14.23	7.24	0.36	0.00	0.00	
		St. Deviation	0.22	0.07	0.36	0.72	0.33	1.80	0.94	0.62	0.00	0.00	
		St. Error	0.13	0.04	0.21	0.41	0.19	1.04	0.54	0.36	0.00	0.00	
9/3.2	FK buff	Body 1	1.77	4.49	13.71	57.22	2.11	15.77	4.42	0.52	0.00	0.00	84
		Body 2	1.87	4.18	14.12	57.31	2.33	15.05	4.74	0.41	0.00	0.00	82
		Average	1.82	4.34	13.92	57.27	2.22	15.41	4.58	0.47	0.00	0.00	
		St. Deviation	0.07	0.22	0.29	0.06	0.16	0.51	0.23	0.08	0.00	0.00	
9/3.3	CC grey-brown	Body 1	1.42	3.49	7.87	32.66	3.31	44.85	3.64	0.72	0.00	2.03	73
		Body 2	1.96	4.50	9.39	38.81	2.85	36.35	4.00	0.00	0.00	2.13	54
		Average	1.69	4.00	8.63	35.73	3.08	40.60	3.82	0.36	0.00	2.08	
		St. Deviation	0.39	0.72	1.07	4.35	0.32	6.01	0.25	0.51	0.00	0.07	
28/2-8.1	FK red	Body 1	1.33	3.52	13.21	56.80	4.02	15.36	5.76	0.00	0.00	0.00	66
		Body 2	1.07	3.39	13.75	53.93	4.42	17.63	5.81	0.00	0.00	0.00	61
		Body 3	1.17	3.31	12.62	57.26	3.89	16.02	5.72	0.00	0.00	0.00	61
		Body 4	0.00	3.17	13.40	58.02	3.86	15.88	5.67	0.00	0.00	0.00	55
		Average	0.89	3.35	13.25	56.50	4.05	16.22	5.74	0.00	0.00	0.00	
		St. Deviation	0.60	0.15	0.47	1.79	0.26	0.98	0.06	0.00	0.00	0.00	
		St. Error	0.30	0.07	0.24	0.89	0.13	0.49	0.03	0.00	0.00	0.00	
28/10a.1	CC grey-brown	Body 1	0.90	5.81	8.48	38.34	2.96	36.38	4.38	0.00	1.03	1.71	72
		Body 2	0.88	5.11	9.53	39.17	3.68	33.86	4.66	0.00	1.24	1.87	103
		Average	0.89	5.46	9.00	38.76	3.32	35.12	4.52	0.00	1.14	1.79	
		St. Deviation	0.01	0.50	0.75	0.59	0.51	1.78	0.19	0.00	0.15	0.11	
23/11c.1	FK yellow	Body 1	3.04	4.43	14.91	54.26	1.21	15.62	5.70	0.84	0.00	0.00	63
		Body 2	2.85	4.10	13.80	59.56	1.52	12.91	4.82	0.45	0.00	0.00	61
		Average	2.95	4.27	14.36	56.91	1.37	14.27	5.26	0.65	0.00	0.00	
		St. Deviation	0.13	0.23	0.78	3.75	0.22	1.92	0.62	0.28	0.00	0.00	
23/12.8	FK buff	Body 1	0.97	3.84	12.51	55.01	2.68	17.29	6.21	0.61	0.00	0.89	54
		Body 2	2.27	3.97	13.28	56.08	1.62	17.54	5.24	0.00	0.00	0.00	51
		Body 3	1.87	3.34	12.54	58.34	2.72	13.03	6.27	0.00	0.00	1.89	44
		Body 4	1.46	3.65	12.15	57.78	2.62	16.40	5.94	0.00	0.00	0.00	58
		Body 5	2.01	3.09	12.27	56.32	2.80	17.65	5.87	0.00	0.00	0.00	60
		Average	1.72	3.58	12.55	56.71	2.49	16.38	5.91	0.12	0.00	0.56	
		St. Deviation	0.51	0.36	0.44	1.35	0.49	1.94	0.41	0.27	0.00	0.84	
23/13.1	B buff	St. Error	0.23	0.16	0.20	0.60	0.22	0.87	0.18	0.12	0.00	0.38	
		Spectrum 1	0.69	3.76	10.82	57.98	2.05	17.28	3.93	1.34	1.07	1.08	57

		Spectrum 1	1.38	5.00	11.42	57.41	1.94	17.56	4.46	0.83	0.00	0.00	48
		Average	1.04	4.38	11.12	57.69	1.99	17.42	4.19	1.08	0.54	0.54	
		St. Deviation	0.49	0.88	0.43	0.40	0.08	0.20	0.38	0.36	0.76	0.77	
23/13.2	B red	Body 1	1.28	3.13	12.34	61.72	4.30	11.45	4.82	0.57	0.00	0.00	72
		Body 2	1.17	3.38	10.60	61.76	2.73	13.45	5.00	0.62	0.00	0.71	69
		Body 3	1.22	3.31	11.68	59.59	3.19	13.79	5.52	0.59	0.00	0.67	67
		Body 4	1.29	3.25	12.67	59.24	3.41	12.82	5.19	0.69	0.00	0.80	65
		Average	1.24	3.27	11.82	60.58	3.41	12.88	5.13	0.62	0.00	0.55	
		St. Deviation	0.06	0.11	0.91	1.35	0.66	1.03	0.30	0.05	0.00	0.37	
		St. Error	0.03	0.05	0.46	0.68	0.33	0.52	0.15	0.03	0.00	0.18	
23/13.3	B buff	Body 1	1.52	3.77	10.99	56.79	2.11	19.27	5.55	0.00	0.00	0.00	44
		Body 2	1.94	3.32	11.56	59.33	2.96	15.54	5.34	0.00	0.00	0.00	50
		Body 3	2.15	4.28	12.23	59.11	2.64	14.14	5.44	0.00	0.00	0.00	54
		Body 4	1.64	3.57	10.77	61.77	2.78	13.88	5.59	0.00	0.00	0.00	48
		Average	1.81	3.74	11.39	59.25	2.62	15.71	5.48	0.00	0.00	0.00	
		St. Deviation	0.29	0.41	0.65	2.04	0.37	2.48	0.11	0.00	0.00	0.00	
		St. Error	0.14	0.20	0.33	1.02	0.18	1.24	0.06	0.00	0.00	0.00	
23/13.4	B red	Body 1	1.17	4.16	13.45	53.87	4.49	15.74	5.91	0.65	0.55	0.00	70
		Body 2	0.85	4.44	14.49	53.20	4.43	14.89	6.42	0.74	0.55	0.00	57
		Body 3	1.94	3.73	12.99	54.93	3.82	17.16	4.92	0.00	0.00	0.00	66
		Average	1.32	4.11	13.64	54.00	4.25	15.93	5.75	0.46	0.37	0.00	
		St. Deviation	0.56	0.36	0.77	0.87	0.37	1.15	0.76	0.40	0.32	0.00	
		St. Error	0.32	0.21	0.44	0.50	0.21	0.66	0.44	0.23	0.18	0.00	
23/15.1	FK buff	Body 1	1.84	3.14	13.91	60.03	2.61	12.14	5.66	0.67	0.00	0.00	68
		Body 2	1.43	3.54	13.46	58.39	2.81	13.98	5.67	0.72	0.00	0.00	66
		Body 3	1.59	3.69	13.47	58.09	2.91	13.92	5.77	0.58	0.00	0.00	65
		Average	1.62	3.46	13.61	58.84	2.78	13.35	5.70	0.66	0.00	0.00	
		St. Deviation	0.20	0.28	0.25	1.04	0.15	1.05	0.06	0.07	0.00	0.00	
		St. Error	0.12	0.16	0.15	0.60	0.09	0.60	0.04	0.04	0.00	0.00	
23/15.5	FK buff/brown	Body 1	1.02	2.97	14.13	59.75	4.25	12.23	5.07	0.58	0.00	0.00	71
		Body 2	1.87	3.55	13.58	57.06	3.76	13.66	5.34	1.19	0.00	0.00	81
		Body 3	1.36	3.52	11.61	53.39	3.53	21.37	4.64	0.59	0.00	0.00	84
		Average	1.42	3.35	13.11	56.73	3.85	15.75	5.02	0.79	0.00	0.00	
		St. Deviation	0.43	0.33	1.33	3.19	0.37	4.92	0.35	0.35	0.00	0.00	
		St. Error	0.25	0.19	0.76	1.84	0.21	2.84	0.20	0.20	0.00	0.00	
23/17.1	CC buff	Body 1	1.40	7.22	8.36	34.67	2.63	39.51	2.54	0.00	0.00	2.89	51
		Body 2	1.33	5.37	9.87	37.56	2.71	35.47	4.08	0.00	1.23	1.89	75
		Average	1.37	6.30	9.12	36.12	2.67	37.49	3.31	0.00	0.62	2.39	
		St. Deviation	0.05	1.31	1.07	2.04	0.06	2.86	1.09	0.00	0.87	0.71	
23/20.1	CC red	Body 1	1.21	4.60	12.40	47.67	3.54	24.41	4.54	0.00	0.96	0.69	67

	Body 2	0.67	5.78	11.45	43.77	3.15	27.83	4.64	0.85	1.48	1.04	81
	Average	0.94	5.19	11.93	45.72	3.35	26.12	4.59	0.43	1.22	0.86	
	St. Deviation	0.38	0.84	0.67	2.75	0.27	2.42	0.07	0.60	0.37	0.25	
All samples	Average	1.48	3.96	12.24	54.03	3.04	18.88	5.27	0.37	0.19	0.47	
	St. Deviation	0.55	0.87	1.73	7.77	0.81	8.38	0.97	0.40	0.42	0.79	
	St. Error	0.08	0.13	0.26	1.18	0.12	1.28	0.15	0.06	0.06	0.12	

Akhsiket clay sample analyses													
Sample	Type/colour	Scan	NaO2	MgO	Al2O3	Si2O	K2O	CaO	Fe2O3	TiO2	P2O5	SO3	AT%
Clay 1	EFB	Body 1	1.1	3.4	12.2	54.0	3.8	16.9	6.7	0.9	0.9	0.0	61
		Body 2	1.3	3.4	12.3	56.4	4.0	16.3	5.7	0.7	0.0	0.0	61
		Body 3	0.8	3.3	11.6	57.7	3.6	16.2	6.0	0.8	0.0	0.0	67
		Body 4	0.8	3.6	11.5	53.2	3.6	20.8	5.8	0.7	0.0	0.0	64
		Body 5	0.8	3.3	11.6	57.7	3.6	16.2	6.0	0.8	0.0	0.0	64
		Body 6	0.9	3.3	11.2	56.2	3.5	18.5	5.6	0.7	0.0	0.0	67
		Average	1.0	3.4	11.7	55.9	3.7	17.5	6.0	0.8	0.2	0.0	
		St. Deviation	0.2	0.1	0.4	1.9	0.2	1.8	0.4	0.1	0.4		
		St. Error	0.1	0.1	0.2	0.8	0.1	0.7	0.2	0.0	0.2		

SEM-EDS full analysis inclusions																
Sample	Scan	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	P2O5	SO3	MnO	SnO2	Zr2O5	Cr2O3	BaO
9/3.2	Inclusion 1	1.0	0.0	16.8	66.5	14.0	0.8	0.8	0.1							
	Inclusion 2	2.2	3.6	15.9	66.5	5.5	0.3	5.7	0.2							
	Inclusion 3	0.1	0.5	0.4	34.3	0.2	0.4	63.8	0.3							
	Inclusion 4	0.7	12.2	7.4	50.7	1.1	15.4	11.5	1.0							
9/3.3	Inclusion 1	0.2	0.4	3.6	93.7	1.3	0.2	0.0	0.0	1.0						
	Inclusion 2	0.6	1.2	3.4	35.1	1.8	3.1	0.0	0.0	5.0	0.5			49.3		
	Inclusion 3	0.0	0.2	0.4	96.6	0.2	2.3	0.0	0.0	0.4	0.2					
23/10a.1	Inclusion 1	0.0	0.5	0.0	0.0	0.3	60.2	0.0	0.0	36.7	1.7					
	Inclusion 2	0.0	0.8	0.0	0.0	0.0	56.0	0.0	0.0	38.2	4.9					
	Inclusion 3	0.0	0.4	0.0	0.0	0.1	98.2	0.0	0.0							
	Inclusion 4	0.0	1.2	0.0	0.0	0.1	97.8	0.9	0.0				1.8			
	Inclusion 5	0.0	0.5	0.0	0.0	0.3	98.7	0.0	0.0		1.3					
23/10b.4	Inclusion 1	0.0	2.9	1.8	11.8	0.4	6.9	19.5	56.7							
	Inclusion 2	0.0	0.0	0.0	98.0	0.0	0.0	0.8	0.0							
	Inclusion 3	2.1	2.0	16.7	60.8	4.6	9.2	4.5	0.0							
	Inclusion 4	4.7	0.0	21.8	63.1	3.8	6.0	0.6	0.0							
	Inclusion 5	1.3	2.7	12.7	61.2	2.8	12.2	5.6	0.7	0.8						
	Inclusion 6	0.0	0.0	0.0	0.0	0.0	53.4	0.0	0.0	41.0			1.1			
23/11c.1	Inclusion 1	4.5	0.3	18.8	66.7	9.1	0.3	0.0	0.4							
	Inclusion 2	3.7	0.4	13.3	75.8	4.1	1.6	0.9	0.2							
	Inclusion 3	4.9	4.8	18.4	57.4	3.0	1.4	9.5	0.7							
	Inclusion 4	6.1	0.8	31.1	54.3	4.2	1.0	2.2	0.3							
	Inclusion 5	0.5	0.4	2.0	95.5	0.2	1.2	0.5	0.0							
23/13.1	Inclusion 1	8.2	0.0	19.5	70.4	0.8	0.9	0.3	0.0							
	Inclusion 2	1.2	0.5	34.4	48.8	12.1	0.8	0.7	1.1							
	Inclusion 3	0.3	7.1	15.1	37.4	0.3	26.3	9.9	2.5		1.2					
	Inclusion 4	0.4	8.9	14.6	40.0	5.2	7.5	16.3	6.7		0.5					
	Inclusion 5	0.0	0.8	10.8	0.7	0.0	0.5	58.4	28.3		0.6					
	Inclusion 6	0.5	0.5	5.5	86.9	3.2	2.3	0.5	0.3							
	Inclusion 7	0.3	7.8	13.7	44.7	0.1	23.5	8.4	0.6		0.9					
	Inclusion 8	0.7	2.8	14.5	49.4	6.8	19.7	2.5	0.4		3.3					
23/13.2	Inclusion 1	0.4	5.8	6.6	44.5	2.0	0.3	8.5	32.0							
	Inclusion 2	6.3	0.1	24.6	61.4	0.1	7.7	0.0	0.0							
	Inclusion 3	1.1	1.1	16.7	55.8	10.1	12.9	2.3	0.0							
23/13.3	Inclusion 1	0.1	9.0	17.1	39.0	0.0	18.6	14.8	1.4							
	Inclusion 2	5.2	0.9	23.5	60.9	4.0	2.4	2.2	0.9							
	Inclusion 3	1.7	0.0	17.4	67.3	13.4	0.2	0.2	0.0							
	Inclusion 4	0.8	6.7	13.7	37.1	0.2	22.6	16.2	3.0							

	Inclusion 5	7.2	1.8	28.0	46.9	1.7	11.7	2.3	0.5	
	Inclusion 6	0.4	7.7	3.7	43.5	0.0	21.5	8.8	14.5	
	Inclusion 7	3.0	4.2	15.9	51.9	8.0	9.0	7.7	0.2	
23/13.4	Inclusion 1	4.2	1.3	25.9	60.6	6.3	0.3	1.7	0.0	0.0
	Inclusion 2	0.3	13.5	2.1	11.4	0.8	69.4	2.4	0.0	0.2
	Inclusion 3	0.5	10.5	18.7	39.9	9.3	0.4	18.3	2.4	0.0
	Inclusion 4	0.2	4.3	17.9	43.0	0.4	30.3	3.5	0.2	0.1
	Inclusion 5	0.8	14.8	18.9	40.8	6.6	0.6	16.0	1.2	0.4
23/14.5	Inclusion 1	1.5	1.3	15.7	61.4	5.0	9.3	5.0	0.9	
	Inclusion 2	1.7	1.7	17.3	56.8	4.3	12.3	5.3	0.7	
	Inclusion 3	1.3	2.7	13.6	59.2	3.2	13.3	5.8	0.9	
23/15.1	Inclusion 1	1.3	2.0	13.6	68.9	9.3	0.9	3.8	0.3	
	Inclusion 2	1.1	17.8	21.1	35.3	3.1	3.0	18.4	0.0	
	Inclusion 3	0.9	0.2	17.5	65.8	14.3	0.3	0.6	0.4	
	Inclusion 4	1.5	3.2	20.2	41.2	3.5	2.9	27.2	0.5	
	Inclusion 5	0.5	1.1	30.4	47.8	17.0	0.5	2.0	0.7	

SEM-EDS full analysis inclusions – cont.																
Sample	Scan	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	P2O5	SO3	MnO	SnO2	Zr2O5	Cr2O3	BaO
23/15.5	Inclusion 1	0.4	0.4	0.3	0.3	0.0	98.6	0.1	0.0							
	Inclusion 2	1.3	4.8	14.7	62.0	3.8	0.7	12.2	0.5							
	Inclusion 3	0.4	0.3	6.1	33.3	0.7	1.5	57.6	0.1							
	Inclusion 4	0.7	1.0	6.8	12.1	1.4	1.2	76.2	0.6							
	Inclusion 5	0.1	2.1	16.2	51.9	0.3	17.6	11.7	0.2							
	Inclusion 6	0.1	0.3	2.9	89.4	0.7	0.3	2.0	4.4							
	Inclusion 7	0.6	0.7	35.0	51.7	9.6	0.3	2.0	0.1							
	Inclusion 8	7.1	1.1	18.5	66.2	0.9	4.8	1.3	0.0							
23/17.1	Inclusion 1	1.1	3.3	0.9	17.4	1.2	4.9	70.4	0.0			0.8				
	Inclusion 2	0.0	6.9	6.5	13.1	1.1	11.1	61.4	0.0							
	Inclusion 3	0.0	1.4	0.0	0.0	0.0	98.6	0.0	0.0							
23/20.1	Inclusion 1	0.8	0.2	0.2	0.0	0.0	54.0	0.0	0.0	40.1	4.9					
	Inclusion 2	0.2	1.2	1.9	7.0	0.6	86.7	1.3	0.0	0.4	0.9					
	Inclusion 3	0.3	14.2	1.8	9.1	0.4	71.6	0.9	0.0	0.4	1.4					
	Inclusion 4	0.4	0.3	0.0	0.4	0.1	55.9	0.2	0.0	37.1	5.6	0.1				
	Inclusion 5	0.5	2.5	1.8	8.3	0.4	1.2	83.4	0.0	0.9	0.5	0.7				
Clay 1	Inclusion 1		2.7	25.2	41.8		27.0	3.4								
	Inclusion 2	0.4	1.4	17.7	71.4	5.5		1.3								2.4
	Inclusion 3		1.2	2.5	2.3	0.6	90.4	0.7			0.6		1.9			
	Inclusion 4		1.1	3.0	3.0	0.6	89.6	0.9					1.8			
	Inclusion 5		0.6	0.5	1.7		0.6	94.0	0.4						2.3	
	Inclusion 6	0.7	2.0	8.5	23.3	3.7	4.9	52.9	1.2	1.0		1.8				
	Inclusion 7	0.6	12.9	18.5	26.9	1.9	0.4	38.2				0.7				
	Inclusion 8			24.1	48.6		11.1									16.2
	Inclusion 9		7.4	0.6	2.2		88.9	0.9								
	Inclusion 10	0.5	2.6	17.0	63.3	5.0	0.6	11.2								
	Inclusion 11	0.6	3.2	25.3	54.1	10.7	1.0	4.5	0.5							
	Inclusion 12	0.5	9.3	11.7	46.6	9.1	3.3	18.0	1.7							
	Inclusion 13	1.3	0.8	9.4	83.5	3.2	0.8	1.2								

XRF full results

Element	Date	Na2O	MgO	Al2O3	SiO2	P2O5	SO3	K2O	CaO	TiO2	V2O5	Cr2O3	MnO	Fe2O3	Co3O4	NiO	CuO	ZnO	Ga2O3	As2O3	Rb2O	SrO	Y2O3	ZrO2	BaO	CeO2	PbO	Sum
Dimension		%	%	%	%	%	%	%	%	%	%	%	%	%	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	%
23/13.2	11/8/03	1.41	3.52	11.51	46.52	0.27	0.09	2.98	14.28	0.57	0.03	0.01	0.11	5.15	53	39	68	119	19	27	112	383	30	156	922	34	34	86.62
23/13.2	11/8/03	1.44	3.45	11.59	46.37	0.27	0.09	2.94	14.22	0.57	0.03	0.00	0.10	5.15	57	43	78	114	22	27	114	385	29	149	944	38	36	86.42
23/13.2	11/8/03	1.44	3.50	11.55	46.57	0.28	0.09	2.98	14.35	0.58	0.03	0.01	0.11	5.16	53	43	76	120	21	29	116	386	29	135	946	29	35	86.82
Average		1.43	3.49	11.55	46.49	0.28	0.09	2.96	14.28	0.57	0.03	0.01	0.11	5.15	54	42	74	118	21	27	114	385	29	147	938	33	35	86.62
St. Dev.		0.02	0.03	0.04	0.10	0.01	0.00	0.03	0.07	0.00	0.00	0.00	0.00	0.01	2	3	5	3	1	1	2	1	1	11	14	4	1	
23/13.3	11/8/03	1.46	4.03	10.44	47.98	0.15	0.00	1.84	17.14	0.56	0.03	0.01	0.09	4.91	60	38	70	102	20	17	92	371	31	149	929	34	26	88.83
23/13.3_r01	11/8/03	1.46	4.13	10.48	47.65	0.15	0.00	1.83	17.09	0.57	0.03	0.01	0.09	4.90	61	38	67	107	22	17	93	368	31	144	933	25	24	88.57
23/13.3_r02	11/8/03	1.84	4.06	10.50	48.11	0.15	0.00	1.83	17.09	0.58	0.02	0.01	0.09	4.92	64	40	70	105	20	16	92	366	31	134	940	29	25	89.38
Average		1.59	4.07	10.47	47.91	0.15	0.00	1.83	17.11	0.57	0.03	0.01	0.09	4.91	62	39	69	104	21	17	92	368	31	142	934	29	25	88.93
St. Dev.		0.22	0.05	0.03	0.24	0.00		0.01	0.03	0.01	0.00	0.00	0.00	0.01	2	1	2	2	1	1	0	2	0	8	6	5	1	
23/14.5	11/8/03	1.41	2.29	12.62	53.52	0.18	0.00	2.88	12.59	0.65	0.03	0.01	0.11	5.96	36	52	190	138	23	4	125	322	35	149	659	38	9	92.43
23/14.5_r01	11/8/03	0.94	2.29	12.74	53.84	0.19	0.00	2.87	12.67	0.66 < 0.0040	0.01	0.01	0.11	5.94	81	52	193	136	25	4	125	320	36	149	682	47	10	92.43
23/14.5_r02	11/8/03	0.88	2.13	12.57	53.30	0.19	0.00	2.84	12.57	0.64	0.03	0.01	0.11	5.95	61	54	196	138	24	5	123	320	36	152	666	43	9	91.38
Average		1.08	2.23	12.64	53.55	0.18	0.00	2.86	12.61	0.65	0.03	0.01	0.11	5.95	59	53	193	137	24	4	124	321	36	150	669	43	9	92.08
St. Dev.		0.29	0.09	0.09	0.27	0.01		0.02	0.05	0.01	0.00	0.00	0.00	0.01	22	1	3	1	1	1	1	1	1	2	12	4	0	

