APPENDIX 58: SCANNING ELECTRON MICROSCOPY OF LEAD SMELTING SLAG SAMPLES

This appendix summarises the results of the scanning electron microscopic (SEM) examination of selected mounted sub-samples, subsequent to their optical microscopy and following the laboratory measurement of mass specific magnetic susceptibility of a series of samples obtained from the following locations:

Botchergate, Carlisle Grinton Smeltings, N. Yorkshire Pentre Farm, Flint

The sub-samples were selected on the basis of the minimum, mean and maximum values in the measured range of magnetic susceptibility for each sample group; thus each site is represented by a set of three data sheets. These sheets are arranged in site order as listed above, and minimum, mean and maximum susceptibility within each site data.

Each data set consists of the sites of interest chosen for SEM analysis and the spectra analyses for those sites; the images are annotated with the analysis locations.

Sample: Lead smelting slag – Botchergate 337B



Site of interest 1



Site of interest 2

DNIININGOO			-1				
Lead smelt	ing slag		Sample	Botchergate	337B		Site of Interest 1
		Spectrum 1	: Area		Spectrum	2: Area	
Element c	Formula	Weight% \	Neight% sigma	Compound%	Weight%	Weight% sigma	Compound%
L Z		. о. С	Ċ	Ċ	л. О. С.	Ċ	c
Na		- 0		ה פ ס כ	0.0		8 C
Mg	NgO	1.6	0.1	2.7	1.6	0.1	Q.2
A	Al203	2.1	0.1	4.1	i,1	0.1	4.0
Si	SiO2	22.5	0.2	48.0	22.2	0.2	47.6
Ъ	P205	0.2	0.0	0.6	0.2	0.0	0.4
s	SO3	n.d.			n.d.		
¥	K20	1.2	0.0	1.5	1.2	0.0	1.4
Ca	CaO	6.4	0.1	8.9	6.6	0.1	9.2
Ē	TI02	0.2	0.1	0.3	0.2	0.1	0.3
>	V205	0.1	0.1	0.1	n.d.		
Ċ	Cr203	n.d.			n.d.		
Mn	NnO	0.4	0.1	0.5	0.3	0.1	0.4
Fe	Fe2O3	4.9	0.1	7.0	4.7	0.1	6.7
ပိ	000	n.d.			0.1	0.1	0.1
İN	NiO	0.1	0.1	0.1	n.d.		
Cu	CuO	0.1	0.1	0.1	n.d.		
Zn	ZnO	2.8	0.1	3.5	2.3	0.1	2.8
As	As2O3	n.d.			n.d.		
Ag	Ag2O	n.d.			n.d.		
Sb	Sb203	0.4	0.2	0.5	0.4	0.2	0.5
Ba	BaO	0.1	0.1	0.1	n.d.		
РЬ	PbO	20.3	0.3	21.9	22.3	0.3	24.0
0		36.5	0.3		36.0	0.3	
Totals		100.0			100.0		
Processing (Number of it Samnle is no	option : Oxyg∈ erations : 3 dishad	en by stoichio	metry (Normalis	ed)		n.d. = not detect	ed
Sample is co Detector effi	bated with Cal ciency : Calcu	rbon - thickne Ilation	ess (nm): 15.0, o	tensity (g/cm3): 2.25		