420

23/15.1	11/8/03	2.00	3.50	13.46	50.37	0.21	0.00	2.38	13.84	0.60	0.03	0.01	0.11	5.70	71	43	71	109	25	9	103	325	32	131	717	33	17	92.36
23/15.1_r01	11/8/03	1.86	3.55	13.47	50.65	0.20	0.00	2.36	13.86	0.61	0.03	0.01	0.11	5.70	56	49	70	112	27	10	104	323	31	129	742	31	19	92.58
23/15.1_r02	11/8/03	1.80	3.53	13.62	50.77	0.21	0.00	2.35	13.81	0.60	0.03	0.01	0.11	5.71	62	46	74	109	29	11	103	323	32	138	750	36	16	92.71
Average		1.89	3.53	13.52	50.60	0.21	0.00	2.36	13.84	0.61	0.03	0.01	0.11	5.70	63	46	71	110	27	10	103	324	32	133	736	33	17	92.55
St. Dev.		0.10	0.03	0.09	0.21	0.00		0.01	0.03	0.01	0.00	0.00	0.00	0.00	8	3	2	2	2	1	0	1	0	4	17	3	1	
23/15.5	11/8/03	1.28	2.79	12.43	47.06	0.17	0.35	4.02	12.64	0.57	0.03	0.01	0.11	5.26	50	52	63	119	24	34	113	384	28	123	711	47	37	86.87
23/15.5_r01	11/8/03	2.00	2.89	12.44	47.01	0.18	0.35	3.96	12.56	0.57	0.03	0.01	0.11	5.25	45	41	69	124	25	35	114	384	27	123	668	32	39	87.51
23/15.5_r02	11/8/03	2.13	2.90	12.46	46.97	0.18	0.34	3.97	12.51	0.56	0.03	0.01	0.11	5.25	56	43	59	122	22	35	116	383	27	128	689	36	40	87.57
Average		1.80	2.86	12.44	47.01	0.17	0.35	3.98	12.57	0.56	0.03	0.01	0.11	5.25	50	45	64	121	24	35	114	384	27	125	690	38	39	87.32
St. Dev.		0.46	0.06	0.02	0.05	0.00	0.01	0.03	0.07	0.00	0.00	0.00	0.00	0.00	6	6	5	3	1	1	1	0	1	3	22	7	1	
23/9/3.1	11/8/03	1.45	3.60	13.79	49.70	0.17	0.04	2.85	14.13	0.62	0.03	0.01	0.12	5.97	85	50	88	131	26	15	111	355	31	126	722	30	19	92.65
23/9/3.1_r01	11/8/03	1.67	3.58	13.91	49.87	0.19	0.05	2.81	14.20	0.63	0.03	0.01	0.12	5.97	72	53	89	124	25	13	110	357	31	82	741	62	19	93.20
23/9/3.1_r02	11/8/03	1.58	3.55	13.83	49.74	0.18	0.05	2.87	14.11	0.63	0.03	0.01	0.12	5.97	67	53	86	126	25	14	111	352	31	125	723	30	18	92.81
Average		1.57	3.58	13.84	49.77	0.18	0.04	2.84	14.15	0.63	0.03	0.01	0.12	5.97	75	52	88	127	26	14	111	355	31	111	729	41	19	92.89
St. Dev.		0.11	0.03	0.06	0.09	0.01	0.00	0.03	0.05	0.00	0.00	0.00	0.00	0.00	9	2	2	4	0	1	0	3	0	25	11	18	0	
XRF full results – cont.																												
Element	Date	Na2O	MgO	Al2O3	SiO2	P2O5	SO3	K2O	CaO	TiO2	V2O5	Cr2O3	MnO	Fe2O3	Co3O4	NiO	CuO	ZnO	Ga2O3	As2O3	Rb2O	SrO	Y2O3	ZrO2	BaO	CeO2	PbO	Sum
23/9/3.2	11/8/03	1.89	3.63	12.44	47.79	0.16	0.00	2.20	16.12	0.56	0.03	0.01	0.12	5.58	69	45	93	119	24	13	97	395	29	108	666	29	20	90.69
23/9/3.2_r01	11/8/03	2.01	3.62	12.51	47.45	0.17	0.00	2.22	16.09	0.58	0.03	0.01	0.11	5.54	77	48	91	120	22	14	97	395	28	113	671	34	18	90.50
23/9/3.2_r02	11/8/03	2.60	3.67	12.57	48.12	0.17	0.00	2.21	16.20	0.58	0.03	0.01	0.11	5.56	50	46	91	121	25	14	96	394	28	113	671	34	19	91.98
Average		2.17	3.64	12.51	47.79	0.17	0.00	2.21	16.14	0.57	0.03	0.01	0.11	5.56	65	46	92	120	23	13	97	395	29	111	669	32	19	91.06
St. Dev.		0.38	0.02	0.07	0.34	0.00		0.01	0.06	0.01	0.00	0.00	0.00	0.02	14	2	1	1	1	1	1	0	1	3	3	3	1	

Fired clay	15/8/08	0.80	4.53	13.12	47.20	0.13	0.16	2.40	13.58	0.46	0.02	0.01	0.10	5.33	49	44	51	124	21	25	117	343	32	134	994	32	28	88.02
Fired clay_r01	15/8/08	1.03	4.54	13.21	47.21	0.14	0.17	2.40	13.62	0.46	0.03	0.01	0.10	5.31	70	44	47	123	22	27	122	343	31	132	1030	31	26	88.42
Fired clay_r02	15/8/08	0.65	4.51	13.12	47.18	0.14	0.17	2.40	13.61	0.48	0.03	0.01	0.10	5.30	53	44	48	125	23	25	120	345	31	131	1050	37	27	87.88
Average		0.83	4.53	13.15	47.20	0.14	0.16	2.40	13.60	0.47	0.03	0.01	0.10	5.31	57	44	49	124	22	25	120	344	31	132	1025	34	27	88.11
St. Dev.		0.19	0.02	0.05	0.02	0.00	0.01	0.00	0.02	0.01	0.00	0.00	0.00	0.01	11	0	2	1	1	1	3	1	1	2	28	3	1	
SARM 69	11/8/03	0.57	1.33	15.21	61.47	0.27	0.00	2.01	2.41	0.73	0.03	0.02	0.13	7.39	109	50	61	81	24	7	69	129	37	228	491	34	14	91.58
SARM 69_r01	11/8/03	0.48	1.30	15.30	61.65	0.26	0.00	2.02	2.42	0.72	0.03	0.02	0.13	7.39	120	59	64	83	21	7	69	128	38	229	491	38	15	91.72
SARM 69_r02	11/8/03	0.87	1.34	15.25	61.59	0.27	0.00	2.02	2.45	0.73	0.04	0.03	0.13	7.40	92	59	68	85	23	7	70	129	37	242	497	38	14	92.10
Average		0.64	1.32	15.25	61.57	0.27	0.00	2.01	2.42	0.73	0.03	0.03	0.13	7.39	107	56	64	83	23	7	69	129	37	233	493	37	14	91.80
St. Dev.		0.20	0.02	0.05	0.09	0.00		0.01	0.02	0.00	0.00	0.00	0.00	0.01	14	5	4	2	2	0	0	1	0	8	3	2	1	
SARM 69	15/8/08	0.52	1.46	16.14	57.69	0.25	0.03	1.67	1.87	0.56	0.02	0.03	0.13	7.44	96	62	63	84	24	7	71	131	38	254	526	36	14	87.93
SARM 69_r01	15/8/08	0.21	1.42	15.73	56.60	0.25	0.03	1.62	1.84	0.55	0.03	0.03	0.12	7.32	106	56	64	83	25	6	70	132	37	234	521	39	16	85.87
SARM 69_r02	15/8/08	0.54	1.51	15.95	57.31	0.26	0.03	1.64	1.86	0.56	0.03	0.03	0.13	7.42	111	50	60	80	24	8	70	132	38	243	516	41	14	87.38
Average		0.42	1.46	15.94	57.20	0.25	0.03	1.64	1.86	0.56	0.03	0.03	0.13	7.39	104	56	62	82	24	7	70	132	38	244	521	39	14	87.06
St. Dev.		0.19	0.05	0.21	0.55	0.01	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.07	8	6	2	2	1	1	1	1	0	10	5	3	1	
brick clay 679	11/8/03	0.28	1.14	20.33	51.20	0.12	0.08	2.83	0.24	0.95	0.04	0.01	0.23	13.60	193	43	49	151	43	19	199	84	50	121	431	52	16	91.19
brick clay 679_r01	11/8/03	0.20	1.10	20.30	51.48	0.13	0.09	2.88	0.24	0.98	0.04	0.01	0.24	13.59	151	61	50	152	40	17	196	84	49	88	468	113	17	91.40
brick clay 679_r02	11/8/03	0.32	1.08	20.38	51.45	0.12	0.09	2.85	0.24	0.96	0.04	0.01	0.24	13.61	147	51	44	149	41	18	199	85	52	122	437	55	18	91.52
Average		0.27	1.10	20.34	51.38	0.12	0.09	2.85	0.24	0.96	0.04	0.01	0.24	13.60	164	52	48	151	41	18	198	84	50	110	445	73	17	91.37
St. Dev.		0.06	0.03	0.04	0.15	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.01	25	9	3	2	1	1	2	1	1	19	20	34	1	

brick clay 679	15/8/08<	0.058	1.11	20.65	46.42	0.12	0.11	2.25	0.18	0.71	0.03	0.01	0.22	12.97	142	49	43	143	37	18	192	81	47	111	420	60	16	84.91
brick clay 679_r01	15/8/08	0.56	1.22	20.98	47.07	0.12	0.12	2.28	0.19	0.72	0.03	0.01	0.22	13.15	185	52	47	144	39	18	192	82	48	112	429	45	19	86.79
brick clay 679_r02	15/8/08	0.10	1.05	20.69	46.61	0.12	0.11	2.27	0.18	0.72	0.03	0.01	0.22	13.06	167	41	42	143	37	18	192	80	47	126	426	58	19	85.32
Average		0.33	1.13	20.77	46.70	0.12	0.11	2.27	0.18	0.71	0.03	0.01	0.22	13.06	165	47	44	143	38	18	192	81	47	116	425	54	18	85.67
St. Dev.		0.33	0.08	0.18	0.33	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.09	22	6	3	1	1	0	0	1	0	8	5	8	1	

Appendix C

Kuva, Tashkent and New Akhsiket glazed ceramics: analytical data

In the following appendix, results of the analytical data for each sherd are presented in numerical order according to sherd number, with Kuva samples first, Tashkent (from page 434) samples second, and New Akhsiket (petrographical data only, from page 471) third. See Chapter 6 for descriptive text and technological interpretations.

The information given includes:

Image of the sherd (including an image of the reverse side if necessary), with caption indicating vessel part and style.

Drawing of the sherd if rim or base.

Optical microscopy (OM) image(s) as appropriate, usually in XPL.

Backscatter electron microscope (BSE) image(s) as appropriate.

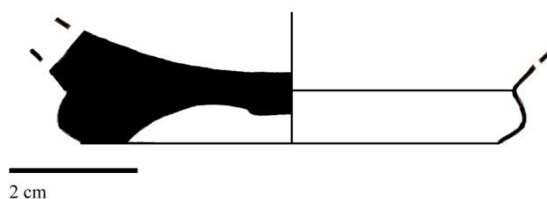
Full SEM-EDS results, divided into tables corresponding to the glaze, slips, body and inclusions (where these were analysed). 'Area 1' indicates the general area on the sherd (i.e. 'Colourless/Black' glaze is an area of decoration where there is colourless glaze over black slip). 'Area 2' is more specific. All analyses are shown normalised and the measured elements stoichiometrically combined with oxygen, in wt. %. Standard deviations (showing the deviation of an individual value from the mean) and standard errors (showing the accuracy of the mean) are given for each significant set of values (except spot analysis of inclusions). Analytical totals (AT) are also shown. Where there is no data for an element for a related set of analyses, the cells have been left blank. Where body inclusions have been analysed, BSE images(s) are provided with the analysed minerals numbered according to the table (quartz – pure silica – is marked with a 'Q').

Petrography results (if any) – a petrofabric description.

Kuva 1



Base of bowl or plate, weathered *ishkor*



Drawing.

Petrofabric

Fabric colour: Red

Size: mostly 5-20 μm , some 50-100 μm

Sorting: Well- sorted

Shape: rounded and angular inclusions

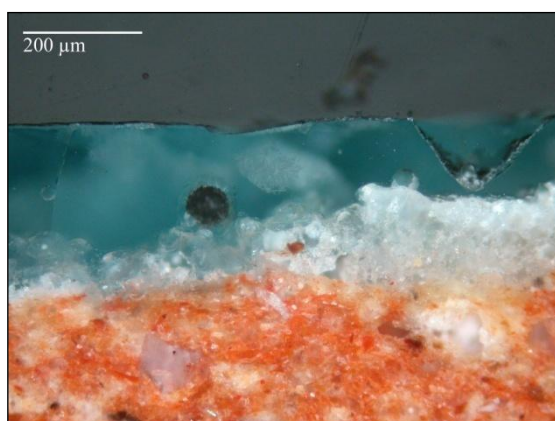
Density: 20%

Mostly monocrystalline quartz, few polycrystalline

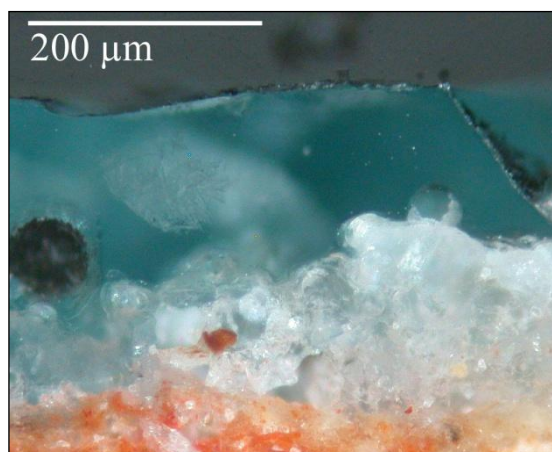
Few polycrystalline calcium-rich inclusions

Some mica

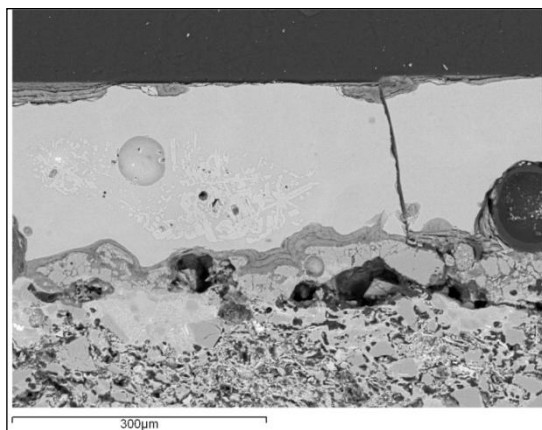
Chemically well-evolved with angular quartz inclusions



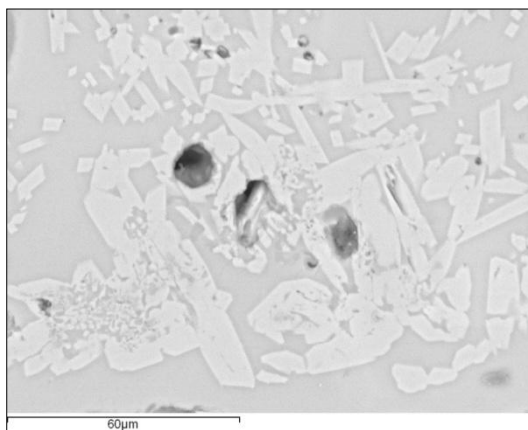
OM image.



OM image: detail.



BSE image: glaze and body.

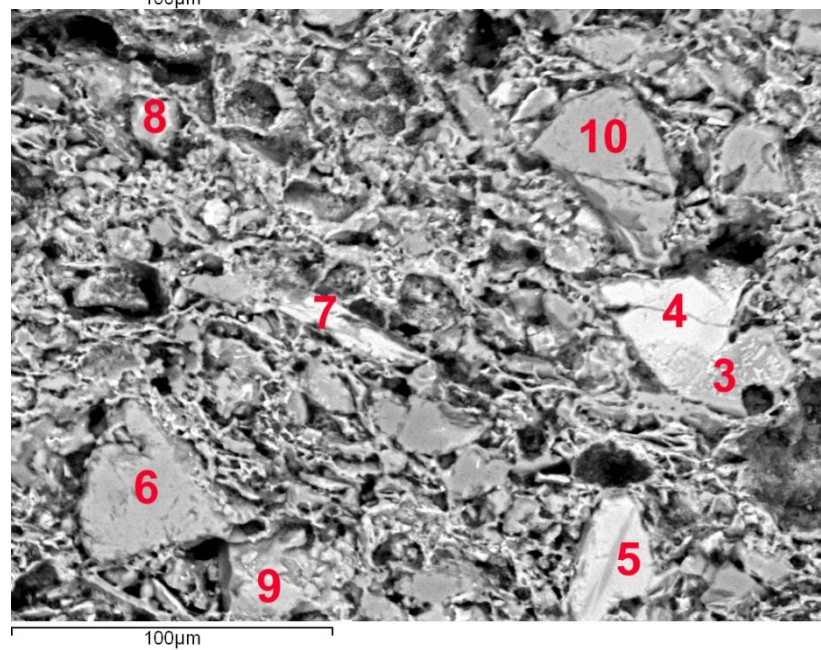
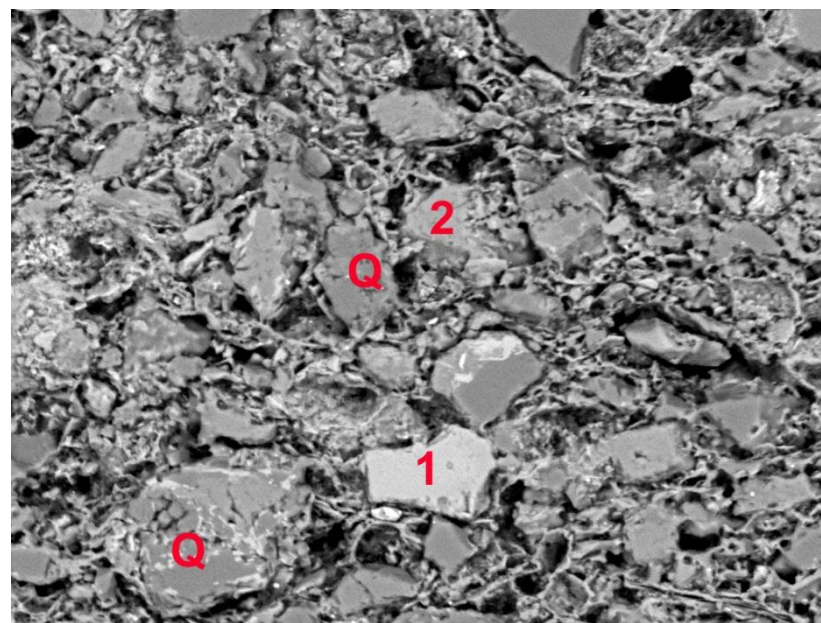


BSE image: closeup of crystal growth in glaze.

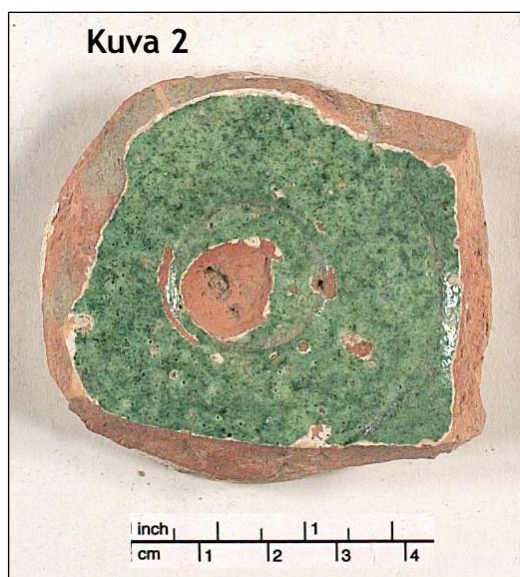
Kuva 1 Glaze														
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	TiO2	Fe2O3	CuO	P2O5	SO3	Cl	AT%
Glaze	Upper	10.4	4.2	3.1	68.6	3.0	7.5	0.2	1.0	1.2	0.7	0.0	0.0	97
Glaze	Upper	10.0	3.9	3.5	69.8	2.9	7.2	0.0	0.9	1.1	0.0	0.6	0.0	98
Glaze	Lower	9.9	3.4	2.8	69.8	3.1	7.1	0.3	0.8	1.1	0.8	0.7	0.3	98
Glaze 2	Upper	10.0	4.2	2.9	70.0	3.1	6.8	0.0	0.9	1.5	0.6	0.0	0.0	94
Glaze 2	Upper	10.5	4.2	3.8	67.7	3.1	7.1	0.0	1.1	1.1	0.6	0.6	0.3	94
Glaze 3	Upper	10.6	3.8	3.9	67.6	3.1	7.1	0.3	1.1	1.3	0.6	0.6	0.0	86
Glaze 3	Upper	10.5	4.3	3.0	68.7	3.0	7.2	0.3	0.9	1.2	0.6	0.5	0.0	86
Glaze 3	Lower	9.4	3.2	4.1	70.8	3.2	5.8	0.0	1.7	1.0	0.0	0.5	0.3	85
Glaze 2	crystals	0.8	16.2	1.2	57.2	0.2	23.5	0.0	1.0	0.0	0.0	0.0	0.0	91
Glaze 4	crystals	3.5	10.1	7.0	61.2	1.8	14.9	0.0	1.1	0.5	0.0	0.0	0.0	90
Glaze 4	crystals	0.7	16.1	1.6	56.3	0.0	24.1	0.0	1.2	0.0	0.0	0.0	0.0	87
Average glaze	upper/lower	10.2	3.9	3.4	69.1	3.1	7.0	0.1	1.0	1.2	0.5	0.4	0.1	
St. Deviation		0.4	0.4	0.5	1.2	0.1	0.5	0.1	0.3	0.2	0.3	0.3	0.2	
St. Error		0.1	0.2	0.2	0.4	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1	

Kuva 1 Body													
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	TiO2	Fe2O3	P2O5	SO3	AT%	
Body 1	Bulk	1.9	3.1	11.8	64.3	3.2	9.8	0.9	5.2	0.0	0.0	53	
Body 2	Bulk	1.8	3.2	12.6	61.9	3.3	10.1	0.9	5.6	0.7	0.0	58	
Body 3	Bulk	1.8	2.9	12.0	62.5	3.9	10.0	0.7	5.1	1.1	0.0	54	
Body 4	Bulk	1.6	3.1	11.5	64.1	3.6	9.4	0.9	5.1	0.6	0.0	58	
Average body	Bulk	1.8	3.1	12.0	63.2	3.5	9.8	0.9	5.2	0.6	0.0		
St. Deviation		0.1	0.1	0.5	1.2	0.3	0.3	0.1	0.2	0.5	0.0		
St. Error		0.1	0.1	0.2	0.6	0.2	0.2	0.0	0.1	0.2	0.0		

Kuva 1 Inclusions												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	TiO2	Fe2O3	MnO	BaO	AT%
Inclusions 1	spot		10.2	0.7	53.2		21.8		13.9	0.4		82
Inclusions 2	spot	1.9		17.9	65.3	13.4					1.5	82
Inclusions 3	spot	3.0	4.7	22.6	54.3	6.5	3.4	1.1	4.0	0.3		68
Inclusions 4	spot		10.0	0.4	53.2		20.2		15.8	0.5		80
Inclusions 5	spot	2.2		18.8	62.8	11.0					5.3	81
Inclusions 6	spot	2.7		17.7	67.2	12.4						78
Inclusions 7	spot	0.6	10.9	1.9	54.7	1.2	11.5		19.0	0.3		78
Inclusions 8	spot	1.3		16.5	64.2	15.5			0.8		1.7	54
Inclusions 9	spot	2.3		17.9	65.7	12.3					1.9	78
Inclusions 10	spot	5.4		26.8	58.0		9.8					79
Q = quartz												



Kuva 2



Base of bowl or plate, monochrome green glaze.



Drawing.

Petrofabric

Fabric colour: Dark red

Size: mostly 5-20 μm , some 50-100 μm

Sorting: Moderately- sorted

Shape: rounded and angular inclusions

Density: 20%

Mostly monocrystalline quartz, few polycrystalline

Few polycrystalline calcium-rich inclusions

Some mica

Not analysed with SEM-EDS.

Kuva 6



Rim of bowl or plate, 12th c polychrome slipware with coloured and transparent lead glaze.



Drawing of Kuva 6 rim.

Petrofabric 1

Fabric colour: Dark red

Size: ~10-15% 50-100µm, to ~40-50% 5-20µm

Sorting: Very well-sorted

Shape: sub-angular and angular inclusions

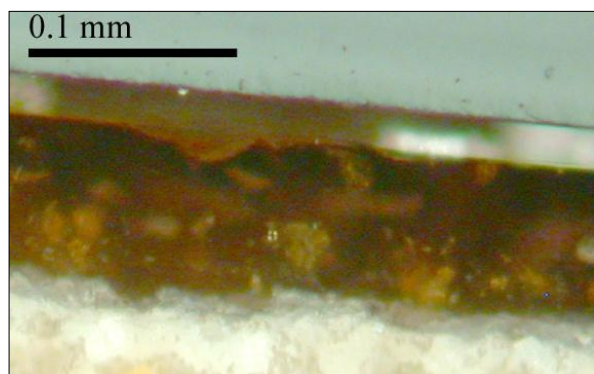
Density: 15%

Mostly quartz: 95% monocrystalline, < 5% polycrystalline

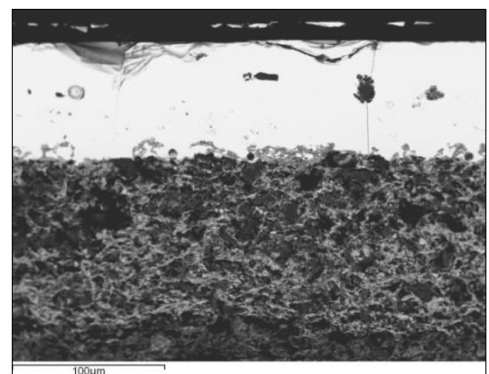
Some polycrystalline quartz ingrown with iron minerals

5% calcium-rich inclusions and < 5% hornblende (< 20 µm)

Chemically well-evolved with angular quartz inclusions



OM: cross-section of black glaze over engobe;.



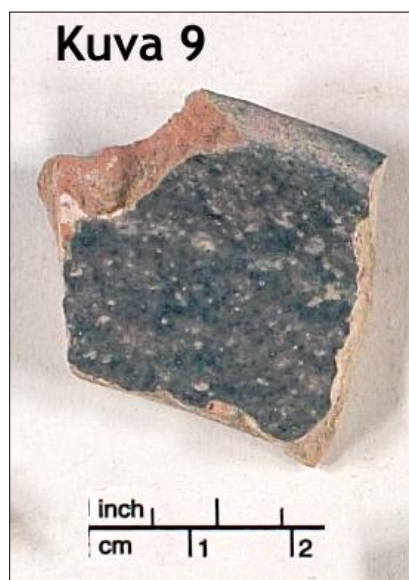
BSE image: Dark brown glaze over engobe. Scale is 100 µm.

Kuva 6 Glaze												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	PbO	CuO	MnO	AT%
Olive 1	Upper	0.0	0.0	2.6	31.9	0.8	0.8	0.0	64.0	0.0	0.0	70
Olive 1	Upper	0.0	0.0	2.4	31.8	0.7	0.8	0.0	64.2	0.0	0.0	70
Olive 1	Lower	0.0	0.0	3.0	32.3	0.9	0.6	0.0	63.2	0.0	0.0	70
Olive 2	Upper	0.0	0.0	2.5	31.3	0.7	0.7	0.0	64.8	0.0	0.0	68
Olive 2	Upper	0.0	0.0	2.4	31.7	0.9	0.7	1.0	63.4	0.0	0.0	69
Olive 2	Lower	0.0	0.5	2.7	32.1	0.8	0.7	0.7	62.5	0.0	0.0	69
Yellow	Upper	0.0	0.0	2.7	31.6	0.8	1.0	0.0	63.9	0.0	0.0	67
Yellow	Upper	0.0	0.0	2.5	32.3	0.6	0.8	0.0	63.8	0.0	0.0	67
Yellow	Lower	0.0	0.0	3.1	33.6	1.0	0.8	0.0	61.6	0.0	0.0	67
Brown	Upper	0.0	0.0	2.7	31.7	1.0	0.9	0.0	62.0	0.0	1.7	67
Brown	Upper	0.0	0.0	2.3	31.4	0.5	0.9	0.0	63.5	0.0	1.4	65
Brown	Lower	0.0	0.0	2.6	32.9	1.0	0.8	0.00	61.4	0.0	1.3	66
Green	Upper	0.0	0.0	2.3	31.5	0.6	1.1	0.7	61.0	2.8	0.0	66
Green	Upper	0.0	0.0	2.8	31.5	0.9	1.0	0.0	61.0	2.9	0.0	65
Green	Lower	0.0	0.0	2.7	31.8	0.7	0.9	0.0	61.5	2.4	0.0	66
White	Upper	0.0	0.0	2.5	31.8	0.8	0.7	0.0	64.2	0.0	0.0	64
White	Upper	0.0	0.0	2.4	32.2	1.0	0.7	0.0	63.8	0.0	0.0	64
White	Lower	0.00	0.0	3.2	33.0	0.8	0.8	0.00	62.2	0.00	0.00	64
Average Olive	all	0.00	0.1	2.6	31.9	0.8	0.7	0.3	63.7	0.00	0.00	
St. Deviation			0.2	0.2	0.3	0.1	0.1	0.4	0.8			
St. Error			0.1	0.1	0.1	0.0	0.0	0.2	0.3			
Average Yellow		0.00	0.00	0.00	2.7	32.5	0.8	0.9	0.00	63.1	0.00	
St. Deviation				0.3	1.0	0.2	0.1		1.3			
St. Error				0.2	0.6	0.1	0.1		0.8			
Average Brown		0.00	0.00	0.00	2.5	32.0	0.8	0.9	0.00	62.3	0.00	
St. Deviation				0.2	0.8	0.3	0.1		1.1		0.2	
St. Error				0.1	0.5	0.2	0.0		0.6		0.1	
Average Green		0.00	0.00	2.6	31.6	0.7	1.0	0.2	61.2	2.7	0.00	
St. Deviation				0.3	0.2	0.2	0.1	0.4	0.3	0.2		
St. Error				0.1	0.1	0.1	0.1	0.2	0.2	0.1		
Average over White		0.00	0.00	2.7	32.3	0.9	0.7	0.00	63.4	0.00	0.00	
St. Deviation				0.4	0.6	0.1	0.1		1.1			
St. Error				0.2	0.4	0.1	0.0		0.6			

Kuva 6 Engobe											
Area 1	Area 2	Na2O	MgO	Al2O3	SiO ₂	K2O	CaO	TiO2	Fe2O3	PbO	AT%
Olive 1	engobe	0.0	0.7	8.3	68.5	3.1	1.3	0.0	1.3	16.8	51
Olive 1	engobe	0.0	1.0	9.6	64.6	3.3	1.2	0.0	0.9	19.5	51
Olive 2	engobe	0.0	0.8	9.5	66.1	3.4	1.0	0.0	1.3	18.0	49
Yellow	engobe	0.0	0.8	7.5	71.2	2.9	1.7	0.0	0.9	15.0	55
Yellow	engobe	0.0	0.7	8.9	64.9	4.1	1.6	0.8	0.9	18.0	51
Brown	engobe	0.0	0.9	10.3	62.5	4.0	1.3	0.0	1.1	20.0	51
Brown	engobe	0.0	0.8	9.1	65.6	3.4	1.4	0.0	1.0	18.6	52
Green	engobe	0.0	0.9	9.1	67.2	3.7	1.4	0.0	1.0	16.7	47
Green	engobe	0.0	0.7	10.1	65.0	3.7	1.1	0.0	1.4	18.0	49
White	engobe	0.0	0.5	7.6	73.1	2.8	1.0	0.0	0.7	14.4	55
Average all	all engobe	0.0	0.8	9.0	66.9	3.4	1.3	0.1	1.0	17.5	
St. Deviation			0.1	1.0	3.2	0.4	0.3	0.3	0.2	1.8	
St. Error			0.0	0.3	1.0	0.1	0.1	0.1	0.1	0.6	

Kuva 6 Body												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Ti2O3	Fe2O3	P2O5	SO3	AT%
Body	Bulk	0.7	2.7	12.7	55.1	3.6	15.4	0.9	8.4	0.0	0.6	51
Body	Bulk	0.8	2.8	13.0	54.3	3.6	15.2	1.0	8.3	0.0	1.1	56
Body	Bulk	0.7	3.3	12.6	55.6	3.6	13.5	1.1	8.6	0.0	0.9	56
Average body	bulk	0.7	2.9	12.8	55.0	3.6	14.7	1.0	8.4	0.0	0.9	
St. Deviation		0.0	0.3	0.2	0.6	0.0	0.9	0.1	0.1		0.2	
St. Error		0.0	0.2	0.1	0.4	0.0	0.6	0.1	0.1		0.1	

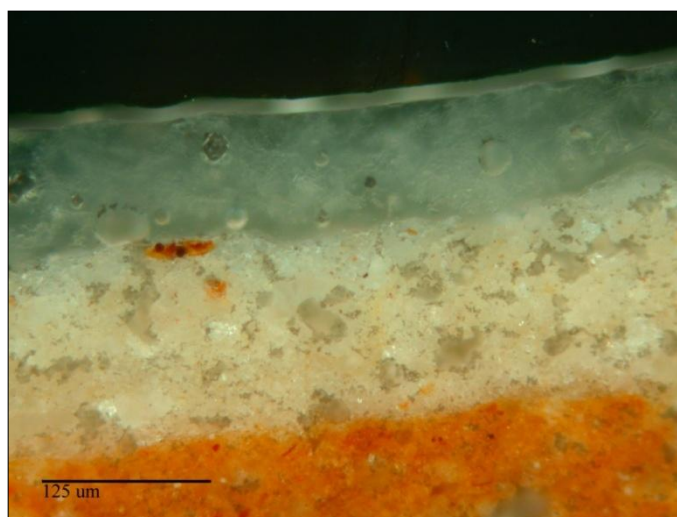
Kuva 9



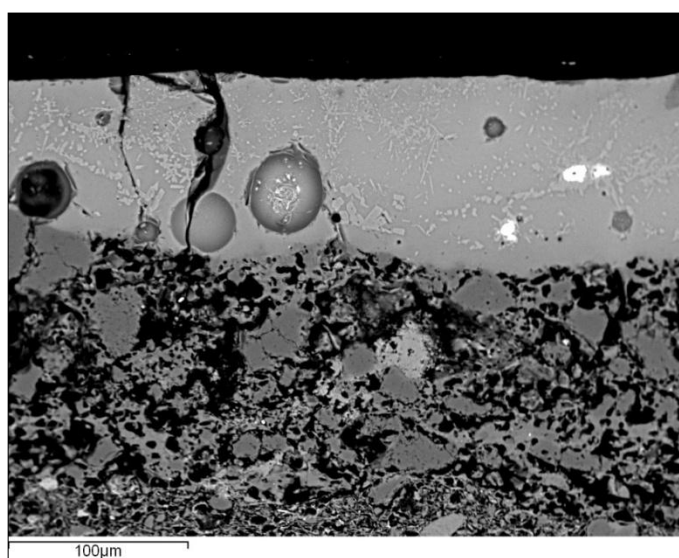
Rim of bowl or cup,
monochrome grey-blue lead-
alkali glaze.



Drawing of Kuva 9 rim.



OM: glaze over white engobe, showing cloudy
nature of the glaze.



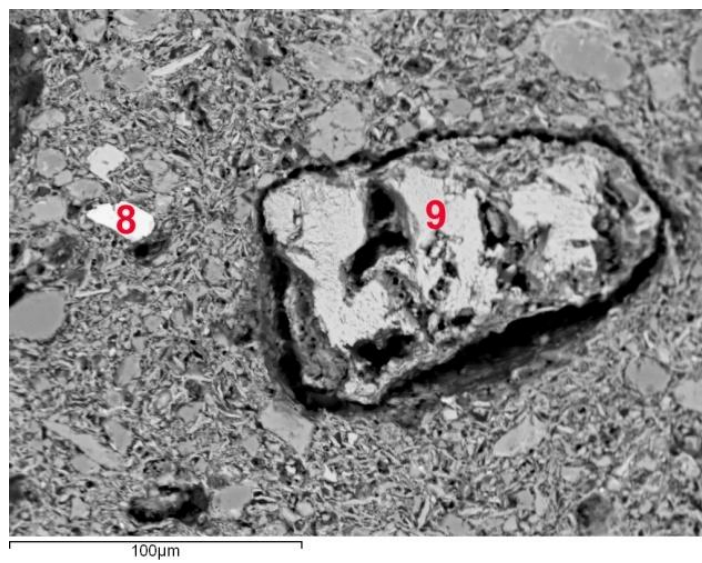
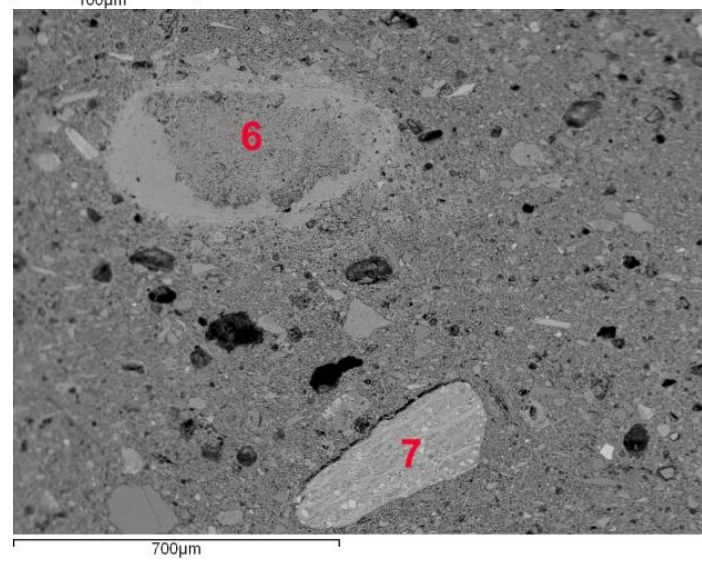
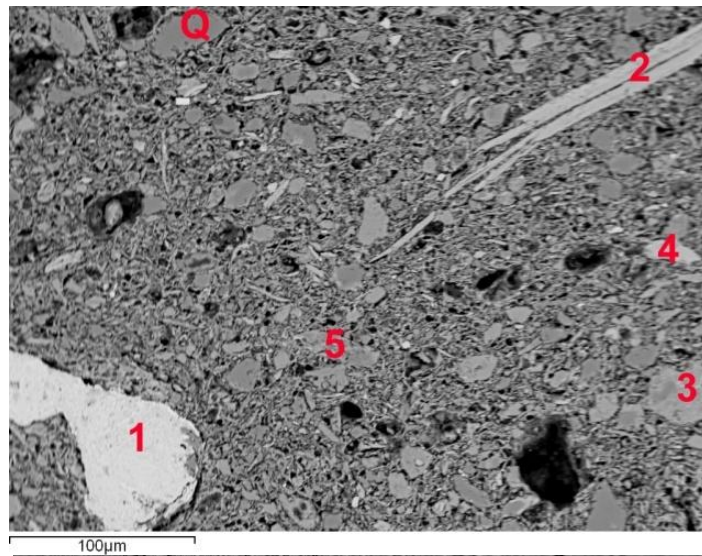
BSE image: Glaze over engobe, showing clearly the
crystal growth in the glaze.

Kuva 9 Glaze															
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	TiO2	Fe2O3	CuO	MnO	P2O5	SO3	Cl	AT%
Glaze	Upper	4.9	5.9	3.1	63.0	3.0	12.4	0.0	1.8	3.7	2.3	0.0	0.0	0.0	75
Glaze	Upper	6.0	4.4	3.9	60.7	3.1	11.4	0.0	3.1	5.6	1.8	0.0	0.0	0.0	75
Glaze	Lower	7.7	2.0	4.9	67.3	5.3	3.9	0.0	1.4	4.8	1.1	0.7	0.9	0.2	73
Glaze	Lower	8.2	1.3	5.0	65.0	4.7	4.3	0.5	2.4	6.2	1.3	0.0	0.7	0.4	72
Glaze 2	Upper	6.6	3.1	3.8	67.3	4.4	6.8	0.0	1.6	4.4	1.9	0.0	0.0	0.2	70
Glaze 2	Upper	6.5	2.6	5.3	67.3	4.9	5.7	0.0	1.4	4.1	1.9	0.0	0.0	0.3	70
Glaze 2	Lower	6.4	3.2	4.0	69.4	5.2	6.1	0.0	1.5	2.5	1.2	0.0	0.0	0.4	70
Glaze 2	Incl.	0.0	0.0	0.0	1.1	0.0	2.8	0.0	0.5	94.2	1.5	0.0	0.0	0.0	66
Average	all	6.6	3.2	4.3	65.7	4.4	7.2	0.1	1.9	4.5	1.6	0.1	0.2	0.2	
St. Dev.		1.1	1.5	0.8	3.0	1.0	3.4	0.2	0.6	1.2	0.4	0.3	0.4	0.2	
St. Error		0.4	0.6	0.3	1.1	0.4	1.3	0.1	0.2	0.5	0.2	0.1	0.2	0.1	

Kuva 9 Engobe											
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	TiO2	Fe2O3	AT%	
Engobe	bulk	3.2	0.7	10.2	79.6	3.9	1.2	0.0	1.1	54	
Engobe	bulk	2.4	0.7	9.0	75.2	3.6	7.6	0.0	1.5	51	
Engobe	bulk	2.8	0.9	8.9	78.6	3.6	4.2	0.0	1.0	55	
Average		2.8	0.8	9.4	77.8	3.7	4.4	0.0	1.2		
St. Deviation		0.4	0.1	0.7	2.3	0.2	3.2	0.0	0.2		
St. Error		0.3	0.1	0.4	1.3	0.1	1.9	0.0	0.1		

Kuva 9 Body													
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	TiO2	Fe2O3	P2O5	SO3	ZnO	AT%
Body	bulk	1.2	2.9	12.9	61.5	4.5	7.8	1.1	8.2	0.0	0.0	0.0	55
Body	bulk	1.1	2.6	14.2	60.0	5.5	8.8	0.0	7.9	0.0	0.0	0.0	53
Body	bulk	0.0	3.1	13.9	60.0	5.1	8.4	1.2	7.9	0.0	0.0	0.4	51
Average	bulk	0.7	2.9	13.7	60.5	5.0	8.3	0.8	8.0	0.0	0.0	0.0	
St. Dev.		0.7	0.2	0.7	0.9	0.5	0.5	0.7	0.1				
St. Error		0.4	0.1	0.4	0.5	0.3	0.3	0.4	0.1				

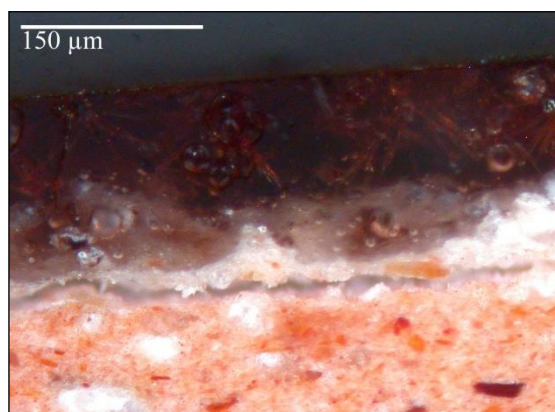
Kuva 9 Inclusions													
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	TiO2	Fe2O3	MnO	SO3	P2O5	AT%
Inclusion 1	Spot		1.2	0.8	3.9	0.4	0.8		91.9	0.9			77
Inclusion 2	Spot	0.5	10.1	12.5	36.9	8.9	1.6	4.5	23.9	1.1			67
Inclusion 3	Spot	1.3	2.1	17.2	47.7	5.9	0.6	21.3	3.9				77
Inclusion 4	Spot	0.5	10.7	4.7	50.5	0.5	12.3	0.8	19.4	0.7			79
Inclusion 5	Spot		4.3	13.3	54.0	4.4	0.7		23.3				77
Inclusion 6	Area	0.5	2.2	15.4	52.6		4.9	0.7	0.7	23.1			41
Inclusion 7	Area		3.1	13.9	60.0		5.1	8.4	1.2	7.9	0.4		69
Inclusion 8	Spot							2.0	98.0				81
Inclusion 9	Spot		0.5		0.9		57.4		2.2			38.9	70



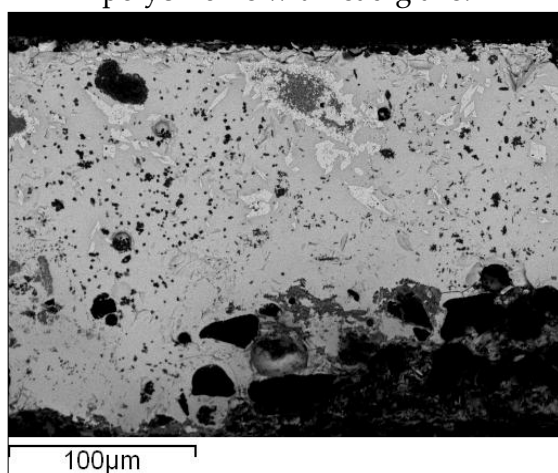
Kuva 12



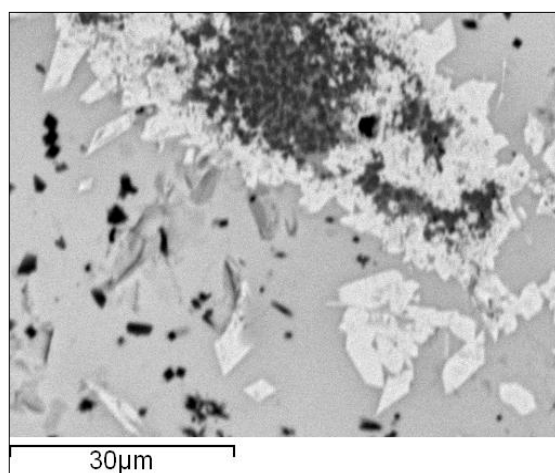
Body sherd of bowl or plate, 12th c
polychrome with lead glaze.



OM image: black glaze.



BSE image: Black glaze



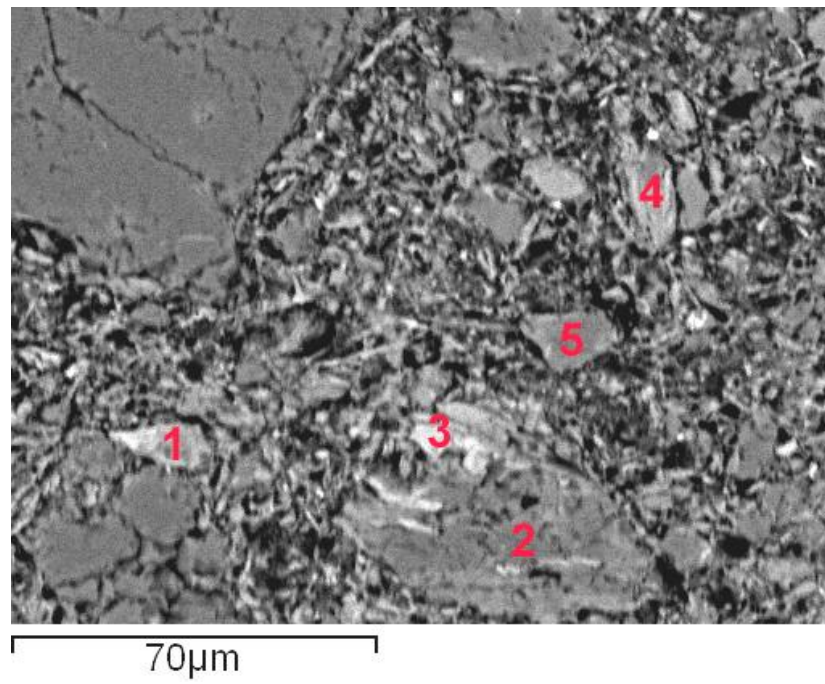
BSE image: Closeup of crystals in black
glaze.