337B: Site of interest 1 spectra analysis

SCANNING	ELECTRON N	IICROSCOP	~										
Lead smelti	ng slag	<i></i>	Sample	Botchergate (337B		Site of Intere	st 2					
Element	Formula	Spectrum 1	: Area Maioht ³⁶ sioma	Companyord 92	Spectrum 2: Meichter M	Area Jainht ⁰⁶ , sigmo	Componing 05	Spectrum Mainht ^{ex}	3: Phase Meicht ^{ek} sicmo	Compositod%	Spectrum 4: Maiobec VA	Phase Action Science	20 monuology
		n.d.	veigin /o signia	o ni inndi inno	vveigill. n.d.	reigint /o signia		n.d.	weigin // signia	compound /0	wengin.o. n.d.	ମ୍ଟୋଧାର ବାଧା ା ର ଜଣ୍ଡା	o niinodiiio n
Na	Na2O	0.7	0.1	0.9	0.6	0.1	0.8	0.7	0.1	0.9	0.6	0.1	0.7
Ng	MgO	1.6	0.1	2.7	1.7	0.1	2.8	1.5	0.1	2.4	1.6	0.1	2.6
A	AI203	2.1	0.1	3.9	2.1	0.1	3.9	1.9	0.1	3.6	2.0	0.1	3.9
Si	SiO2	22.2	0.2	47.6	22.1	0.2	47.2	21.6	0.2	46.1	22.0	0.2	47.1
۵.	P205	0.2	0.0	0.5	0.2	0.0	0.4	0.2	0.0	0.4	0.2	0.0	0.4
S	SO3	n.d.			n.d.			n.d.			n.d.		
¥	K20	1 .0	0.1	1.6	1.3	0.0	1.5	1.2	0.0	1.4	1.3	0.0	1.5
Ca	CaO	6.6	0.1	9.3	6.5	0.1	9.1	6.3	0.1	8.8 8	6.4	0.1	9.0
Ξ	Ti02	0.1	0.1	0.2	0.2	0.1	0.3	0.1	0.1	0.2	0.2	0.1	0.3
>	V205	0.1	0.1	0.1	n.d.			0.1	0.1	0.1	n.d.		
ن	Cr203	n.d.			n.d.			n.d.			n.d.		
Mn	MnO	0.5	0.1	0.6	0.4	0.1	0.5	0 .4	0.1	0.5	0.4	0.1	0.5
Fe	Fe203	4.7	0.1	6.7	4.6	0.1	6.6	4	0.1	6.3	4.5	0.1	6.5
с С	CoO	n.d.			0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
ïz	0 <u>N</u>	.p.u			n.d.			0.1	0.1	0.1	п.d.		
Cu	CuO	n.d.			n.d.			0.1	0.1	0.1	n.d.		
Zn	ZnO	2.5	0.1	3.1	2.5	0.1	3.1	2.4	0.1	3.0	2.7	0.1	3.3
As	As203	n.d.			n.d.			0.1	0.1	0.1	0.1	0.1	0.1
Ag	Ag2O	n.d.			n.d.			n.d.			n.d.		
Sb	Sb203	0.1	0.2	0.1	0.2	0.2	0.2	0.3	0.2	4.0	0.3	0.2	0.3
Ba	BaO	0.2	0.1	0.2	р.ц			0.2	0.1	0.2	n.d.		
РЬ	PbO	22.7	0.3	24.4	23.0	0.3	24.8	24.0	0.3	25.9	22.6	0.3	24.3
0		36.1	0.3		35.8	0.3		35.0	0.3		35.6	0.3	
Totals		100.0			100.0			100.0			100.0		
Processina o	ntion : Oxvaer	t bv stoichion נ	netrv (Normalise	(p	ć	d. = not detecte	pe						
Number of its Sample is po	erations : 3			ĥ			ł						
Sample is co Detector effic	ated with Cart siency : Calcul	oon - thickne ation	ss (nm): 15.0, de	ensity (g/cm3):	2.25								