Kuva 12 Glaze														
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	PbO	CuO	MnO	SO3	Cr2O3	AT%
Colourless	upper	0.0	0.8	2.1	36.7	0.7	1.6	0.6	57.6	0.0	0.0	0.0	0.0	93
Colourless	upper	0.0	0.6	2.1	37.6	1.0	1.4	0.0	57.4	0.0	0.0	0.0	0.0	93
Colourless	upper	0.0	0.0	2.5	38.4	1.0	1.4	0.7	56.0	0.0	0.0	0.0	0.0	92
Colourless	lower	0.0	0.7	3.6	42.3	1.6	1.1	0.6	50.1	0.0	0.0	0.0	0.0	92
Brown 1	upper	0.0	0.6	2.0	35.2	0.5	2.2	0.8	55.4	0.0	3.4	0.0	0.0	89
Brown 1	upper	0.0	0.7	2.2	35.3	0.7	2.2	1.0	53.9	0.0	4.0	0.0	0.0	89
Brown 1	lower	0.0	0.8	3.5	39.6	1.1	2.4	1.0	48.6	0.0	3.1	0.0	0.0	87
Brown 2	upper	0.0	0.8	1.9	34.9	0.5	2.8	0.0	55.5	0.0	3.6	0.0	0.0	82
Brown 2	upper	0.0	0.9	2.1	33.9	0.7	2.4	0.8	55.5	0.0	3.7	0.0	0.0	85
Brown 2	lower	0.0	0.0	3.8	40.4	1.3	2.1	0.8	49.3	0.0	2.4	0.0	0.0	81
Brown 3	light inclusion	0.0	0.0	0.0	18.5	0.0	0.0	0.0	16.6	3.0	61.2	0.0	0.7	84
Brown 3	light inclusion	0.0	0.0	0.0	20.7	0.0	0.0	0.6	18.3	2.7	57.8	0.0	0.0	87
Brown 3	dark inclusion	0.0	7.7	0.0	45.8	0.0	0.0	12.9	7.1	0.9	25.2	0.0	0.5	96
Brown 3	dark inclusion	0.0	2.7	0.0	39.6	0.0	0.6	5.1	3.3	1.2	47.5	0.0	0.0	89
Brown 3	dark inclusion	0.0	1.0	1.5	16.2	0.0	0.0	1.1	68.9	1.7	9.8	0.0	0.0	87
Yellow 1	upper	0.0	0.5	1.9	37.7	0.9	1.2	0.7	57.1	0.0	0.0	0.0	0.0	78
Yellow 1	upper	0.0	0.5	1.9	37.2	0.9	1.3	0.0	58.2	0.0	0.0	0.0	0.0	76
Yellow 1	lower	0.0	0.0	4.1	38.9	1.4	1.3	0.7	53.5	0.0	0.0	0.0	0.0	77
Yellow 2	upper	0.0	0.5	1.9	37.7	0.9	1.2	0.7	57.1	0.0	0.0	0.0	0.0	77
Yellow 2	upper	0.0	0.5	1.9	37.2	0.9	1.3	0.0	58.2	0.0	0.0	0.0	0.0	77
Yellow 2	lower	0.0	0.0	4.1	38.9	1.4	1.3	0.7	53.5	0.0	0.0	0.0	0.0	76
Average c'less	upper/lower	0.0	0.5	2.6	38.8	1.0	1.4	0.5	55.3	0.0	0.0	0.0	0.0	
St. Deviation			0.4	0.7	2.5	0.4	0.2	0.3	3.5					
St. Error			0.2	0.3	1.2	0.2	0.1	0.2	1.8					
Average Brown	upper/lower	0.0	0.7	2.6	36.5	0.8	2.3	0.7	53.0	0.0	3.4	0.0	0.0	
St. Deviation			0.3	0.9	2.7	0.4	0.3	0.4	3.2		0.6			
St. Error			0.1	0.4	1.1	0.1	0.1	0.2	1.3		0.2			
Average Yellow	upper/lower	0.0	0.3	2.7	37.9	0.0	1.1	1.3	56.3	0.5	0.0	0.0	0.0	
St. Deviation			0.3	1.1	0.8		0.3	0.1	2.2	0.4				
St. Error			0.1	0.5	0.3		0.1	0.0	0.9	0.2				

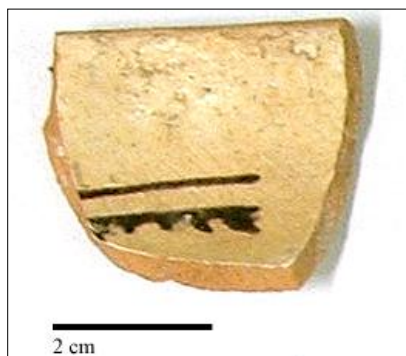
Kuva 12 Slip and engobe											
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	TiO2	Fe2O3	PbO	AT %
Brown 1	slip	0.7	1.3	8.2	65.6	4.4	6.6	0.0	3.4	9.9	43
Brown 1	engobe	0.7	1.8	15.9	52.3	4.8	3.1	0.6	1.7	19.3	74
Brown 1	engobe	0.0	1.2	11.4	60.5	3.6	4.0	0.0	1.9	17.4	41
Yellow 1	engobe	0.8	1.1	11.2	63.8	3.7	2.7	0.6	1.2	15.0	60
Yellow 1	engobe	0.6	1.4	14.5	59.8	5.1	4.4	0.0	1.4	12.9	59
Average brown	slip/engobe	0.5	1.4	11.8	59.5	4.3	4.5	0.2	2.3	15.5	
St. Deviation		0.4	0.3	3.9	6.7	0.6	1.8	0.3	0.9	5.0	
St. Error		0.2	0.2	2.2	3.9	0.4	1.1	0.2	0.5	2.9	
Average yellow	engobe	0.7	1.3	12.8	61.8	4.4	3.6	0.3	1.3	13.9	
St. Deviation		0.2	0.2	2.4	2.9	1.0	1.2	0.4	0.1	1.5	
St. Error		0.1	0.1	1.7	2.0	0.7	0.9	0.3	0.1	1.1	

Kuva 12 Body												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	TiO2	Fe2O3	P2O5	SO3	AT%
Body	bulk	1.6	3.0	13.4	53.0	3.6	17.4	0.8	5.2	0.8	0.0	60
Body	bulk	1.0	3.0	14.6	55.6	3.8	15.2	0.6	5.7	0.0	0.0	60
Body	bulk	2.2	2.6	13.0	56.1	3.6	15.1	0.6	5.0	0.0	1.0	63
Body	bulk	1.2	2.8	12.8	49.5	3.2	23.9	0.6	4.9	0.0	0.0	54
Average body	bulk	1.5	2.8	13.4	53.5	3.6	17.9	0.7	5.2	0.2	0.3	
St. Deviation		0.5	0.2	0.8	3.0	0.3	4.2	0.1	0.4	0.4	0.5	
St. Error		0.3	0.1	0.4	1.5	0.1	2.1	0.1	0.2	0.2	0.3	

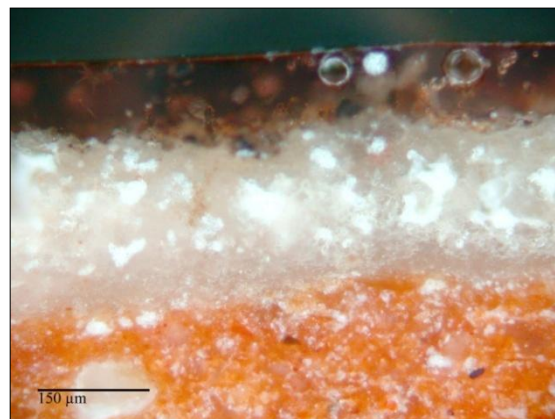
Kuva 12 Inclusions											
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	TiO2	Fe2O3	P2O5	AT%
Inclusions	spot	2.7	2.1	24.3	53.4	11.1	2.5		4.0		80
Inclusions	spot	0.4	1.2	11.6	80.4	4.9	0.0		1.5		75
Inclusions	spot			0.6	1.2	0.5	54.4			43.2	76
Inclusions	spot	2.0	6.6	20.7	51.6	9.2	1.6	0.5	7.8		79
Inclusions	spot	0.6	0.6	4.6	90.2	2.9			1.1		85



Kuva 18



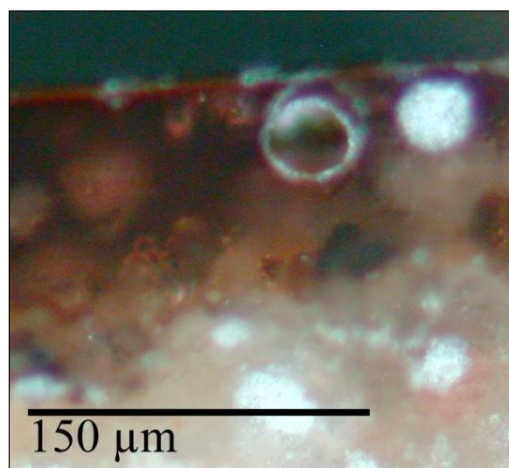
Rim of small bowl or cup, pseudo-kufic slipware with transparent lead glaze.



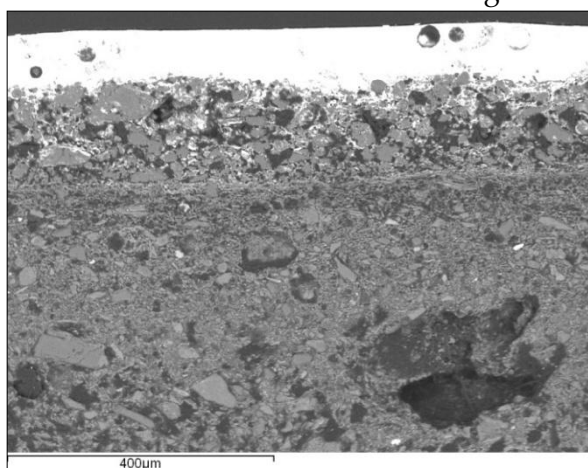
OM image: Black glaze over white engobe.



Drawing of Kuva 18 rim.



OM: Closeup of black glaze, showing heterogeneous colouring.



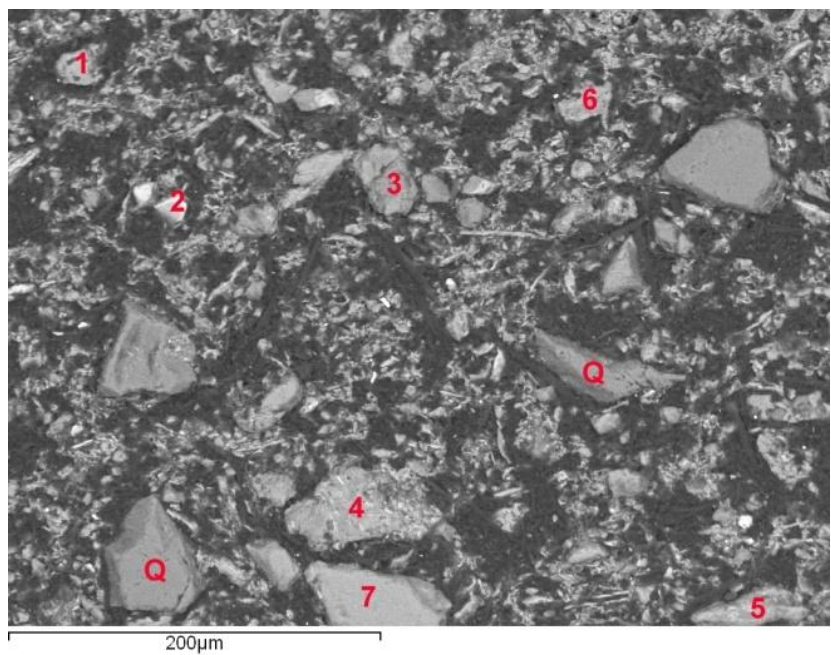
BSE image: Black glaze over engobe.

Kuva 18 Glaze											
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	PbO	MnO	AT%
Black	middle	0.0	0.6	2.8	37.6	1.3	1.4	1.3	53.2	1.9	91
Black	middle	0.0	0.5	2.8	37.7	1.2	1.6	0.8	53.3	2.2	90
Colourless 1	middle	0.0	0.5	2.0	38.8	1.1	1.5	0.5	55.7	0.0	88
Colourless 1	middle	0.0	0.4	2.3	38.0	1.1	2.0	0.7	55.6	0.0	86
Colourless 2	middle	0.0	0.5	1.6	37.7	0.6	1.4	0.0	58.2	0.0	84
Colourless 2	middle	0.0	0.0	1.5	36.8	0.6	1.2	0.6	59.3	0.0	83
Colourless 3	middle	0.0	0.5	1.7	37.3	0.5	1.2	0.0	58.9	0.0	82
Colourless 3	middle	0.0	0.0	2.3	37.7	0.6	1.2	0.0	58.2	0.0	82
Average Black	middle	0.0	0.6	2.8	37.6	1.3	1.5	1.0	53.2	2.1	
Average Colourless	middle	0.0	0.3	1.9	37.7	0.8	1.4	0.3	57.6	0.0	
St. Deviation		0.0	0.2	0.4	0.7	0.3	0.3	0.3	1.6		
St. Error		0.0	0.1	0.2	0.3	0.1	0.1	0.1	0.7		

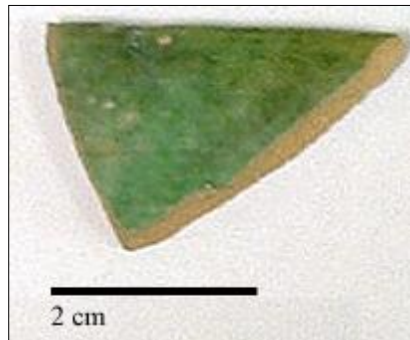
Kuva 18 Engobe												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	TiO2	Fe2O3	PbO	SO3	AT%
Black	engobe	0.5	0.6	6.1	82.4	1.9	1.0	0.0	0.5	6.1	1.0	61
Black	engobe	0.0	0.5	5.2	83.1	1.6	1.4	0.0	0.8	6.3	1.2	58
Colourless 1	engobe	0.0	0.8	4.6	79.5	2.0	2.4	0.0	0.7	7.9	2.2	48
Colourless 1	engobe	0.0	0.6	5.6	78.8	1.9	2.1	0.0	1.0	7.4	2.6	54
Colourless 2	engobe	0.0	0.9	7.6	73.9	2.2	1.7	0.0	1.0	12.6	0.0	64
Colourless 2	engobe	0.0	0.9	6.3	76.6	1.7	1.6	0.0	0.9	10.6	1.5	58
Colourless 3	engobe	0.0	0.9	7.1	74.7	2.0	1.6	0.0	0.6	13.2	0.0	55
Colourless 3	engobe	0.0	0.9	6.7	76.3	1.9	2.5	0.0	0.8	11.0	0.0	54
Av. Black	engobe	0.3	0.6	5.6	82.7	1.8	1.2	0.0	0.7	6.2	1.1	
Av. Colourless	engobe	0.0	0.8	6.3	76.6	2.0	2.0	0.0	0.8	10.5	1.0	
St. Deviation			0.1	1.1	2.2	0.2	0.4		0.2	2.4	1.2	
St. Error			0.1	0.4	0.9	0.1	0.2		0.1	1.0	0.5	

Kuva 18 Body												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	P2O5	SO3	AT%
Body 1	Bulk	1.0	2.9	12.8	59.3	4.3	9.7	0.9	5.7	1.2	2.4	45
Body 2	Bulk	1.5	3.0	12.8	60.9	3.9	9.0	0.9	5.7	0.0	2.3	45
Body 3	Bulk	1.2	2.5	13.0	61.8	4.6	8.5	0.7	5.1	0.0	2.6	41
Average body	Bulk	1.2	2.8	12.9	60.6	4.3	9.1	0.8	5.5	0.4	2.4	
St. Deviation		0.4	0.5	0.2	2.6	0.7	1.2	0.2	0.7	0.0	0.3	
St. Error		0.1	0.1	0.1	0.7	0.2	0.4	0.1	0.2	0.4	0.1	

Kuva 18 Inclusions															
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	P2O5	SO3	MnO	SnO2	BaO	AT%
Inclusions 1	Spot		3.5		2.4	1.1	84.3				6.4		2.3		48
Inclusions 2	Spot		1.1	4.0	23.9	1.7	14.8	50.1	3.3			1.2			42
Inclusions 3	Spot	9.6		18.7	71.7										83
Inclusions 4	Spot	0.7	3.2	24.3	56.6	8.8	1.0	5.4							83
Inclusions 5	Spot	0.4	6.2	10.6	67.0	4.5	0.6	10.2	0.7						86
Inclusions 6	Spot	1.3	2.7	14.6	62.7	7.5	5.0	4.7	1.5						71
Inclusions 7	Spot	0.6		17.0	65.9	15.5		0.3						0.6	86
Q = quartz															



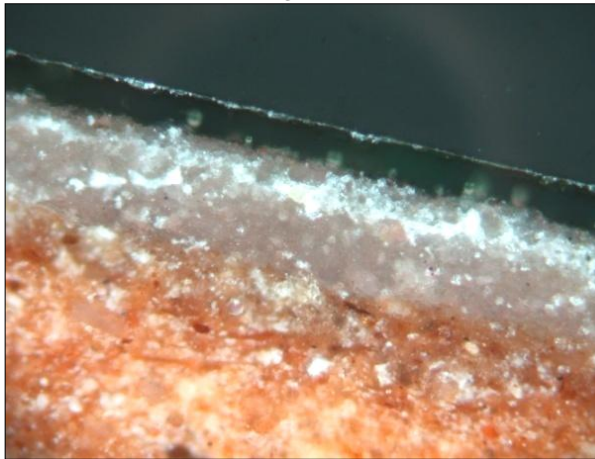
Kuva 19



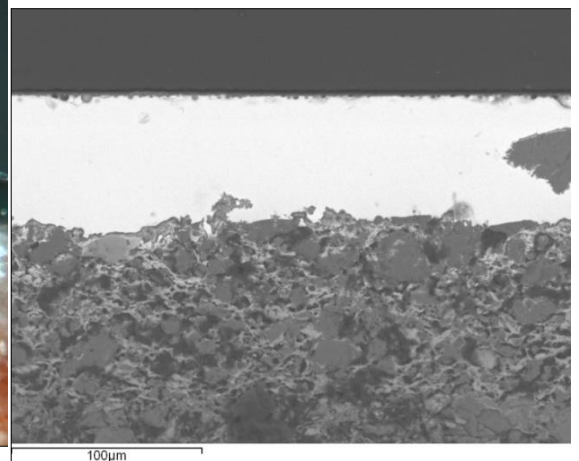
Rim of bowl or plate, monochrome green lead glaze.



Drawing of Kuva 19 rim.



OM image: glaze over engobe.

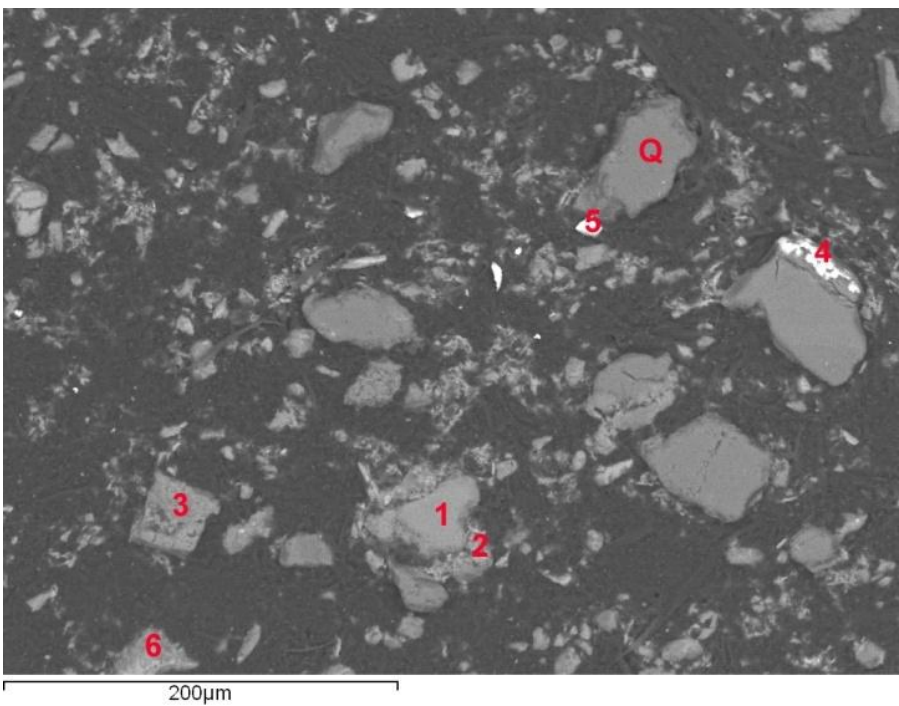
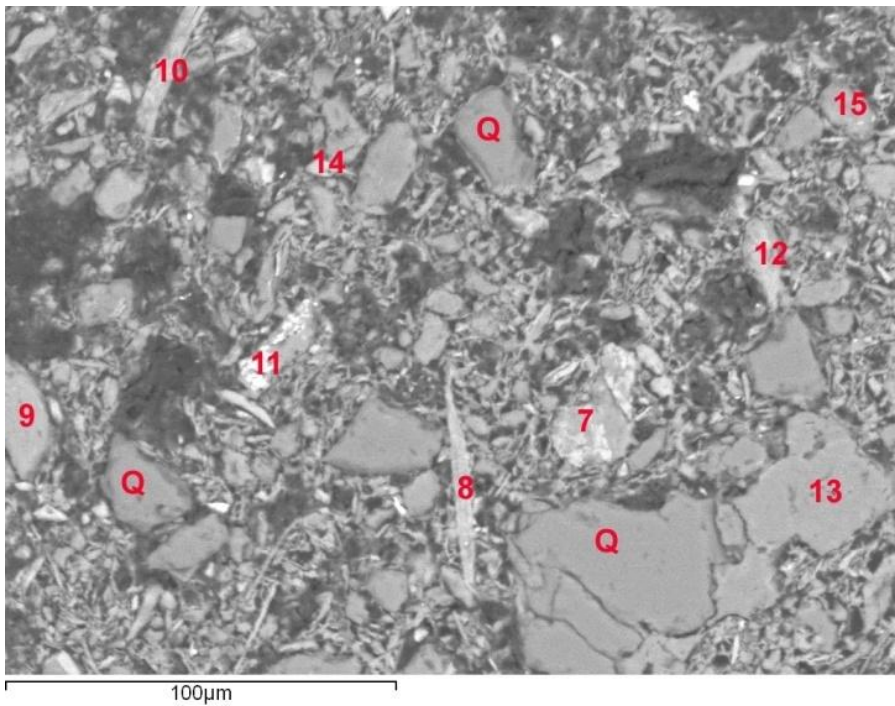


BSE image: Interior glaze over body.

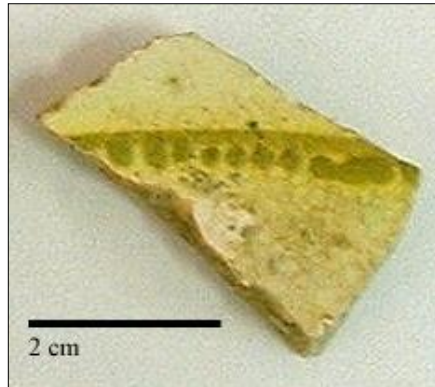
Kuva 19 Glaze											
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	PbO	CuO	AT%
Glaze 1	middle	0.0	0.0	3.5	36.3	0.9	1.1	0.6	51.6	6.0	99
Glaze 1	middle	0.0	0.0	3.5	36.9	0.9	1.1	0.6	51.1	5.8	98
Glaze 2	middle	0.0	0.0	3.9	37.5	0.9	1.0	0.7	50.6	5.4	95
Glaze 2	middle	0.0	0.0	4.0	37.2	1.3	1.1	0.6	50.7	5.1	94
Glaze 3	middle	0.0	0.6	4.1	39.0	0.9	1.6	0.8	48.8	4.3	92
Glaze 3	middle	0.0	0.5	4.2	39.9	1.2	1.6	0.7	47.7	4.3	91
Glaze 2	interface	0.4	0.0	16.6	59.3	12.7	0.0	0.4	10.4	0.0	89
Glaze 2	interface	0.6	0.0	12.3	58.9	10.1	0.0	0.9	15.6	1.2	84
Glaze 2	inclusion	0.5	0.0	17.1	66.1	16.3	0.0	0.0	0.0	0.0	101
Average Glaze	middle	0.0	0.2	3.9	37.8	1.0	1.2	0.7	50.1	5.2	
St. Deviation			0.3	0.3	1.3	0.2	0.3	0.1	1.5	0.7	
St. Error			0.1	0.1	0.6	0.1	0.1	0.0	0.6	0.3	

Kuva 19 Body												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	TiO2	Fe2O3	P2O5	SO3	AT%
Body 1	bulk	1.4	3.3	12.1	57.2	2.9	15.7	0.8	5.7	0.0	1.0	61
Body 2	bulk	1.0	3.2	12.9	59.1	3.3	13.4	0.8	5.4	0.0	0.9	63
Body 3	bulk	1.0	3.1	12.4	60.0	3.2	12.9	0.6	5.8	0.0	0.9	56
Average body	bulk	1.1	3.2	12.4	58.8	3.2	14.0	0.7	5.6		0.9	
St. Deviation		0.2	0.1	0.4	1.4	0.2	1.5	0.1	0.2		0.0	
St. Error		0.1	0.1	0.2	0.8	0.1	0.9	0.1	0.1		0.0	

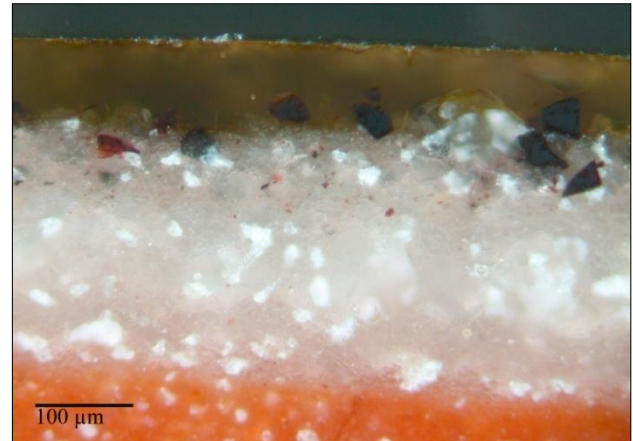
Kuva 19 Inclusions															
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	TiO2	Fe2O3	P2O5	SO3	Cr2O3	MnO	NiO	AT %
Inclusions 1	spot		1.9		5.1	0.6	87.9			3.2	1.4				55
Inclusions 2	spot	10.1		18.2	71.0	0.4	0.3								106
Inclusions 3	spot	1.2	3.1	24.7	45.8	7.0	6.7		11.6						71
Inclusions 4	spot		1.5		1.6				96.5			0.5			90
Inclusions 5	spot				2.3		0.4		22.9		0.9	4.2	0.5	68.8	112
Inclusions 6	spot	1.8	9.6	21.5	46.3	5.3	1.4	0.8	13.4						104
Inclusions 7	spot	1.6	2.8	15.1	52.8	8.0	6.6	6.8	6.2						100
Inclusions 8	spot	0.7	8.8	12.3	38.4	7.1	6.7	3.8	22.2						75
Inclusions 9	spot	1.7	3.3	26.1	53.2	10.4	0.9	0.5	3.9						93
Inclusions 10	spot	1.0	10.9	16.5	37.5	7.7	1.1	1.4	23.9						71
Inclusions 11	spot	0.9	3.1	6.9	14.0	2.1	3.8		68.4	0.9					82
Inclusions 12	spot	1.4	11.7	14.8	48.2	3.6	3.2		17.1						94
Inclusions 13	spot			30.8	48.4	0.7	19.0		1.1						87
Inclusions 14	spot	0.6	22.3	16.4	34.5	3.0	0.5		22.7						92
Inclusions 15	spot	1.0	1.2	12.3	76.9	4.6	1.9		2.2						100
Q = quartz															



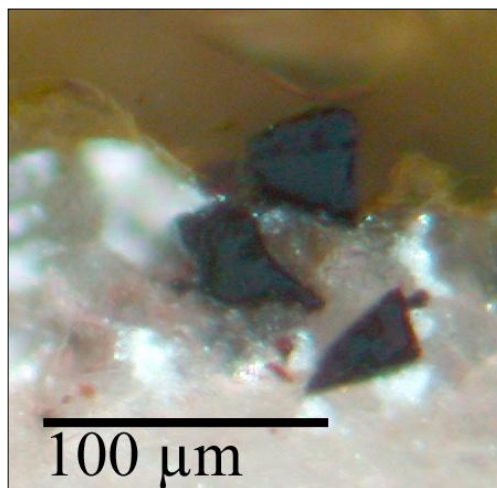
Kuva 20



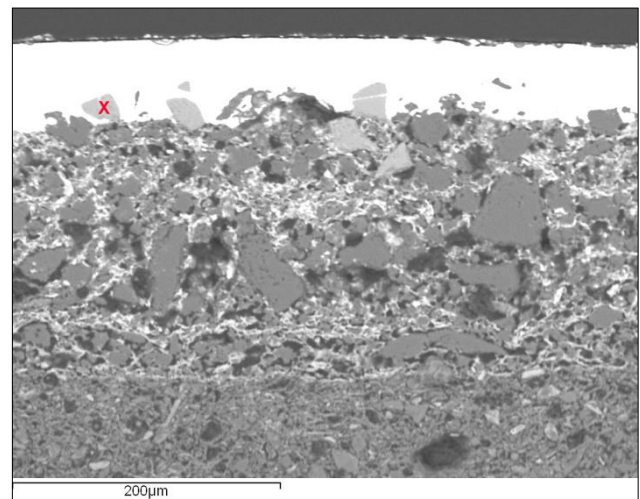
Body sherd, slipware pseudo-kufic in olive, under transparent lead glaze.



OM image: Olive decoration over engobe.



OM image: Closeup of chromite minerals in olive decoration at glaze/body interface.



BSE image: Olive decoration over engobe, 'X' marks spot analysis. See table below - 'Slip inclusion'.

Kuva 20 Glaze										
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	PbO	AT%
olive 1	middle	0.00	0.00	1.7	38.0	0.5	0.6	1.0	58.2	97
olive 1	middle	0.00	0.00	2.0	38.8	0.6	1.0	0.7	56.9	99
olive 2	middle	0.00	0.00	1.7	37.7	0.5	0.6	0.0	59.6	96
olive 2	middle	0.00	0.00	1.5	37.7	0.4	0.5	0.0	60.0	93
olive 3	middle	0.00	0.00	1.7	38.5	0.6	0.8	0.0	58.5	92
Colourless 1	middle	0.00	0.00	1.5	40.3	0.0	0.5	0.0	57.7	68
Colourless 1	middle	0.00	0.00	1.8	39.6	0.6	0.8	0.0	57.2	71
Colourless 2	middle	0.00	0.00	1.8	39.4	0.5	0.0	0.0	58.2	78
Colourless 2	middle	0.00	0.00	1.9	39.5	0.7	0.6	0.0	57.4	75
Colourless 3	middle	0.00	0.00	1.8	40.3	1.0	0.0	0.0	57.0	108
Colourless 3	middle	0.00	0.00	2.6	40.1	1.1	0.0	0.0	56.2	103
olive 2	interface	0.7	0.8	10.7	59.9	5.8	1.0	1.1	20.0	40
olive 2	interface	0.0	0.0	1.5	95.7	0.2	0.0	0.0	2.5	115
Average olive	middle	0.0	0.0	1.7	38.1	0.5	0.7	0.4	58.6	
St. Deviation				0.2	0.5	0.1	0.2	0.5	1.2	
St. Error				0.1	0.2	0.0	0.1	0.2	0.5	
Average colourless	middle	0.0	0.0	1.9	39.9	0.7	0.3	0.0	57.3	
St. Deviation				0.4	0.4	0.4	0.4	0.0	0.7	
St. Error				0.2	0.2	0.2	0.2	0.0	0.3	

Kuva 20 Engobe												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	PbO	CuO	Cr2O3	AT%
olive 1	slip	0.0	0.6	5.3	82.1	1.2	0.5	0.8	9.6	0.0	0.0	76
olive 1	slip	0.0	0.7	5.0	82.9	1.3	0.6	0.9	7.2	0.0	1.4	79
olive 1	engobe	0.4	0.6	8.4	80.1	3.5	0.4	0.7	5.9	0.0	0.0	81
olive 1	slip inclusion	0.0	16.0	10.4	0.8	0.0	0.0	9.1	0.0	1.4	62.3	104
olive 2	slip	0.0	0.4	4.6	84.2	1.6	0.0	0.5	8.6	0.0	0.0	72
olive 2	engobe	0.0	0.7	9.3	72.5	2.2	0.9	0.8	13.6	0.0	0.0	76
olive 3	slip	0.3	0.0	4.7	77.1	4.7	0.6	1.3	11.3	0.0	0.0	58
olive 3	slip	0.0	1.1	13.1	59.3	3.3	0.0	1.1	21.7	0.0	0.0	71
olive 3	slip	0.0	0.6	7.5	77.1	1.3	0.0	0.5	13.1	0.0	0.0	82
Colourless 1	engobe	0.0	0.0	4.3	87.5	1.2	0.0	0.0	7.0	0.0	0.0	63
Colourless 2	engobe	0.0	0.0	6.4	80.7	1.5	0.6	0.0	10.8	0.0	0.0	64
Colourless 3	engobe	0.0	0.6	5.9	80.7	1.7	0.0	0.7	10.5	0.0	0.0	65
Average olive	slip/engobe	0.1	0.6	7.3	76.9	2.4	0.4	0.8	11.4	0.0	0.2	
St. Deviation		0.2	0.3	3.0	8.1	1.3	0.4	0.3	5.0		0.5	
St. Error		0.1	0.1	1.1	2.9	0.5	0.1	0.1	1.8		0.2	
Average colourless	engobe	0.0	0.2	5.5	83.0	1.5	0.2	0.3	9.4	0.0	0.0	
St. Deviation		0.0	0.3	1.1	4.0	0.2	0.4	0.4	2.1			
St. Error		0.0	0.2	0.7	2.3	0.1	0.2	0.3	1.2			

Kuva 20 Body												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	TiO2	Fe2O3	P2O5	SO3	AT%
Body 1	bulk	0.8	3.1	14.3	59.1	3.3	12.7	0.0	5.7	1.0	0.0	82
Body 2	bulk	0.9	3.3	14.1	63.9	3.8	8.2	0.7	5.2	0.0	0.0	58
Body 3	bulk	1.0	2.3	12.8	58.2	3.3	14.5	0.0	6.0	0.0	1.9	77
Body 4	bulk	0.8	3.0	13.9	62.4	3.3	9.5	0.9	6.2	0.0	0.0	32
Body 5	bulk	0.8	2.9	14.0	64.0	3.9	8.1	0.7	5.7	0.0	0.0	
Average body	bulk	0.9	2.9	13.8	61.5	3.5	10.6	0.5	5.8	0.2	0.4	
St. Deviation		0.1	0.4	0.6	2.7	0.3	2.9	0.4	0.4	0.4	0.8	
St. Error		0.0	0.2	0.3	1.2	0.1	1.3	0.2	0.2	0.2	0.4	

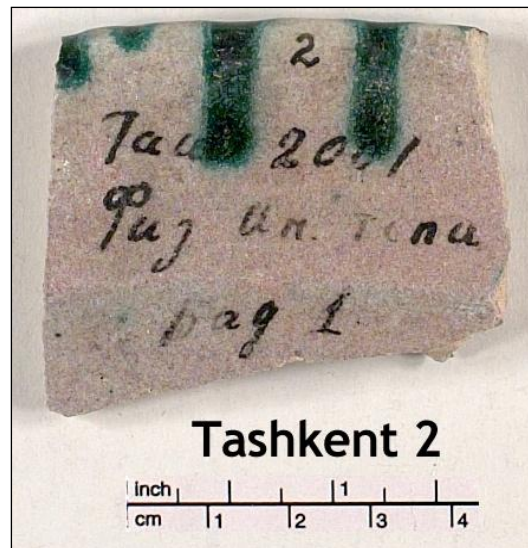
Tashkent 2



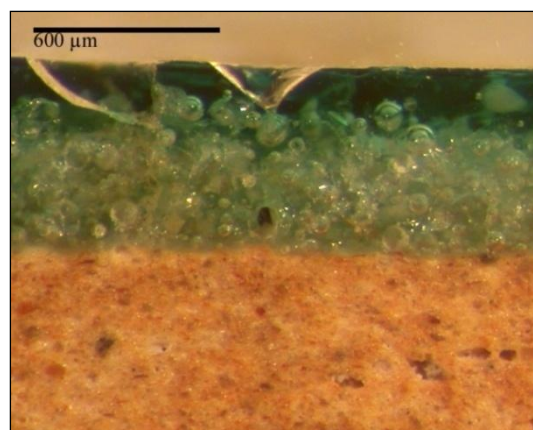
Rim sherd, dark green *ishkor* with lilac/colourless background.



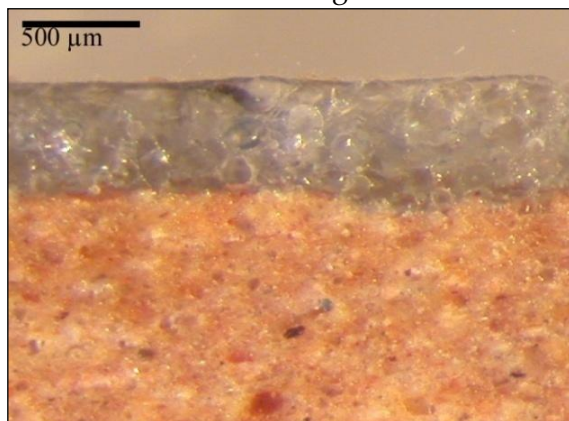
Drawing



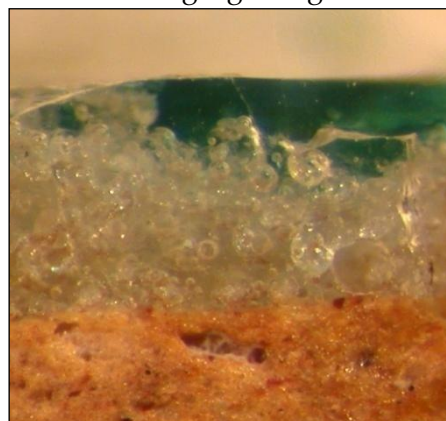
Rim sherd, back.



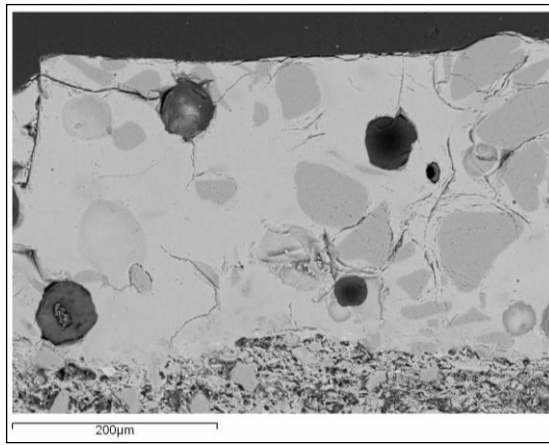
OM image: green glaze .



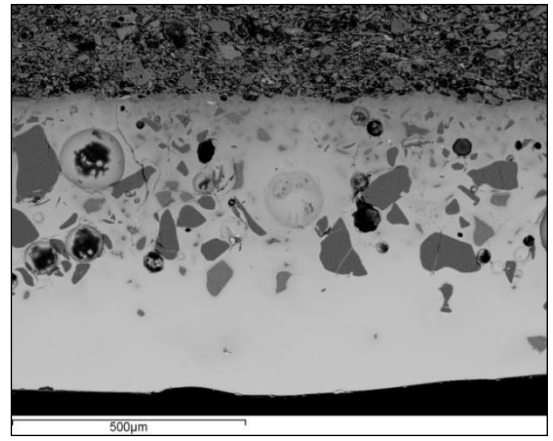
OM image: lilac glaze .



OM image: green glaze.



BSE image: lilac glaze.

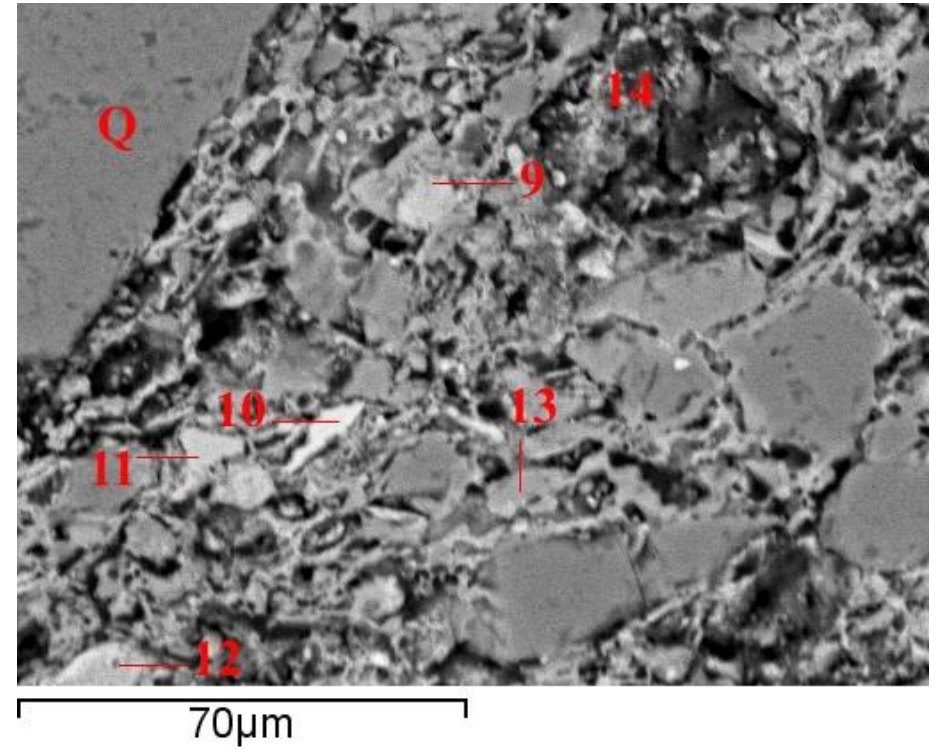
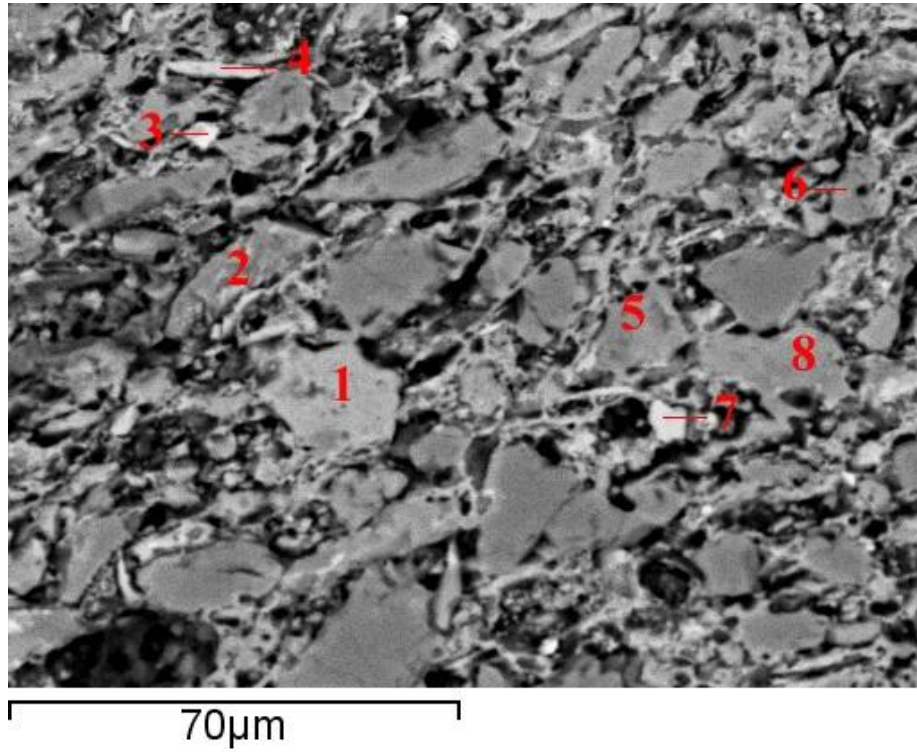


BSE image: green glaze.