337B: Site of interest 2 spectra analysis

Sample: Lead smelting slag – Botchergate 155A



Site of interest 1



Site of interest 2

Botchergate 155A Site of Interest 1 Botchergate 155A Spectrum 2: Area Site of Interest 1 Compound% Weight% sigma Compound% Weight% sigma Spectrum 2: Area 1.4 1.0 0.1 1.4 0.9 0.5 0.1 0.9 0.9 0.5 0.1 1.4 0.1 1.1 0.1 1.4 0.2 0.2 0.2 0.4 0.3 0.1 0.1 3.5 0.3 0.1 0.1 3.5 0.4 0.1 0.1 3.5 0.3 0.1 0.1 0.1 0.4 0.1 0.1 3.5 0.3 0.1 0.1 0.1 0.4 0.1 0.1 3.5 0.1 0.1 0.1 0.1 0.4 0.1 0.1 0.1 0.4 0.1 0.1 0.1 0.4 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.3 0.1 0.1 0.1 0.4 0.1 0.1 0.1 0.4 0.1 0.1 0.2 0.3 0.3 0.3 0.3 <th>ample Botchergate 155A Site of Interest 1 Area Spectrum 2: Area Site of Interest 1 0.1 1.4 1.0 0.1 1.4 0.1 1.4 1.0 0.1 1.4 0.1 3.2 1.8 0.1 0.1 0.1 0.1 0.3 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1<th>IICROSCOPY Stample Botchergate 155A Site of Interest 1 Sample Botchergate 155A Steed Interest 1 Steed Interest 1 Spectrum 1: Area Spectrum 2: Area Spectrum 2: Area Spectrum 2: Area Neight?6 01 0.9 0.1 0.1 1.4 Nd 01 0.9 0.5 0.1 1.4 0.9 Nd 0.1 0.1 0.9 0.5 0.1 0.4 Nd 0.1 0.1 1.1 0.0 1.1 0.1 0.3 Nd 0.1 0.2 0.2 0.1 0.1 0.1 0.1 Nd 0.1 0.1 0.1 0.1 0.1 0.1 0.1</th><th>ELECTRON MICROSCOPY Site of Interest 1 Ng slag Sample Botchergate 155A Site of Interest 1 Na20 11 01 14 Neight% sigma Compound% Weight% sigma Spectrum 2: Area Na20 11 01 14 10 01 14 14 Na20 11 01 14 10 01 14 13 Site of Interest 1 Na20 11 01 14 10 01 14 14 13 Site of Interest 1 Na20 11 01 14 10 01 13 Site of Interest 1 13 33 33 33 33 33 33 33 33 33 33 33 33 32 33 32 33 32 33 32 33</th></th>	ample Botchergate 155A Site of Interest 1 Area Spectrum 2: Area Site of Interest 1 0.1 1.4 1.0 0.1 1.4 0.1 1.4 1.0 0.1 1.4 0.1 3.2 1.8 0.1 0.1 0.1 0.1 0.3 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 <th>IICROSCOPY Stample Botchergate 155A Site of Interest 1 Sample Botchergate 155A Steed Interest 1 Steed Interest 1 Spectrum 1: Area Spectrum 2: Area Spectrum 2: Area Spectrum 2: Area Neight?6 01 0.9 0.1 0.1 1.4 Nd 01 0.9 0.5 0.1 1.4 0.9 Nd 0.1 0.1 0.9 0.5 0.1 0.4 Nd 0.1 0.1 1.1 0.0 1.1 0.1 0.3 Nd 0.1 0.2 0.2 0.1 0.1 0.1 0.1 Nd 0.1 0.1 0.1 0.1 0.1 0.1 0.1</th> <th>ELECTRON MICROSCOPY Site of Interest 1 Ng slag Sample Botchergate 155A Site of Interest 1 Na20 11 01 14 Neight% sigma Compound% Weight% sigma Spectrum 2: Area Na20 11 01 14 10 01 14 14 Na20 11 01 14 10 01 14 13 Site of Interest 1 Na20 11 01 14 10 01 14 14 13 Site of Interest 1 Na20 11 01 14 10 01 13 Site of Interest 1 13 33 33 