Tashkent 2 glaze														
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	MnO	CuO	Cl	AT%
Green 1	upper	3.1	0.4	3.1	51.4	3.1	2.8	0.0	0.0	31.4	0.0	4.8	0.0	96
Green 1	upper	3.2	0.4	4.8	52.7	3.5	2.3	0.0	0.0	29.2	0.0	3.9	0.0	139
Green 1	lower	3.9	1.2	6.6	74.8	5.9	3.7	0.9	0.0	1.1	0.0	1.6	0.3	98
Green 2	upper	2.8	0.0	3.4	50.0	3.0	3.0	0.0	0.0	33.3	0.0	4.6	0.0	35
Green 2	upper	2.6	0.7	3.0	48.9	2.9	2.8	0.6	0.0	33.8	0.0	4.7	0.0	112
Green 2	lower	3.3	1.4	6.1	71.5	5.8	3.3	0.6	0.0	5.0	0.0	2.7	0.4	111
Green 3	lower	4.8	2.1	6.0	77.4	5.5	4.3	0.0	0.0	0.0	0.0	0.0	0.0	20
Green 3	middle	5.8	1.5	4.3	78.3	5.1	4.0	1.0	0.0	0.0	0.0	0.0	0.0	30
Green 3	upper	4.0	0.7	4.5	67.8	5.0	3.7	0.0	0.0	14.4	0.0	0.0	0.0	56
Lilac 1	upper	6.3	1.8	4.2	73.7	5.1	3.4	0.5	0.0	4.0	0.6	0.0	0.3	112
Lilac 1	upper	5.9	2.0	3.5	75.1	5.1	3.6	0.5	0.0	3.9	0.0	0.0	0.3	150
Lilac 1	lower	5.1	1.4	6.2	74.8	6.0	4.1	0.8	0.0	1.3	0.0	0.0	0.4	79
Lilac back 1	upper	5.0	1.6	4.6	74.5	6.3	4.2	1.2	0.0	2.1	0.5	0.0	0.0	120
Lilac back 1	upper	4.4	1.1	8.7	73.9	7.7	2.4	0.9	0.6	0.0	0.0	0.0	0.4	96
Lilac back 1	lower	3.7	1.2	9.0	74.5	8.0	3.2	0.5	0.0	0.0	0.0	0.0	0.0	86
Lilac back 2	upper	4.6	1.3	4.9	77.9	6.1	2.9	0.5	0.0	1.5	0.0	0.0	0.3	111
Lilac back 2	middle	5.2	1.5	4.3	78.0	6.3	3.7	0.6	0.0	0.0	0.0	0.0	0.3	68
Lilac back 2	lower	3.8	1.6	7.5	75.4	6.8	3.5	1.5	0.0	0.0	0.0	0.0	0.0	72
Average green		3.7	0.9	4.7	63.7	4.4	3.3	0.3	0.0	16.4	0.0	2.5	0.1	
St.Deviation		1.0	0.7	1.4	12.7	1.3	0.7	0.4	0.0	15.3	0.0	2.1	0.2	
St. Error		0.3	0.2	0.5	4.2	0.4	0.2	0.1	0.0	5.1	0.0	0.7	0.1	
Average lilac		4.9	1.5	5.9	75.3	6.4	3.5	0.8	0.1	1.4	0.1	0.0	0.2	
St.Deviation		0.9	0.3	2.0	1.6	1.0	0.6	0.4	0.2	1.6	0.2	0.0	0.2	
St. Error		0.3	0.1	0.7	0.5	0.3	0.2	0.1	0.1	0.5	0.1	0.0	0.1	

Tashkent 2 body										
Area 2	Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	AT%
Body 1	bulk	1.0	2.3	12.4	62.9	3.2	13.2	4.9	0.0	21
Body 2	bulk	1.0	2.3	11.5	63.4	3.3	13.6	5.0	0.0	116
Body 3	bulk	0.8	2.2	11.4	64.7	2.7	13.0	5.2	0.0	67
Average		0.9	2.3	11.8	63.7	3.1	13.3	5.1	0.0	
St. Deviation		0.1	0.1	0.6	0.9	0.3	0.3	0.2	0.0	
St. Error		0.1	0.1	0.3	0.5	0.2	0.2	0.1	0.0	

Tashkent 2 inclusions													
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	MnO	P2O5	SO3	AT%
Inclusion 1	spot		2.7	26.9	41.8		23.9	4.8					101
Inclusion 2	spot	0.4	1.7	2.8	90.0	0.8	3.1	1.2					100
Inclusion 3	spot	0.7	2.0	11.3	33.9	0.3	18.7	8.0	25.1				106
Inclusion 4	spot	0.5	12.1	19.3	36.2	0.6	12.8	18.1		0.5			106
Inclusion 5	spot	1.1	1.4	6.7	83.2	4.2	2.2	1.3					103
Inclusion 6	spot	0.8	0.8	4.4	86.8	3.1	2.5	1.6					103
Inclusion 7	spot		0.4	1.5	5.0		51.2	1.1			39.4	1.1	94
Inclusion 8	spot	1.6		15.2	70.6	11.4	0.9		0.4				100
Inclusion 9	spot	0.5	10.5	24.5	34.3	0.7	14.1	14.8	0.6				91
Inclusion 10	spot			1.4	31.9		27.3	2.0	37.4				87
Inclusion 11	spot	0.4		22.2	41.4		23.0	13.1					92
Inclusion 12	spot	0.6	6.5	20.5	37.5	0.5	14.5	19.8					80
Inclusion 13	spot	1.8		16.4	67.0	13.2	0.6	1.0					88
Inclusion 14	spot	0.8	5.7	15.1	46.8	0.4	18.9	10.0	0.5		1.6		75
Q = quartz													95



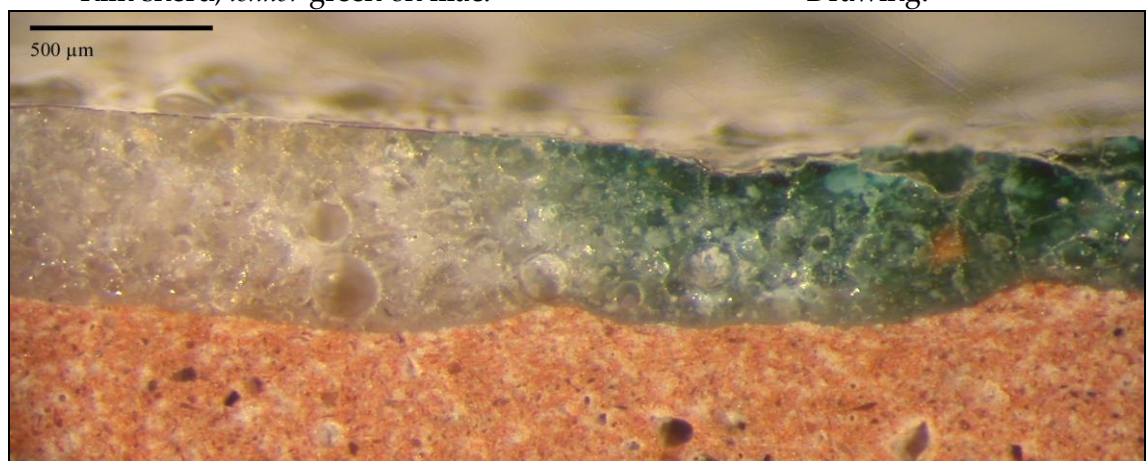
Tashkent 4



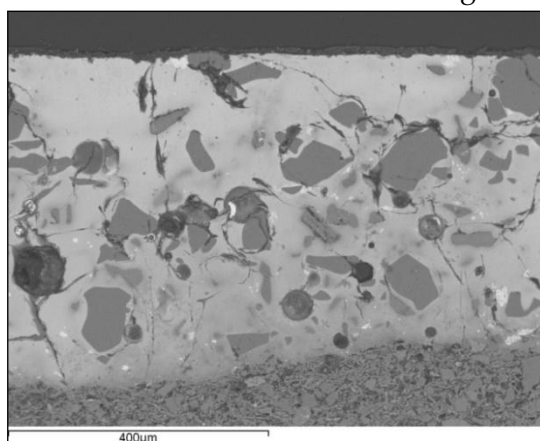
Rim sherd, *ishkor* green on lilac.



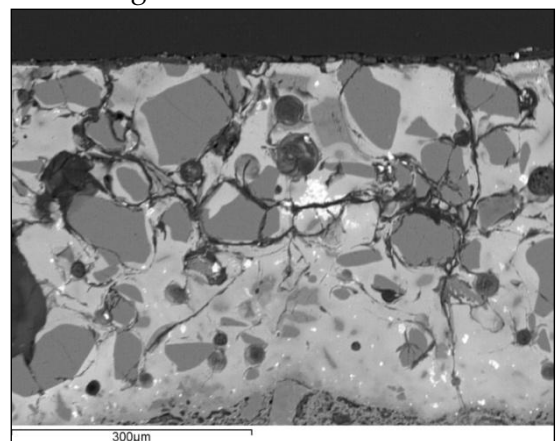
Drawing.



OM image: Green and lilac glaze.



BSE image: Green glaze.

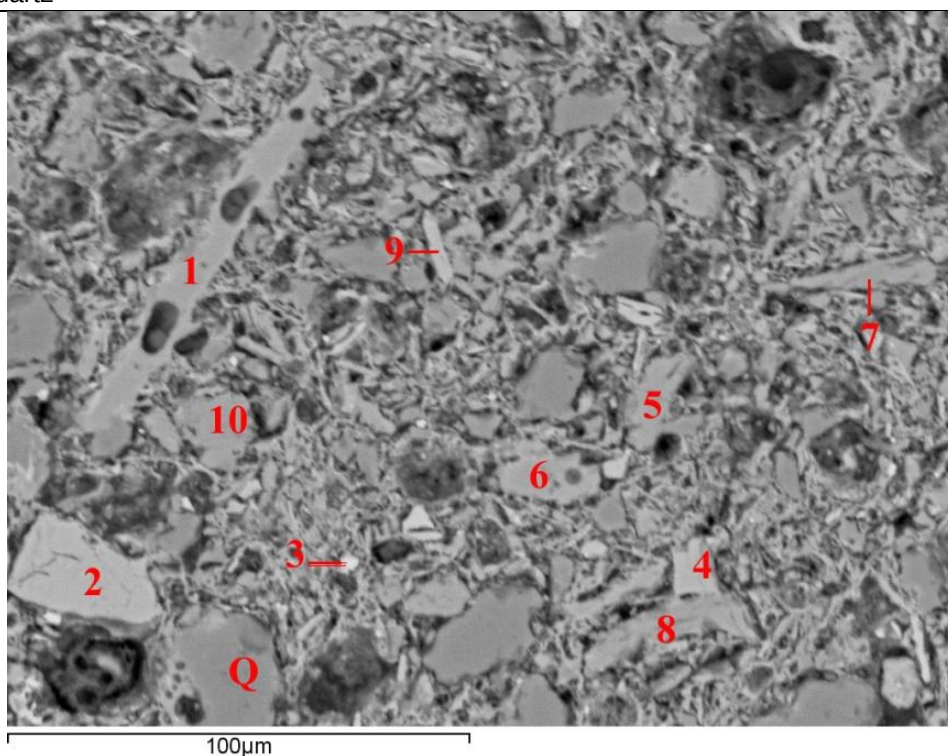


BSE image: Lilac glaze.

Tashkent 4 glaze																
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	CuO	MnO	SnO2	P2O5	Cl	AT%
Dark green	upper	3.0	0.7	3.8	55.7	3.6	3.0	0.0	0.0	18.7	11.5	0.0	0.0	0.0	0.0	59
Dark green	upper	2.9	1.2	2.7	56.3	3.3	2.9	0.0	0.0	19.4	11.4	0.0	0.0	0.0	0.0	88
Dark green	lower	3.5	1.2	4.8	65.3	3.8	4.8	0.0	0.0	11.3	5.4	0.0	0.0	0.0	0.0	61
Green	upper	3.1	0.9	2.8	59.9	3.6	3.5	0.0	0.0	18.3	8.0	0.0	0.0	0.0	0.0	45
Green	upper	3.2	0.8	3.2	62.8	3.8	2.9	0.7	0.0	16.0	6.7	0.0	0.0	0.0	0.0	103
Green	lower	3.2	1.9	4.7	68.7	4.2	5.8	1.0	0.0	7.4	2.7	0.0	0.0	0.0	0.4	81
Green 2	upper	3.7	0.9	3.1	61.5	3.3	3.2	0.0	0.0	16.7	7.6	0.0	0.0	0.0	0.0	78
Green 2	upper	3.8	1.0	3.2	59.6	3.0	3.7	0.7	0.0	17.3	7.6	0.0	0.0	0.0	0.0	125
Green 2	lower	3.7	1.6	5.5	65.3	4.2	4.3	0.8	0.0	10.7	3.8	0.0	0.0	0.0	0.3	118
Green	inclusion	2.4	1.2	2.0	48.6	0.0	2.7	0.0	0.0	8.1	3.1	0.0	32.0	0.0	0.0	128
Lilac	upper	4.7	1.7	2.9	73.1	3.7	3.6	0.8	0.0	9.8	0.0	0.0	0.0	0.0	0.0	110
Lilac	upper	4.9	2.1	3.2	70.5	4.3	4.5	0.7	0.0	9.9	0.0	0.0	0.0	0.0	0.0	123
Lilac	lower	4.1	1.5	4.9	71.7	4.3	5.1	0.6	0.0	7.6	0.0	0.0	0.0	0.0	0.3	124
Lilac 2	upper	3.4	0.7	3.9	81.6	3.8	1.4	0.0	0.0	5.2	0.0	0.0	0.0	0.0	0.0	111
Lilac 2	upper	4.5	1.6	2.0	72.9	4.0	3.7	0.7	0.0	10.5	0.0	0.0	0.0	0.0	0.0	123
Lilac 2	lower	4.2	1.3	5.8	70.9	4.7	4.3	1.1	0.0	7.2	0.0	0.4	0.0	0.0	0.0	125
Lilac 2	inclusion	3.3	0.9	1.3	46.8	0.0	3.3	0.0	0.0	6.2	0.0	0.0	38.2	0.0	0.0	119
Average green	all glaze	3.3	1.1	3.7	61.7	3.6	3.8	0.3	0.0	15.1	7.2	0.0	0.0	0.0	0.1	
St. Deviation		0.3	0.4	1.0	4.3	0.4	1.0	0.4	0.0	4.2	3.0	0.0	0.0	0.0	0.2	
St. Error		0.1	0.1	0.3	1.4	0.1	0.3	0.1	0.0	1.4	1.0	0.0	0.0	0.0	0.1	
Average lilac	all glaze	4.3	1.5	3.8	73.4	4.1	3.8	0.6	0.0	8.4	0.0	0.1	0.0	0.0	0.1	
St. Deviation		0.5	0.5	1.4	4.1	0.4	1.3	0.4	0.0	2.0	0.0	0.2	0.0	0.0	0.1	
St. Error		0.2	0.2	0.6	1.7	0.2	0.5	0.1	0.0	0.8	0.0	0.1	0.0	0.0	0.1	

Tashkent 4 body									
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	AT%
Body 1	0.7	2.3	11.4	60.9	3.4	15.0	5.5	0.9	87
Body 2	1.1	2.3	12.0	60.5	3.1	14.6	5.6	0.8	77
Body 3	0.8	2.0	11.0	65.7	3.1	11.5	5.2	0.8	92
Average	0.9	2.2	11.5	62.4	3.2	13.7	5.4	0.8	
St. Deviation	0.2	0.2	0.5	2.9	0.2	1.9	0.2	0.1	
St. Error	0.1	0.1	0.3	1.7	0.1	1.1	0.1	0.0	

Tashkent 4 inclusions										
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	P2O5	AT%
Inclusions 1	3.5	3.4	27.5	51.8	7.0	2.3	4.4	0.3		101
Inclusions 2	0.7	15.7	5.0	53.7	1.0	12.1	11.5	0.5		101
Inclusions 3	1.7	4.9	18.4	49.6	0.7	14.5	7.1	2.5	0.6	95
Inclusions 4	0.5	4.6	16.6	47.6	0.6	20.6	8.1	0.5	1.1	83
Inclusions 5	1.4	2.3	14.8	55.0	5.9	6.5	11.9	2.4		71
Inclusions 6	2.7	2.9	23.1	54.1	7.0	3.4	6.4	0.5		83
Inclusions 7	2.3	2.9	19.1	58.2	7.2	5.3	4.6	0.4		90
Inclusions 8	1.4	2.4	20.0	43.5	6.8	10.9	13.6	1.4		36
Inclusions 9	1.7	10.5	18.7	44.4	3.4	6.2	14.8	0.6		71
Inclusions 10	0.7	1.0	9.0	79.7	4.0	4.0	1.7			91
Q = quartz										



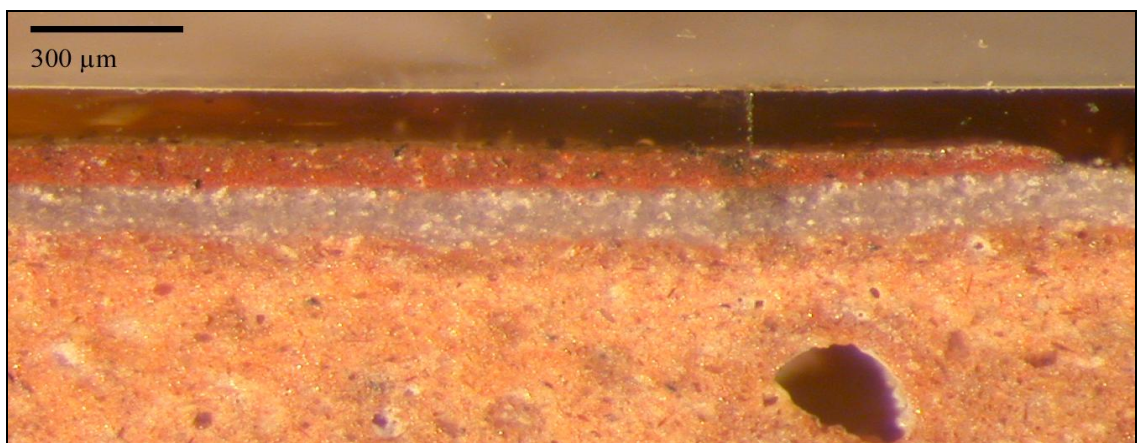
Tashkent 10



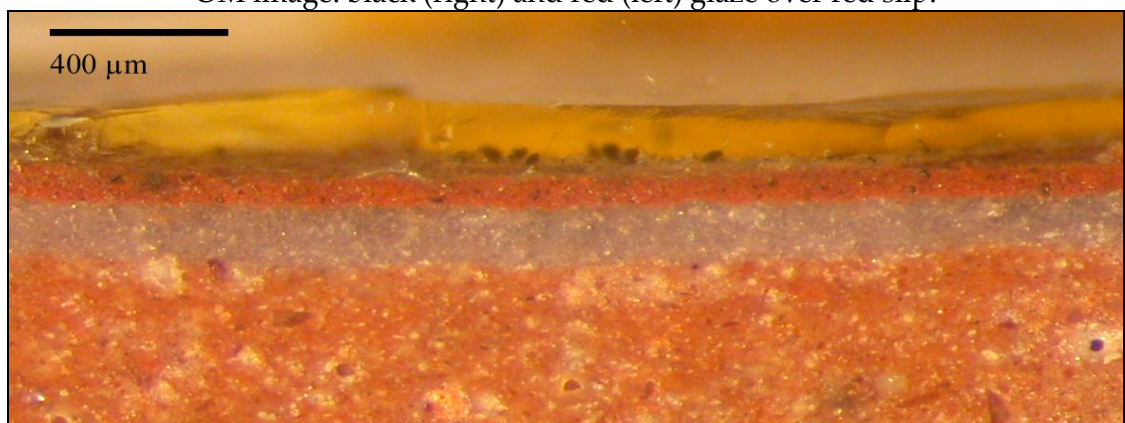
Rim sherd, polychrome slipware.



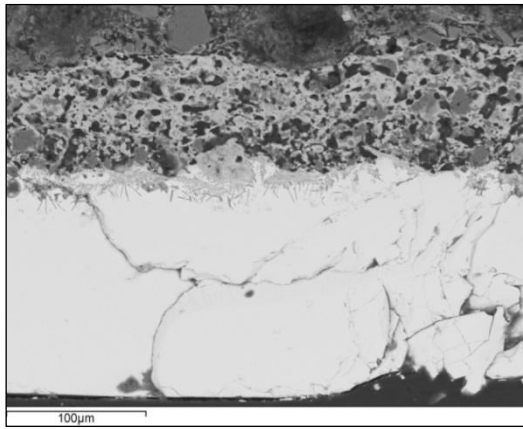
Drawing.



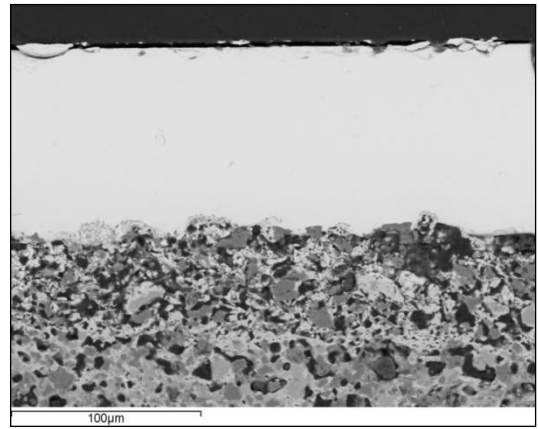
OM image: black (right) and red (left) glaze over red slip.



OM image: colourless glaze over red slip.



BSE image: black glaze.



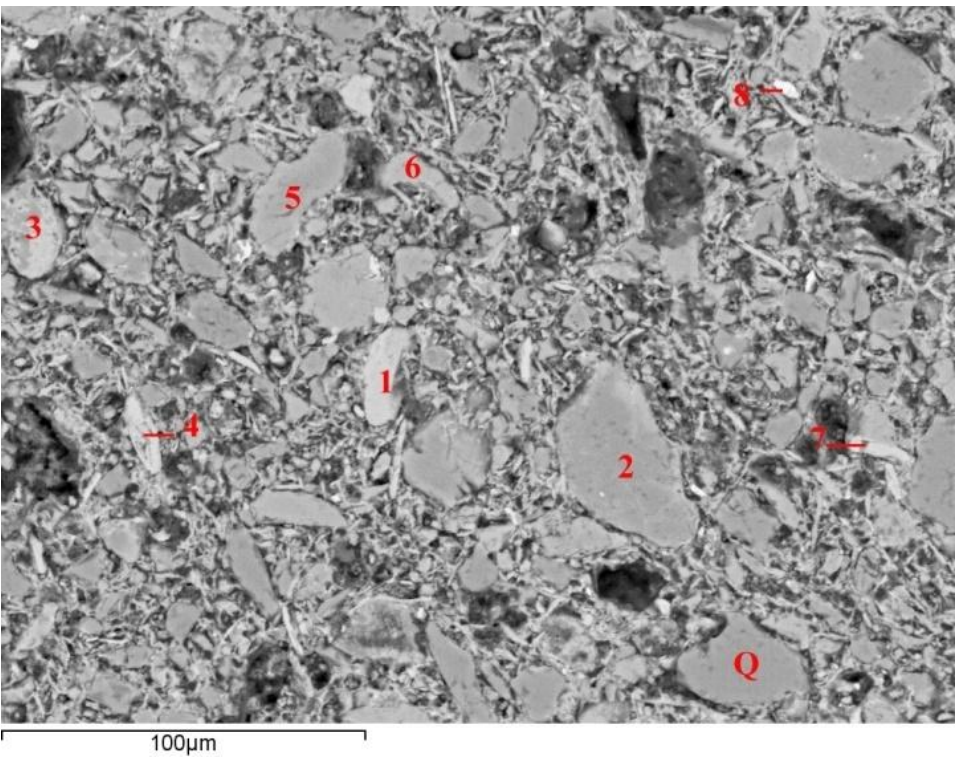
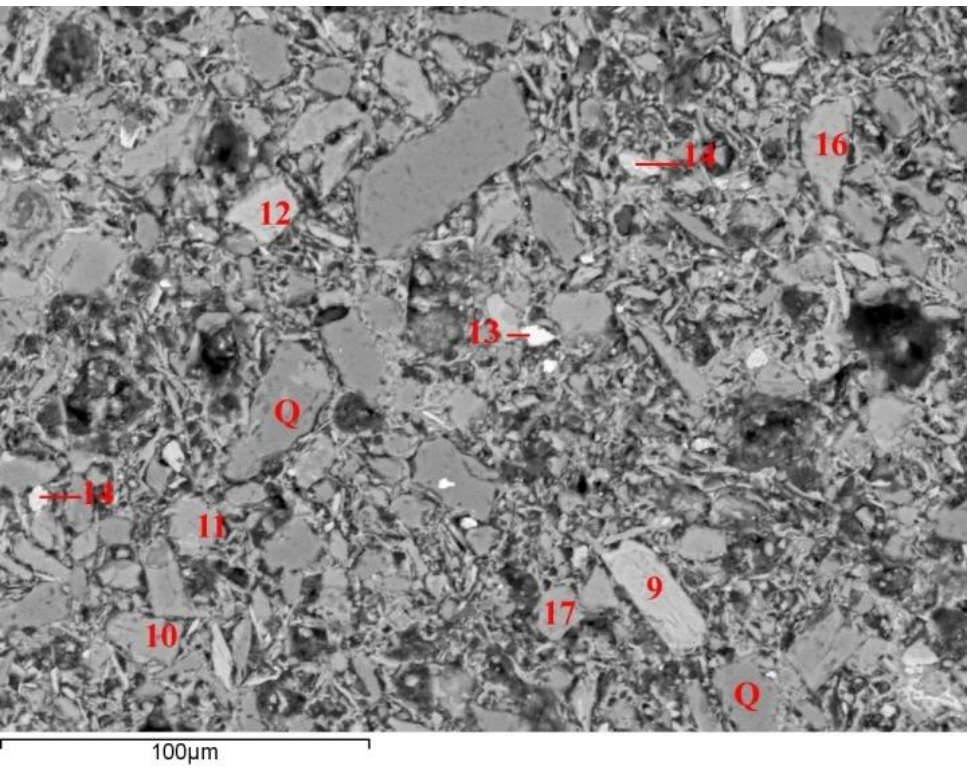
BSE image: colourless glaze over engobe.