33 33 33 33 33 33 33 33 33 33 32 33 32 33 32 33 32 33</th>	IICROSCOPY Stample Botchergate 155A Site of Interest 1 Sample Botchergate 155A Steed Interest 1 Steed Interest 1 Spectrum 1: Area Spectrum 2: Area Spectrum 2: Area Spectrum 2: Area Neight?6 01 0.9 0.1 0.1 1.4 Nd 01 0.9 0.5 0.1 1.4 0.9 Nd 0.1 0.1 0.9 0.5 0.1 0.4 Nd 0.1 0.1 1.1 0.0 1.1 0.1 0.3 Nd 0.1 0.2 0.2 0.1 0.1 0.1 0.1 Nd 0.1 0.1 0.1 0.1 0.1 0.1 0.1	ELECTRON MICROSCOPY Site of Interest 1 Ng slag Sample Botchergate 155A Site of Interest 1 Na20 11 01 14 Neight% sigma Compound% Weight% sigma Spectrum 2: Area Na20 11 01 14 10 01 14 14 Na20 11 01 14 10 01 14 13 Site of Interest 1 Na20 11 01 14 10 01 14 14 13 Site of Interest 1 Na20 11 01 14 10 01 13 Site of Interest 1 13 33 33 33 33 33 33 33 33 33 33 33 33 32 33 32 33 32 33 32 33
Botchergate 155A Spectrum 2: Area Compound% Weight% sigma 0 1.4 1.4 1.4 0.9 0.5 0.1 0.3 0.1 0.2 0.3 0.1 0.2 0.3 0.1 0.1 0.2 0.3 0.1 0.1 0.1 0.2 0.3 0.1 <	ample Botchergate 155A * ample Botchergate 155A * Area Spectrum 2: Area * Area Spectrum 2: Area d. 0.1 1.4 1.0 0.1 0.1 0.9 0.5 0.1 0.1 1.4 1.0 0.1 0.1 0.2 0.2 0.2 0.2 0.2 1.3 0.1 0.1 0.2 0.2 0.1 0.1 0.3 0.1 0.1 0.1 0.3 0.1 0.1 0.1 0.3 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.3 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.3 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	Sample Botchergate 155A * Sample Botchergate 155A * Sample Botchergate 155A * Spectrum 1: Area Spectrum 2: Area * Ndi 0.1 0.1 0.1 Ndi 0.1 0.1 1.4 1.0 0.1 Ndi 0.1 0.1 1.4 1.0 0.1 1.7 0.1 0.1 1.4 1.0 0.1 1.8.7 0.2 40.0 18.7 0.2 0.1 1.8.7 0.2 40.0 18.7 0.2 0.1 1.1 0.0 1.3 1.1 0.0 0.1 0.1 1.1 0.0 1.3 1.1 0.1 0.1 0.1 1.1 0.0 1.3 0.1 0.1 0.1 0.1 1.1 0.0 1.3 0.1 0.1 0.1 0.1 0.1 1.1 0.1 0.1 0.1 0.1 0.1	ELECTRON MICROSCOPY ng slag Sample Botchergate 155A Spectrum 1: Area Spectrum 2: Area Spectrum 2: Area nd. Weight% Weight% Weight% Weight% Weight% Weight% Sigma Compound% Weight% Weight% Weight% Weight% Sigma Cond Spectrum 2: Area Spectrum 2: Area Na2C0 1.1 0.1 1.4 1.0 0.1 0.1 Na2C0 1.1 0.1 1.4 1.0 0.1 0.1 Na2C0 1.1 0.1 1.4 1.0 0.1 0.1 Na2C0 1.1 0.1 0.1 3.2 1.8.7 0.2 0.1 Na2C0 1.1 0.1 0.1 0.2 0.2 0.1 0.1 Na2C0 1.1 0.1 0.3 0.1 0.1 0.1 0.1 Store 0.2 0.1 0.3 0.1 0.1 0.1 0.1 V2D5 0.2 0.1 0.1 0.1 0.1 0.1 0.1 V2D6 0.2
Botchergate 155A Compound% Weight% V 0.9 0.9 0.2 0.2 0.4 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	ample Botchergate 155A Area Spectrum 2 Area Spectrum 2 0.1 1.4 1.0 0.1 1.4 1.0 0.1 3.2 1.8 0.1 3.5 1.1 0.1 3.5 1.1 0.1 3.5 2.5 0.1 3.5 2.5 0.1 0.6 0.4 0.1 0.1 0.6 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.6 0.1 0.1 0.1 0.1 0.6 0.1 0.1 0.1 0.1 0.6 0.1 0.1 0.1 0.1 0.6 0.1 0.1 0.1 0.6 0.1 0.0 0.1 0.6 0.1 0.0 0.1 0.6 0.1 0.0 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	IICROSCOPY Botchergate 155A Sample Botchergate 155A Sample Botchergate 155A Spectrum 1: Area Spectrum 2 Weight% Weight% Weight% Weight% Weight% Sigma Compound% Weight% Weight% Weight% Weight% Sigma N.d. 0.1 1.4 1.0 N.d. 0.1 0.2 0.3 0.1 N.d. 0.1 0.3 0.1 0.1 N.d. 0.1 0.3 0.3 0.1 N.d. 0.3 0.3 0.3 0.3 N.d. 0.3 0.3 0.3 0.3 N.d. 0.3 <	ELECTRON MICROSCOPY ng slag Sample Botchergate 155A nd Na20 1.1 0.1 1.4 1.0 Na20 1.1 0.1 1.4 1.0 n.d. Na20 1.1 0.1 0.1 1.4 1.0 Na20 1.1 0.1 0.1 0.9 0.5 Na20 1.1 0.1 0.1 1.4 1.0 Na20 1.1 0.1 0.1 0.9 0.5 Na20 1.1 0.1 0.1 0.1 0.1 Ng0 0.1 0.1 0.3 0.1 0.1 Si02 1.1 0.0 0.2 0.1 0.1 0.1 V205 n.d. 0.1 0.3 0.1 0.1 0.1 0.1 V205 n.d. Nrd 0.1 0.3 0.1 0.1 0.1 0.1 V205 n.d. Nrd 0.1 0.1 0.1
Botchergate Compound% Compound% 1.4 0.5 0.3 0.3 0.3 0.1 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3	ample Botchergate Botchergate Botchergate Area (eight% sigma Compound% 0.1 1.4 0.9 0.0 0.1 0.2 0.0 0.2 0.0 0.2 0.0 0.2 0.0 0.2 0.0 0.2 0.0 0.2 0.0 0.2 0.0 0.3 0.3 0.3 0.3 0.3 0.1 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3	Sample Botchergate Sample Botchergate Sample Botchergate Spectrum 1: Area Botchergate Veight% Weight% sigma Compound% n.d. 0.1 0.4 1.1 0.1 1.4 0.6 0.1 0.3 1.7 0.1 0.2 1.8 0.2 40.0 0.1 0.0 0.2 1.1 0.0 1.3 0.1 0.0 0.2 n.d. 0.0 1.3 1.1 0.0 0.1 0.2 0.1 0.3 n.d. 0.1 0.1 n.d. 0.1 0.1 n.d. 0.1 0.3 n.d. 0.3 0.1 0.3 0.3 0.3 1.0.0 0.3 0.3 1.0.0 0.3 0.3 1.0.0 0.3 0.3	ELECTRON MICROSCOPY ng slag Sample Botchergate nd Spectrum 1: Area Botchergate Formula Spectrum 1: Area Documond% Na2O 1.1 0.1 1.4 Na2O 1.1 0.1 1.4 Na2O 1.1 0.1 0.3 3.2 Na2O 1.1 0.1 0.1 0.3 Na2O 1.1 0.1 0.1 0.3 Na2O 1.1 0.1 0.3 3.2 SiO2 18.7 0.1 0.3 3.5 CaO 2.5 0.1 0.3 3.5 V205 n.d. 0.1 0.3 3.5 V205 n.d. 0.1 0.3 3.1.8 MnO 0.1 0.1 0.3 3.1.8 K203 n.d. 0.1 0.3 3.1.8 MnO 0.1 0.1 0.3 3.1.8 As203 n.d. 0.3
	ample Area (eight% sigma 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3	IICROSCOPY Sample Sample Spectrum 1: Area weight% weight% sigma n.d. Weight% sigma n.d. 0.1 1.7 0.1 1.7 0.1 1.1 0.0 1.1 0.0 1.	ELECTRON MICROSCOPY ng slag Sample ng slag Spectrum 1: Area Formula Weight% Weight% sigma Na2O 1.1 0.1 SiO2 1.1 0.1 SiO2 1.1 0.1 SiO2 1.1 0.1 So3 n.d. 0.1 V205 n.d. 0.1 MnO 0.2 0.1 MnO 0.1 0.1 Ag2O3 n.d. 0.1 Sb2O3 n.d. 0.3 MnO 0.3 0.3 MnO 0.3 0.3 MnO 0.3 0.3