Tashkent 10 glaze											
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	PbO	MnO	AT%
Red	upper	0.0	0.0	3.1	39.3	0.0	0.0	0.0	57.6	0.0	42
Red	upper	0.0	0.0	3.1	39.0	0.9	0.0	0.0	57.0	0.0	65
Red	lower	0.0	0.0	6.0	42.4	1.4	0.0	1.7	48.5	0.0	39
Red 2	upper	0.0	0.0	2.6	38.4	1.0	0.0	1.5	56.5	0.0	50
Red 2	upper	0.0	0.0	2.2	39.4	0.0	0.0	1.4	57.0	0.0	84
Black	upper	0.0	0.0	2.3	39.6	1.2	0.0	1.6	55.3	0.0	81
Black	upper	0.0	0.0	2.3	38.1	0.8	0.0	2.1	55.7	0.9	106
Black 2	upper	0.0	0.0	2.4	41.6	1.3	0.0	1.8	53.0	0.0	76
Black 2	upper	0.0	0.0	2.5	40.7	1.4	0.0	2.1	52.0	1.3	97
Colourless	upper	0.7	0.0	2.4	41.2	1.8	0.0	0.0	53.9	0.0	106
Colourless	upper	0.6	0.0	2.3	41.1	1.8	0.7	0.0	53.5	0.0	125
Colourless	lower	0.5	0.0	3.5	47.5	2.8	0.0	0.0	45.7	0.0	129
Colourless 2	upper	0.0	0.0	2.1	41.7	1.6	0.0	0.0	54.6	0.0	89
Colourless 2	upper	0.0	0.0	2.2	41.7	1.5	0.0	0.0	54.6	0.0	102
Average red	all	0.0	0.0	4.1	40.2	0.7	0.0	0.6	54.4	0.0	
St. Deviation		0.0	0.0	1.7	1.9	0.7	0.0	1.0	5.1	0.0	
St. Error		0.0	0.0	1.0	1.1	0.4	0.0	0.6	3.0	0.0	
Average black	all	0.0	0.0	2.4	39.6	1.0	0.0	1.8	54.9	0.4	
St. Deviation		0.0	0.0	0.1	1.3	0.5	0.0	0.3	2.0	0.6	
St. Error		0.0	0.0	0.1	0.5	0.2	0.0	0.1	0.8	0.3	
Average colourless	all	0.4	0.0	2.5	42.6	1.9	0.1	0.0	52.5	0.0	
St. Deviation		0.4	0.0	0.6	2.7	0.5	0.3	0.0	3.8	0.0	
St. Error		0.2	0.0	0.3	1.2	0.2	0.1	0.0	1.7	0.0	

Tashkent 10 slip and engobe												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	Cr2O5	AT%
Red	red slip	0.0	0.0	15.7	53.2	4.1	0.0	7.9	0.0	19.1	0.0	28
Red	red slip	0.0	0.0	13.4	63.9	4.0	0.0	4.7	0.0	14.0	0.0	59
Red	red slip	0.0	0.8	14.4	54.7	4.1	0.0	6.8	0.0	17.5	1.7	64
Red	engobe	0.9	0.0	17.0	65.3	4.3	0.0	0.0	0.0	12.6	0.0	46
Red	engobe	0.8	0.0	15.0	67.3	4.3	1.3	0.0	0.0	11.3	0.0	64
Red 2	engobe	0.0	0.0	18.3	63.0	5.0	1.4	0.0	0.0	12.5	0.0	50
Red 2	engobe	0.7	0.7	17.6	64.8	4.5	0.0	0.0	0.0	11.8	0.0	84
Red 2	red slip	0.7	0.0	17.3	51.9	5.0	0.0	6.6	0.0	18.4	0.0	43
Black	engobe	0.0	0.0	15.4	65.6	5.8	0.0	0.0	0.0	13.2	0.0	46
Black	engobe	0.6	0.0	19.3	58.1	5.9	0.0	0.0	0.0	16.1	0.0	78
Black 2	engobe	0.6	0.7	19.2	57.3	6.2	1.0	0.0	0.0	15.0	0.0	66
Colourless	engobe	0.0	0.7	17.7	56.7	4.9	2.7	0.0	0.0	17.3	0.0	74
Colourless	engobe	1.0	0.6	15.9	66.8	6.4	1.6	0.0	0.7	7.2	0.0	98
Colourless 2	engobe	0.8	0.0	17.3	59.4	5.4	1.6	0.0	0.0	15.6	0.0	54
Average red slip	all	0.2	0.2	15.2	55.9	4.3	0.0	6.5	0.0	17.3	0.4	
St. Deviation		0.4	0.4	1.7	5.4	0.5	0.0	1.3	0.0	2.3	0.9	
St. Error		0.2	0.2	0.8	2.7	0.2	0.0	0.7	0.0	1.1	0.4	
Average engobe	all	0.5	0.3	17.3	62.4	5.3	1.0	0.0	0.1	13.3	0.0	
St. Deviation		0.4	0.3	1.5	4.1	0.8	0.9	0.0	0.2	2.9	0.0	
St. Error		0.1	0.1	0.5	1.3	0.3	0.3	0.0	0.1	0.9	0.0	

Tashkent 10 body										
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	P2O3	AT%
Body 1	0.9	2.1	11.6	57.5	3.4	16.0	5.8	0.9	1.8	55
Body 2	0.6	2.2	11.8	57.3	3.0	16.7	6.0	1.1	1.4	123
Body 3	0.0	2.1	12.4	58.8	3.3	15.0	6.6	0.0	2.0	31
Body 4	0.7	2.3	11.8	60.1	3.1	15.1	5.5	0.0	1.3	89
Average	0.6	2.2	11.9	58.4	3.2	15.7	6.0	0.5	1.6	
St. Deviation	0.4	0.1	0.3	1.3	0.2	0.8	0.5	0.6	0.3	
St. Error	0.2	0.1	0.2	0.7	0.1	0.4	0.2	0.3	0.2	

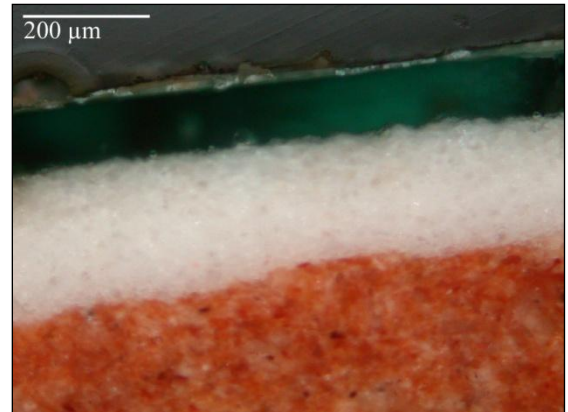
Tashkent 10 inclusions													
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	P2O3	MnO	Cr2O5	BaO	AT%
Inclusion 1	1.6	12.7	8.1	49.7	0.6	10.8	15.1	0.8		0.3	0.3		104
Inclusion 2	1.0	0.7	12.6	80.5	3.8		1.4	0.2					109
Inclusion 3	1.3	6.6	7.2	74.4	3.6	1.5	5.1			0.2			93
Inclusion 4	1.0	9.2	15.9	33.7	4.9	15.7	18.0	1.2	0.4				81
Inclusion 5	6.9		17.9	67.7	7.0	0.4	0.3						100
Inclusion 6	2.3	0.8	21.6	61.1	11.0	2.2	1.0						100
Inclusion 7	1.4	19.1	17.9	32.9	3.6	1.5	22.9			0.7			89
Inclusion 8			1.0	2.1		0.9	96.1						80
Inclusion 9			28.9	40.9		23.3	6.9						89
Inclusion 10	1.5		18.3	65.8	13.6	0.7							88
Inclusion 11	2.6		18.1	66.3	12.6		0.4						89
Inclusion 12	0.3		25.7	39.9		21.4	12.8						82
Inclusion 13		1.8	2.8	7.5	0.4	1.6	85.1	0.7					79
Inclusion 14		0.3	0.6	2.0	0.2	1.6	0.8	94.4					85
Inclusion 15	0.7	3.7	7.2	27.1	1.0	14.6	29.5	11.7	4.5				87
Inclusion 16	1.9		18.0	64.2	12.4		0.3					2.4	91
Inclusion 17	2.4		18.6	66.1	11.8	1.2							83



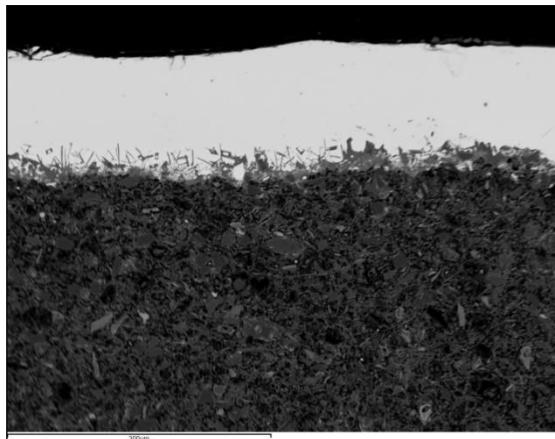
Tashkent 15



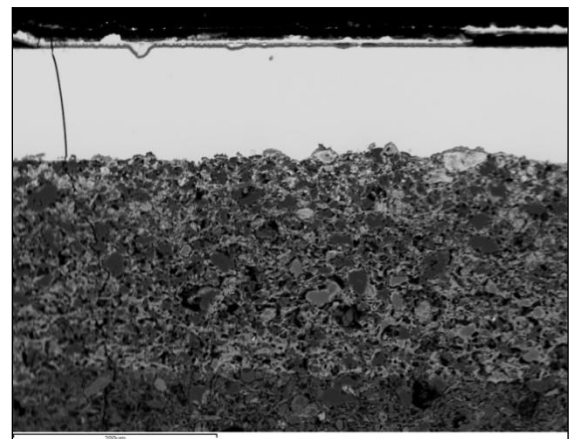
Body sherd, green glazed.



OM image: white slip.



BSE image: green glaze (scale is 300 μm).



BSE image: glaze over white slip (scale is 300 μm).

Tashkent 15 glaze											
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	PbO	CuO	AT%
Green/white spot	upper	0.0	0.0	1.9	35.5	1.0	0.0	0.0	58.2	3.5	73
Green/white spot	upper	0.0	0.0	2.4	34.9	1.0	0.0	0.0	58.4	3.4	73
Green/white spot	lower	0.0	0.0	3.3	38.8	1.4	0.0	0.0	54.2	2.4	73
Green/white spot	lower	0.0	0.0	3.2	37.3	1.6	0.5	0.0	54.2	3.1	73
Green/white spot 2	upper	0.0	0.0	2.3	33.9	0.9	0.7	0.0	57.3	5.0	76
Green/white spot 2	upper	0.0	0.0	2.4	34.1	1.1	0.6	0.0	57.9	4.1	73
Green/white spot 2	lower	0.0	0.0	3.5	37.5	1.5	0.0	0.0	55.0	2.5	72
Green	upper	0.0	0.6	3.4	34.7	1.3	3.3	1.2	52.2	3.4	74
Green	upper	0.0	0.6	3.1	34.2	1.2	2.9	1.1	53.2	3.7	73
Green	lower	0.0	0.6	4.7	35.3	1.7	2.9	2.2	49.4	3.2	73
Green reverse	upper	0.0	0.6	3.6	37.8	1.6	3.9	1.7	48.6	2.4	72
Green reverse	upper	0.0	0.7	3.6	37.4	1.5	3.7	1.6	48.9	2.6	73
Green reverse	interface	0.6	3.4	9.5	58.2	6.9	10.2	5.2	6.0	0.0	69
Green reverse 2	upper	0.0	0.0	3.7	37.8	1.6	3.8	1.6	49.6	2.0	72
Green reverse 2	upper	0.0	0.7	3.6	37.2	1.8	4.0	1.6	48.6	2.6	72
Average	all glaze	0.0	0.5	3.6	37.6	1.7	2.4	1.1	50.1	2.9	
St. Deviation		0.2	0.9	1.8	5.9	1.5	2.7	1.4	12.7	1.1	
St. Error		0.0	0.2	0.5	1.5	0.4	0.7	0.4	3.3	0.3	

Tashkent 15 slip											
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	AT %
White spot	upper	0.0	0.6	9.7	72.1	3.4	1.1	0.0	0.0	13.1	58
White spot	upper	0.0	0.7	10.7	68.6	3.1	1.0	0.0	0.0	16.0	59
White spot	lower	0.5	0.0	11.2	72.7	4.9	1.1	0.0	0.8	8.7	59
White spot	lower	0.7	0.7	13.5	67.3	6.0	1.9	0.0	0.0	9.9	58
White spot 2	upper	0.0	0.5	13.9	63.3	3.7	0.9	0.0	0.0	17.7	60
White spot 2	upper	0.4	0.5	11.8	67.1	3.7	0.0	0.0	0.0	16.5	60
White spot 2	lower	0.4	0.5	11.6	73.0	5.1	0.0	0.0	0.0	9.5	56
White spot 2	lower	0.5	0.6	11.4	71.3	4.7	1.0	0.7	0.7	9.0	60
Average	all	0.3	0.5	11.7	69.4	4.3	0.9	0.1	0.2	12.6	
St. Deviation		0.3	0.2	1.4	3.4	1.0	0.6	0.3	0.4	3.7	
St. Error		0.1	0.1	0.5	1.2	0.4	0.2	0.1	0.1	1.3	

Tashkent 15 body										
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	P2O5	AT%
Body 1	0.8	2.7	12.7	55.8	3.1	14.3	8.5	1.0	1.1	53
Body 2	0.5	2.3	11.9	54.8	2.8	17.9	6.9	0.8	2.1	53
Body 3	0.9	2.5	12.7	57.7	3.1	12.3	7.7	0.8	2.3	52
Body 4	1.0	2.3	12.5	60.0	3.5	12.1	6.9	0.0	1.9	54
Average	0.8	2.4	12.5	57.1	3.1	14.1	7.5	0.6	1.9	
St. Deviation	0.2	0.2	0.4	2.3	0.3	2.7	0.8	0.4	0.5	
St. Error	0.1	0.1	0.2	1.2	0.1	1.4	0.4	0.2	0.3	

Tashkent 18



Body sherd, 12th century polychrome slipware.

Petrofabric

Fabric colour: Red

Size: 5-20 μm , few 50 μm

Sorting: Very well-sorted

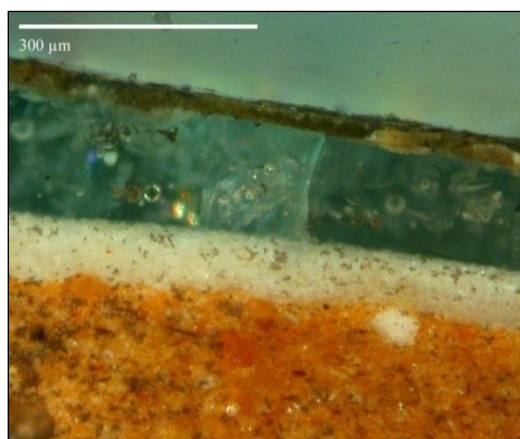
Shape: sub-angular and angular inclusions

Density: 40%

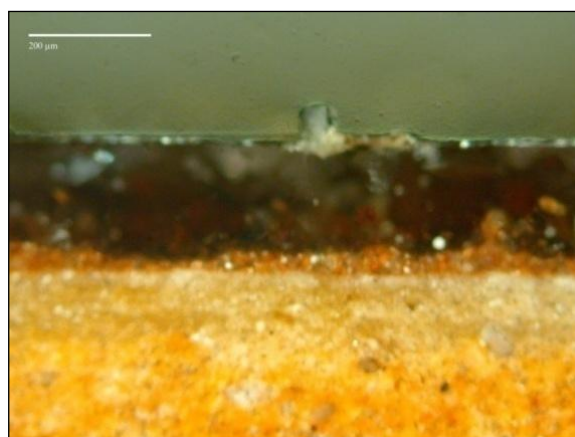
Mostly quartz: 90% monocrystalline, 10% polycrystalline

Few mica

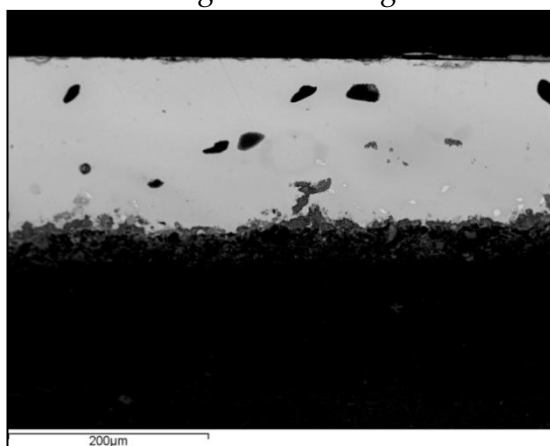
Few polycrystalline calcium-rich inclusions and feldspars



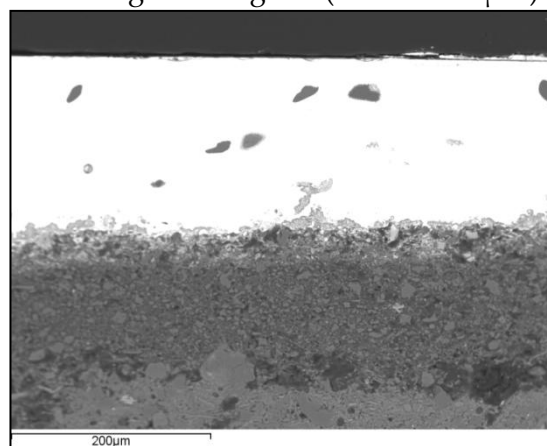
OM image: colourless glaze.



OM image: black glaze (scale is 200 μm).



BSE image: black glaze (darkened).



BSE image: black glaze (lightened).

Tashkent 18 glaze											
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	PbO	MnO	AT%
Black 1	upper	0.0	0.0	2.0	34.5	0.7	0.0	0.0	62.8	0.0	70
Black 1	upper	0.0	0.0	1.3	34.0	0.8	0.0	0.0	63.9	0.0	70
Black 1	lower	0.0	0.5	1.8	35.9	0.9	0.7	3.0	56.3	0.9	70
Black 1	lower	0.0	0.0	3.0	34.2	0.8	0.0	4.2	56.5	1.4	71
Black 2	upper	0.0	0.0	1.8	34.4	0.8	0.0	0.0	63.0	0.0	66
Black 2	upper	0.0	0.0	1.8	34.5	0.9	0.0	0.0	62.8	0.0	67
Black 2	lower	0.0	0.0	2.5	34.5	1.1	0.8	4.5	55.4	1.2	69
Colourless	upper	0.0	0.0	1.4	33.4	0.8	0.0	0.0	64.4	0.0	66
Colourless	upper	0.0	0.0	1.5	33.1	0.0	0.0	0.0	65.4	0.0	66
Colourless	lower	0.0	0.0	2.1	33.4	0.9	0.0	0.0	63.6	0.0	65
Colourless 2	upper	0.0	0.0	2.2	36.3	0.0	0.0	0.0	61.5	0.0	64
Colourless 2	upper	0.0	0.0	2.6	36.1	0.7	0.7	0.0	59.9	0.0	66
Colourless 2	lower	0.0	0.0	3.6	36.4	1.0	0.0	0.0	59.0	0.0	65
Average black	all	0.0	0.1	2.0	34.6	0.8	0.2	1.7	60.1	0.5	
St. Deviation		0.0	0.2	0.5	0.6	0.1	0.4	2.1	3.8	0.7	
St. Error		0.0	0.1	0.2	0.2	0.1	0.1	0.8	1.4	0.2	
Average colourless	all	0.0	0.0	2.3	34.8	0.6	0.1	0.0	62.3	0.0	
St. Deviation		0.0	0.0	0.8	1.6	0.5	0.3	0.0	2.6	0.0	
St. Error		0.0	0.0	0.3	0.7	0.2	0.1	0.0	1.1	0.0	

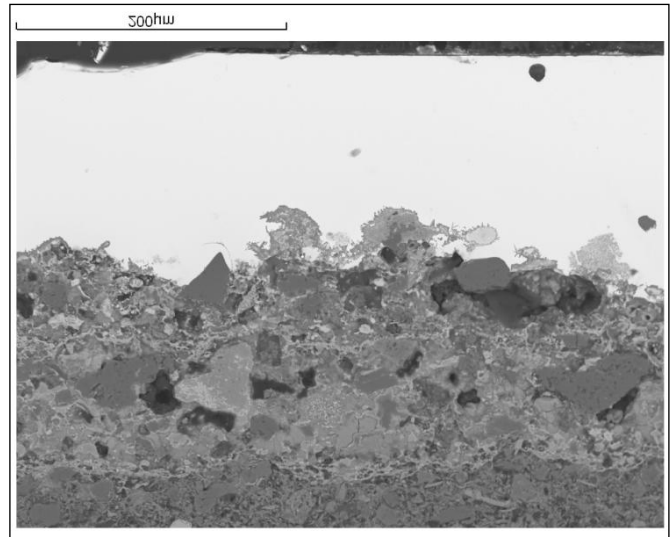
Tashkent 18 slip and engobe													
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	MnO	P2O5	AT%
Black 1	slip	0.6	0.0	8.0	54.9	3.9	8.1	11.8	0.0	9.2	1.0	2.4	51
Black 1	slip	0.0	0.6	9.2	47.7	3.7	12.5	14.2	0.0	9.6	1.1	1.4	50
Black 1	engobe	0.5	0.0	21.0	59.9	4.6	2.6	0.0	0.0	11.4	0.0	0.0	56
Black 1	engobe	0.0	0.8	22.1	70.3	3.1	1.4	1.0	0.0	0.0	0.0	1.3	53
Black 1	engobe	0.0	0.8	22.4	70.5	3.4	1.5	1.3	0.0	0.0	0.0	0.0	52
Black 2	engobe	0.0	0.7	15.1	60.5	4.0	5.7	0.0	0.0	14.0	0.0	0.0	53
Black 2	engobe	0.0	0.6	17.5	54.3	4.2	4.5	1.2	0.0	17.8	0.0	0.0	55
Black 2	engobe	0.0	0.6	21.4	72.9	3.3	1.8	0.0	0.0	0.0	0.0	0.0	50
Black 2	engobe	0.0	0.7	20.8	70.4	3.1	3.2	0.0	1.8	0.0	0.0	0.0	52
Colourless 1	engobe	0.0	0.7	15.5	58.2	4.0	4.8	0.0	0.0	16.8	0.0	0.0	48
Colourless 1	engobe	0.0	0.6	15.9	57.7	4.0	7.1	0.0	0.0	14.9	0.0	0.0	52
Colourless 1	engobe	0.0	0.8	23.0	68.9	3.5	1.8	0.0	2.0	0.0	0.0	0.0	48
Colourless 1	engobe	0.0	1.1	21.5	72.4	3.1	1.1	0.7	0.0	0.0	0.0	0.0	49
Colourless 2	engobe	0.0	0.7	12.9	66.3	3.0	3.5	0.0	0.0	13.6	0.0	0.0	53
Colourless 2	engobe	0.0	0.7	11.4	59.8	2.5	15.1	0.0	0.0	10.6	0.0	0.0	60
Average slip	all	0.3	0.3	8.6	51.3	3.8	10.3	13.0	0.0	9.4	1.1	1.9	
St. Deviation		0.4	0.4	0.8	5.1	0.2	3.1	1.7	0.0	0.3	0.1	0.7	
Average engobe	all	0.0	0.7	18.5	64.8	3.5	4.2	0.3	0.3	7.6	0.0	0.1	
St. Deviation		0.2	0.3	4.0	6.5	0.6	3.8	0.5	0.7	7.6	0.0	0.4	
St. Error		0.0	0.1	1.1	1.8	0.2	1.0	0.2	0.2	2.1	0.0	0.1	

Tashkent 18 body									
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	AT%
Body 1	0.8	2.8	11.8	64.3	3.8	8.7	6.7	1.2	48
Body 2	0.8	2.2	11.9	58.7	3.9	16.2	6.4	0.0	47
Body 3	0.8	3.1	12.1	63.4	4.0	9.6	7.0	0.0	44
Body 4	0.7	2.4	12.1	65.5	4.1	9.0	6.4	0.0	45
Average	0.8	2.6	12.0	63.0	3.9	10.9	6.6	0.3	
St. Deviation	0.1	0.3	0.2	2.6	0.1	3.1	0.3	0.5	
St. Error	0.0	0.2	0.1	1.5	0.1	1.8	0.2	0.3	

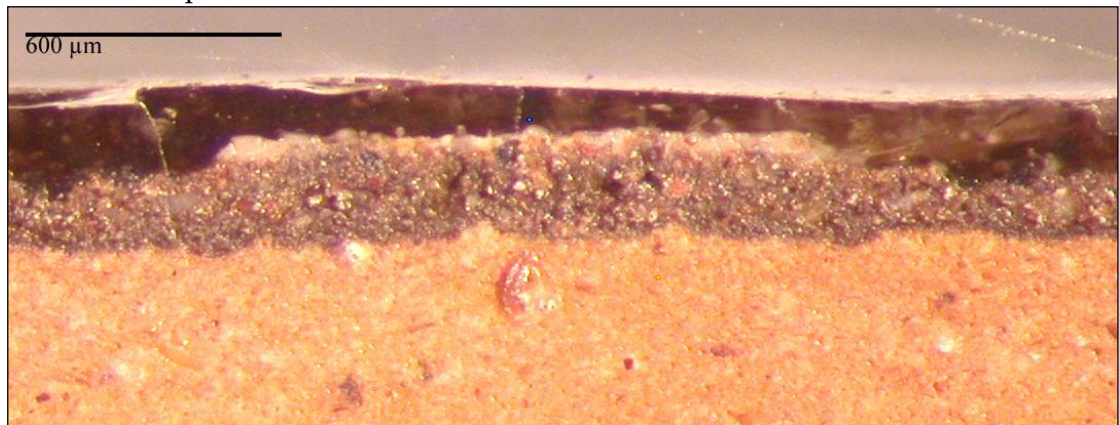
Tashkent 24



Body sherd, black engobe with white slip decoration.