155A: Site of interest 1 spectra analysis

of Stage Sample Botchergate 155A Site of Interes Formula Formula Spectrum 1: Area Spectrum 2: Area Spectrum 2: Area Formula Weight% weight% sigma Compound% Weight% sigma Compound% Unit Ind Ind<
Ing sleg Sample Botchergate 155A Naz Formula Weight% Weight% Neight% sigma Spectrum 1: Area Spectrum 2: Area Formula Weight% Weight% Neight% sigma Compound% Weight% sigma Compound% Weight% sigma Na2D 1.0 0.1 1.4 1.2 0.1 Na2D 1.6 0.1 1.4 1.2 0.1 Na2D 1.6 0.1 1.0 0.1 0.0 Na2D 1.6 0.1 1.4 1.2 0.1 Na2D 1.6 0.1 1.0 0.1 0.0 Si22 1.7.9 0.2 38.3 31.3 0.1 SO3 n.d. 0.1 0.1 0.1 0.1 CaO 2.6 0.1 0.2 0.1 0.1 V205 n.d. 0.1 0.2 0.1 0.1 MnC 0.1 0.1 0.2 0.1 0.1 0.1 V205 n.d. 0.1 0.1 <
ng slag Sample Botchergate 155A ng slag Spectrum 1: Area Neight% Weight% sigma Botchergate 155A Formula Weight% Weight% sigma Compound% Weight% Na20 1.0 0.1 1.2 Mg0 0.6 0.1 1.4 1.2 Mg0 0.6 0.1 1.0 0.6 Al203 1.6 0.1 1.0 0.6 Al203 1.6 0.1 1.0 0.1 Na20 1.6 0.1 1.0 0.1 S02 1.7 0.2 3.8.3 18.3 S02 1.0 0.1 0.2 0.1 Ca0 2.6 0.1 0.2 0.1 V205 n.d. 0.1 0.2 0.1 MnO 0.1 0.1 0.2 0.1 V205 n.d. 0.1 0.2 0.1 MnO 0.1 0.1 0.2 0.1 MnO 0.1 0.1 0.
Ing stag Sample Botchergate Formula Weight% weight% sigma Botchergate Formula Weight% weight% sigma Compound% Na2C0 1.0 0.1 1.4 Na2C0 1.0 0.1 1.4 Na2C0 1.0 0.1 1.0 Na2C0 1.0 0.1 1.0 Na2C0 1.0 0.1 1.0 Na2C0 1.0 0.1 1.0 Na2C0 1.0 0.1 3.6 SO3 1.0 0.1 0.0 SO3 0.1 0.1 0.2 SO3 0.1 0.1 0.2 V2D5 0.1 0.1 0.2 MnC 0.1 0.1 0.1 0.1 Nic 0.1 0.1 0.1 0.1 Nic 0.1 0.1 0.1 0.1 Nic 0.1 0.1 0.1 0.1 Nio 0.1 0.1
Ing slag Sample Formula Spectrum 1: Area Formula Weight% Weight% sigma Na2O 1.0 0.1 Na2O 1.0 0.1 Na2O 1.0 0.1 Na2O 1.0 0.1 NgO 1.0 0.1 SiO2 1.10 0.1 SiO2 1.10 0.1 SiO2 1.10 0.1 K2O 1.10 0.1 V2O5 0.1 0.1 NiO 0.1 0.1 V2O3 0.1 0.1 NiO 0.1 0.1 Sb203 n.d. 0.2 BaO 0.3 0.3 0.3 As2203 n.d. 0.2 BaO 0.3 0.3 0.3 Astolchio
Ig slag Spectrum 1: Spectrum 1: MgC Spectrum 1: Na2O Spectrum 1: N.d. Na2O 1.0 N.d. N.d. Na2O 1.0 0.6 N.d. Na2O 1.0 0.1 0.6 Na2O 1.0 0.1 0.6 Na2O 0.1 0.6 0.1 Y2O5 0.1 1.0 0.1 V2O5 0.1 0.1 0.1 NiO 0.1 0.1 0.0 Size03 0.3 0.3 31.1
19 slag Formula Na2O Na2O Na2O Na2O Na2O Na2O SiO2 SiO2 SiO2 SiO3 Na2O NiO NiO SiD2 SiD2 SiD2 SiD2 SiD2 SiD2 SiD2 SiD2