BSE image: black glaze. Scale is 200 μm.



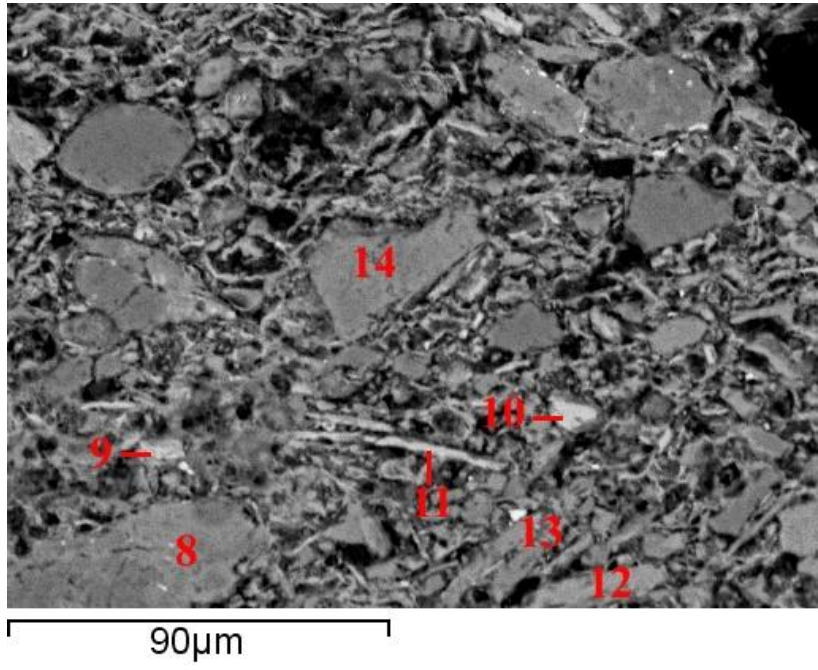
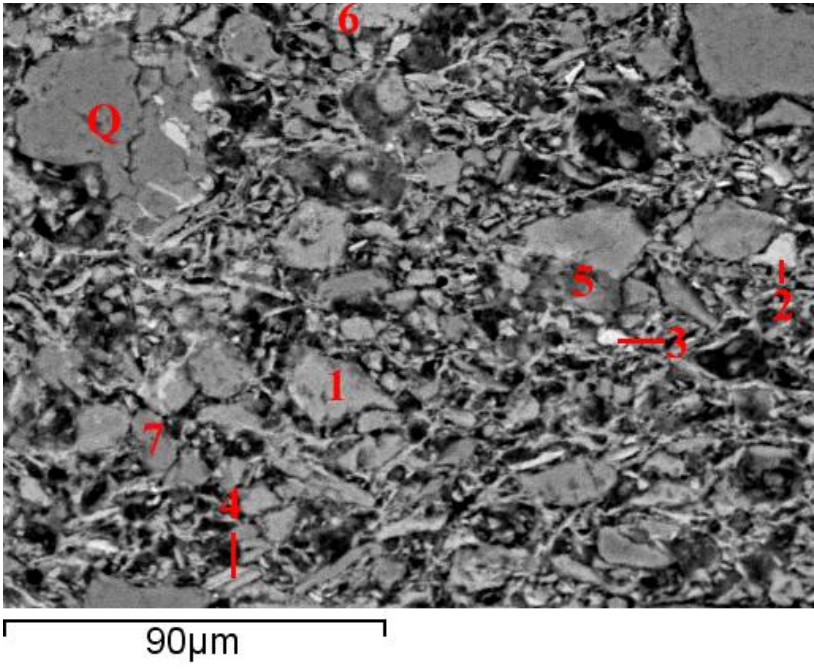
OM image: white slip decoration.

Tashkent 24 glaze											
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	PbO	MnO	AT%
Black	upper	0.0	0.0	2.0	36.1	1.1	0.5	0.0	60.3	0.0	82
Black	upper	0.0	0.0	2.1	36.7	0.9	0.5	0.0	59.2	0.6	135
Black	lower	0.0	0.0	2.3	38.5	1.0	0.0	0.0	57.5	0.8	86
Black	lower	0.4	0.0	2.3	38.1	1.1	0.6	1.0	55.7	1.0	131
Black 2	upper	0.0	0.0	2.0	37.2	0.8	0.0	0.0	60.1	0.0	109
Black 2	upper	0.3	0.4	2.0	37.2	0.6	0.6	0.0	58.5	0.0	133
Black 2	lower	0.4	0.0	2.8	36.8	1.0	0.5	2.1	55.1	1.2	137
Black 2	lower	0.6	0.0	3.4	37.8	1.2	0.6	2.3	52.9	1.3	87
Colourless	upper	0.0	0.0	1.9	37.1	0.7	0.0	0.0	60.3	0.0	70
Colourless	upper	0.0	0.0	1.9	37.6	0.4	0.4	0.0	59.6	0.0	130
Colourless 2	upper	0.0	0.0	2.4	37.2	0.9	0.5	0.0	59.0	0.0	77
Colourless 2	upper	0.0	0.0	2.3	37.3	0.7	0.5	0.0	59.3	0.0	133
Colourless 3	upper	0.0	0.0	2.2	37.0	0.8	0.0	0.0	60.1	0.0	77
Colourless 3	upper	0.0	0.0	2.0	37.6	0.9	0.6	0.0	59.0	0.0	113
Average black	all	0.2	0.1	2.4	37.3	1.0	0.4	0.7	57.4	0.6	
St. Deviation		0.2	0.1	0.5	0.8	0.2	0.3	1.0	2.6	0.5	
St. Error		0.1	0.1	0.2	0.3	0.1	0.1	0.4	0.9	0.2	
Average colourless	all	0.0	0.0	2.1	37.3	0.7	0.3	0.0	59.5	0.0	
St. Deviation		0.0	0.0	0.2	0.3	0.2	0.3	0.0	0.6	0.0	
St. Error		0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.2	0.0	

Tashkent 24 slip and engobe														
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	MnO	P2O5	SO3	AT%
Black	engobe	0.8	0.8	12.3	47.4	2.4	7.2	6.9	0.0	3.9	15.4	3.0	0.0	32
Black	engobe	0.9	0.5	12.8	48.7	3.1	6.5	14.1	0.6	4.9	2.6	5.2	0.0	106
Black 2	engobe	0.8	0.7	8.0	55.0	2.9	4.6	15.8	0.0	4.6	0.9	6.8	0.0	77
Black 2	engobe	0.9	0.8	8.8	38.0	2.9	6.4	25.6	0.8	4.4	1.2	10.3	0.0	117
Black 2	engobe	0.9	0.6	11.8	43.3	2.9	6.0	15.0	1.4	10.3	2.1	5.7	0.0	67
Black 2	engobe	0.7	0.8	6.6	50.6	2.6	9.8	11.3	0.0	6.1	6.3	5.2	0.0	85
Colourless	engobe	0.6	0.7	12.5	60.6	2.7	5.5	7.1	1.4	2.9	2.5	2.1	1.4	119
Colourless	engobe	0.6	0.7	11.7	50.0	3.0	7.8	9.1	0.6	3.1	9.5	2.5	1.4	74
Colourless	slip	0.9	0.0	27.6	45.8	3.8	3.2	3.2	0.0	11.9	0.0	3.3	0.0	62
Colourless	slip	1.1	0.4	28.5	44.2	4.0	3.2	3.4	0.0	11.4	0.0	3.7	0.0	101
Colourless 2	engobe	0.6	1.2	14.2	52.6	2.9	6.8	8.1	0.6	3.5	6.3	3.4	0.0	71
Colourless 2	engobe	0.6	0.7	13.0	50.2	2.3	6.1	15.5	0.0	3.1	1.8	6.7	0.0	109
Colourless 2	slip	1.0	0.6	28.8	39.7	4.1	5.6	4.1	0.0	11.1	1.4	3.7	0.0	68
Colourless 2	slip	0.9	0.5	26.5	43.8	3.9	5.9	4.5	0.0	9.7	1.2	3.3	0.0	92
Colourless 3	engobe	1.2	0.7	14.8	45.8	4.2	5.8	14.9	0.0	3.8	0.0	7.5	1.1	123
Colourless 3	engobe	1.1	0.7	10.7	40.7	3.4	8.5	17.7	0.7	3.9	3.1	8.4	1.0	63
Colourless 3	slip	0.9	0.0	14.1	49.0	3.9	3.9	10.1	0.0	11.8	1.8	4.6	0.0	76
Colourless 3	slip	1.2	0.8	16.8	36.9	3.4	6.9	9.3	0.0	13.5	6.7	4.7	0.0	135
Average engobe	all	0.8	0.8	11.4	48.6	3.0	6.8	13.4	0.5	4.5	4.3	5.6	0.4	
St. Deviation		0.2	0.2	2.5	6.2	0.5	1.4	5.4	0.5	2.0	4.4	2.5	0.6	
St. Error		0.1	0.1	0.7	1.8	0.1	0.4	1.6	0.2	0.6	1.3	0.7	0.2	
Average slip	all	1.0	0.4	23.7	43.2	3.9	4.8	5.8	0.0	11.6	1.8	3.9	0.0	
St. Deviation		0.1	0.3	6.5	4.3	0.2	1.6	3.1	0.0	1.2	2.5	0.6	0.0	
St. Error		0.1	0.1	2.7	1.8	0.1	0.6	1.3	0.0	0.5	1.0	0.3	0.0	

Tashkent 24 body										
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	P2O5	AT%
Body 1	0.7	2.2	11.8	61.1	3.3	13.9	5.2	0.7	1.3	64
Body 2	0.8	2.3	12.3	60.2	3.1	14.2	4.8	0.8	1.5	120
Body 3	0.9	1.9	12.0	58.8	3.3	15.6	4.7	1.0	1.5	60
Average	0.8	2.1	12.0	60.0	3.2	14.5	4.9	0.8	1.4	
St. Deviation	0.1	0.2	0.3	1.2	0.1	0.9	0.2	0.2	0.1	
St. Error	0.1	0.1	0.2	0.7	0.1	0.5	0.1	0.1	0.1	

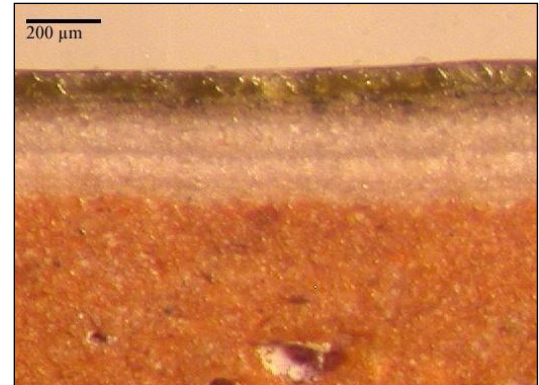
Tashkent 24 inclusions												
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	MnO	P2O5	SO3	AT%
Inclusion 1	2.2	1.9	26.3	56.2	8.8	0.7	3.4	0.5				50
Inclusion 2	0.4		22.7	42.5		22.3	12.2					52
Inclusion 3	0.6	0.8	4.3	16.3	0.3	3.3	1.1	73.4				50
Inclusion 4	0.6	21.3	18.1	38.9	4.7	3.3	12.3	0.9				45
Inclusion 5	0.5	2.8	13.1	56.6	1.5	12.4	6.9			6.2		31
Inclusion 6		5.1		0.9		88.3			4.7	1.1		25
Inclusion 7	0.7	2.3	10.2	68.4	0.9	11.5	4.9			1.1		39
Inclusion 8	0.6	0.6	10.2	83.7	4.1		0.9					46
Inclusion 9	0.5	12.6	18.8	33.0	1.2	11.0	20.8		0.4	0.7	1.0	46
Inclusion 10			6.9	35.1		27.7	1.0	29.3				47
Inclusion 11	0.6	12.2	16.3	39.1	1.5	13.6	14.3	0.5	0.5	1.2		35
Inclusion 12	1.4	2.0	26.9	52.5	11.0		5.8	0.5				39
Inclusion 13	2.4	2.7	16.8	41.2	2.3	10.1	14.0	0.4		10.2		38
Inclusion 14	3.2		19.6	65.2	9.6	2.4						42



Tashkent 32



Body sherd, polychrome slipware on red fabric.



OM image: green slip area.

Petrofabric 1

Fabric colour: Red

Size: ~10-15% 50-100μm, to ~40-50% 5-20μm

Sorting: Moderately-sorted

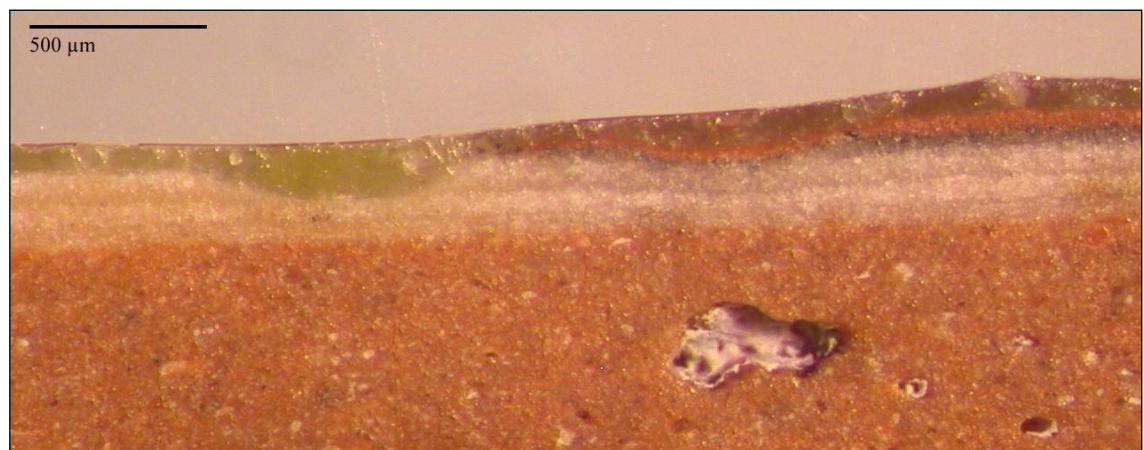
Shape: sub-angular and angular inclusions

Density: 20%-25%

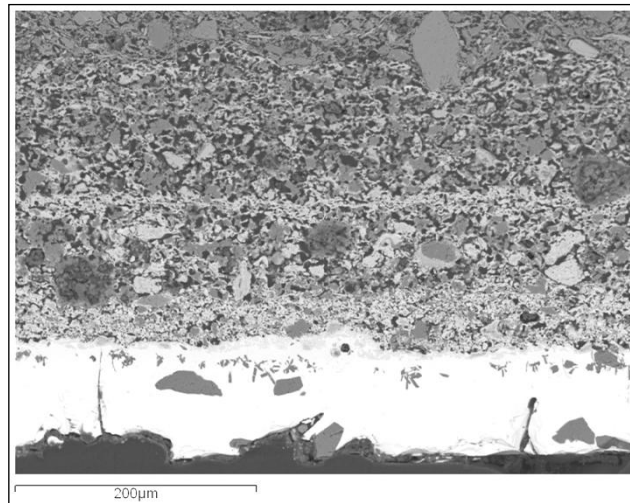
Mostly quartz: 99% monocrystalline, < 1% polycrystalline

> 5% biotite and muscovite inclusions (< 20 μm)

Chemically well-evolved with angular quartz inclusions



OM image: red slip over green (right), colourless glaze (left).



BSE image: glaze over red slip.

Tashkent 32 glaze												
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	PbO	CuO	Cr2O3	AT%
red	upper	0.0	0.0	2.5	38.8	0.4	0.6	0.0	57.7	0.0	0.0	69
red	upper	0.0	0.0	2.4	39.8	0.5	0.0	0.0	57.3	0.0	0.0	88
red	interface	0.5	0.0	16.9	40.5	4.1	1.1	5.2	31.6	0.0	0.0	74
red 2	upper	0.0	0.0	2.2	41.1	0.7	0.0	0.0	55.9	0.0	0.0	90
green	inclusion	0.0	18.2	14.5	0.0	0.0	0.0	4.2	0.0	0.9	62.3	131
Average	all glaze	0.0	0.0	2.4	39.9	0.5	0.2	0.0	56.9	0.0	0.0	
St. Deviation		0.0	0.0	0.2	1.9	0.3	0.5	0.0	1.5	0.0	0.0	
St. Error		0.0	0.0	0.1	0.7	0.1	0.2	0.0	0.5	0.0	0.0	

Tashkent 32 engobe and slip														
Area 1	Area 2	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	PbO	P2O5	Cr2O5	MnO	AT%
red	engobe	0.5	0.5	14.9	63.7	3.8	2.2	0.0	0.0	13.5	0.9	0.0	0.0	66
red	engobe	0.4	0.5	12.7	64.4	2.8	2.0	0.5	4.8	10.9	1.1	0.0	0.0	50
red	red slip	0.0	0.5	15.7	52.6	4.1	0.8	5.5	0.7	19.2	1.1	0.0	0.0	73
red	red slip	0.0	0.5	15.3	52.3	4.0	1.1	6.3	0.6	18.6	1.3	0.0	0.0	74
red 2	engobe	0.0	0.5	12.4	67.4	3.3	1.4	0.7	0.0	12.6	1.1	0.6	0.0	73
red 2	engobe	0.5	0.6	14.3	64.1	3.9	1.4	0.0	1.0	14.1	0.0	0.0	0.0	100
red 2	red slip	0.0	0.7	16.1	45.6	4.0	1.0	7.3	3.5	20.1	1.0	0.7	0.0	67
red 2	red slip	0.5	0.8	17.2	45.0	4.1	1.1	5.9	0.8	22.0	1.4	1.4	0.0	83
red 2	green slip	0.0	1.0	6.6	76.6	1.9	0.8	1.1	0.0	9.3	1.2	1.6	0.0	83
red 2	green slip	0.0	2.5	8.7	62.4	2.3	0.7	2.6	0.0	10.6	1.0	9.2	0.0	100
Colourless	engobe	0.4	0.5	12.7	68.0	4.3	2.0	0.6	0.0	10.1	1.3	0.0	0.0	42
Colourless	engobe	0.5	0.7	15.4	61.1	4.0	5.4	0.7	0.0	10.6	1.8	0.0	0.0	55
Colourless	engobe	0.0	0.6	15.7	61.0	3.1	2.9	0.9	0.0	14.6	1.3	0.0	0.0	40
Colourless	engobe	0.5	0.5	14.3	63.8	3.3	2.4	0.6	0.0	13.5	1.2	0.0	0.0	57
Average engobe	all	0.4	0.5	13.8	64.8	3.7	2.4	0.4	1.0	12.0	1.0	0.1	0.0	
St. Deviation		0.2	0.1	1.3	2.6	0.5	1.5	0.3	1.9	1.7	0.6	0.3	0.0	
St. Error		0.1	0.0	0.5	1.0	0.2	0.6	0.1	0.5	0.7	0.2	0.1	0.0	
Average red slip	all	0.1	0.6	16.1	48.9	4.0	1.0	6.3	1.4	20.0	1.2	0.5	0.0	
St. Deviation		0.2	0.1	0.8	4.1	0.1	0.2	0.8	1.4	1.5	0.2	0.7	0.0	
St. Error		0.1	0.1	0.4	2.1	0.0	0.1	0.4	0.7	0.7	0.1	0.3	0.0	
Average green slip	all	0.0	1.7	7.6	69.5	2.1	0.8	1.9	0.0	9.9	1.1	5.4	0.0	
St. Deviation		0.0	1.1	1.5	10.	0.3	0.0	1.1	0.0	0.9	0.2	5.3	0.0	

Tashkent 32 body										
Area 1	Na2O	MgO	Al2O3	SiO2	K2O	CaO	Fe2O3	TiO2	P2O5	AT%
Body 1	0.7	2.6	14.0	56.7	2.6	13.0	4.9	0.8	4.3	64
Body 2	0.9	2.6	14.1	58.1	2.5	12.2	4.6	0.5	4.0	126
Body 3	0.8	2.6	14.3	56.7	2.6	14.0	4.7	0.0	3.7	84
Body 4	0.8	2.6	13.9	58.6	2.5	12.0	4.8	0.7	3.7	138
Average	0.8	2.6	14.1	57.5	2.5	12.8	4.8	0.5	3.9	
St. Devation	0.1	0.0	0.2	1.0	0.1	0.9	0.2	0.4	0.3	
St. Error	0.0	0.0	0.1	0.5	0.0	0.5	0.1	0.2	0.2	

Tashkent 47



Body sherd of bowl, olive 'eyes' on yellow.

Petrofabric

Fabric colour: Red

Size: 5-20 μm .

Sorting: Very well-sorted

Shape: sub-angular and angular inclusions

Density: 75%

Mostly quartz: 90% monocrystalline, 10% polycrystalline

Some mica

Few calcium-rich inclusions and feldspars

Not analysed with SEM-EDS.

New Akhsiket 1



Body sherd of bowl, black on turquoise design.

Not analysed with SEM-EDS.

Petrofabric

Fabric colour: Red, lighter red core

Size: ~10-15% 50-100 μ m, to ~40-50% 5-20 μ m

Sorting: Moderately-sorted

Shape: sub-angular and angular inclusions

Density: 35%

Mostly quartz: 99% polycrystalline, some with ingrown micas

> 5% possible granite rock inclusions

> 1% biotite inclusions (< 20 μ m)

Chemically well-evolved with angular quartz inclusions

New Akhsiket 8



Base sherd of bowl or plate, light blue glaze.



Drawing

Petrofabric

Fabric colour: pinkish-buff

Size: 5-20 μm . Few 50-100 μm

Sorting: Very well-sorted

Shape: sub-angular and angular inclusions

Density: 20%

Mostly quartz: 99% monocrystalline

Some mica, calcium-rich inclusions

Chemically well-evolved with angular quartz.

Not analysed with SEM-EDS.

New Akhsiket 3



Body sherd, black on light blue mottled decoration.

Not analysed with SEM-EDS.

Petrofabric

Fabric colour: pinkish-buff

Size: 5-20 μm . Few 50-100 μm

Sorting: Well-sorted

Shape: angular inclusions

Density: 20%

Mostly quartz: 90% monocrystalline, 5% polycrystalline

Some mica

Rare possible granite rock inclusions and grog or mudstone

Chemically well-evolved with angular quartz.

New Akhsiket 10



Body sherd of bowl, greenish-blue outlined with black on turquoise/light blue.

Petrofabric

Fabric colour: Light red

Size: ~10-15% 50-100 μ m, to ~40-50% 5-20 μ m

Sorting: Moderately-sorted

Shape: sub-angular and angular inclusions

Density: 40%

Mostly quartz: 95% monocrystalline, < 5% polycrystalline

Some polycrystalline quartz ingrown with iron minerals and micas

> 5% biotite, muscovite, calcium-rich inclusions (< 20 μ m)

Chemically well-evolved with angular quartz inclusions

Not analysed with SEM-EDS.