155A: Site of interest 2 spectra analysis

Sample: Lead smelting slag – Botchergate 160



Site of interest 1







Site of interest 3

SCANNING	ELECTRON A	<u>AICROSCOP</u>	۲										
Lead smelt	ng slag		Sample	Botchergate	160		Site of Intere	st 1					
		Spectrum ;	1: Area		Spectrum	2: Area		Spectrum	3: Phase		Spectrum	4: Phase	
Element	Formula	Weight%	Weight% sigma	Compound%	Weight%	Weight% sigma	Compound%	Weight%	Weight% sigma	Compound%	Weight%	Weight% sigma	Compound%
ш		n.d.			n.d			n.d.			n.d.		
Na	Na2O	1.2	0.1	1.6	0.9	0.1	1.2	1.0	0.1	1.3	1.0	0.1	1.3
Mg	MgO	0.5	0.1	0.8	0.6	0.1	1.0	0.6	0.1	0.9	0.5	0.1	0.9
A	AI203	1.7	0.1	3.1	1.6	0.1	3.1	1.7	0.1	9.1	1.6	0.1	2.9
Si	Si02	17.9	0.2	38.4	18.0	0.2	38.5	18.2	0.2	39.0	18.1	0.2	38.6
۵.	P205	0.2	0.0	4.0	0.1	0.0	0.3	0.1	0.0	0.3	0.1	0.0	0.2
w	SO3	n.d.			n.d.			n.d.			n.d.		
¥	K20	1.0	0.0	1.2	1.0	0.1	1.2	1.0	0.1	1.2	1.0	0.1	1.2
Ca	CaO	2.5	0.1	3.5	2.7	0.1	3.7	2.5	0.1	3.5	2.5	0.1	3.6
ц	Ti02	0.1	0.1	0.1	0.2	0.1	0.3	0.1	0.1	0.2	0.1	0.1	0.1
>	V205	0.1	0.1	0.1	n.d.			n.d.			n.d.		
ŗ	Cr2O3	0.1	0.1	0.1	n.d.			n.d.			0.1	0.1	0.1
M	MnO	0.4	0.1	0.5	0.4	0.1	0.5	0.5	0.1	0.6	0.4	0.1	0.5
Fe	Fe203	5.7	0.1	8.2	5.7	0.1	8.1	5.8	0.1	8.3	5.7	0.1	8.1
c	CoO	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
ïŻ	0 N	n.d.			n.d.			n.d.			0.1	0.1	0.1
Cu	CuO	n.d.			n.d.			n.d.			0.1	0.1	0.1
Zn	ZnO	7.9	0.2	9.8	7.7	0.2	9.6	7.9	0.2	9.9	7.7	0.2	9.6
As	As203	0.1	0.1	0.1	0.1	0.1	0.1	n.d.			n.d.		
βĄ	Ag2O	n.d.			n.d.			n.d.			n.d.		
Sb	Sb203	0.4	0.2	0.5	0.4	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.2
Ba	BaO	0.2	0.1	0.2	n.d			0.2	0.1	0.2	р.u		
Рb	PbO	30.1	0.3	32.5	30.9	0.3	33.3	30.6	0.3	32.9	30.9	0.3	33.3
0		30.9	0.3		30.9	0.3		31.2	0.3		30.7	0.3	
Totals		100.0			100.0			100.0			100.0		
Processing	option : Oxyge	n by stoichio	metry (Normalise	q)		n.d. = not detect	ed						
Number of I	erations : 3												
Sample is p Sample is o	uisrieu. vatad with ∩art	ann - thickne	see (nm): 15 () de	ineih/ /a/cm3/·	0 0 E								
Detector effi	ciency : Calcul	ation	מים אוווין. ויטיט מנ	nany (yumo).	24.2								

160: Site of interest 1 spectra analysis

SCANNING	ELECTRON N	AICROSCOF	2				;						
ad smelti	ng slag		Sample	Botchergate	160		Site of Intere	st 2					
		Spectrum	1: Area		Spectrum 2	2: Area		Spectrum	13: Phase		Spectrum	4: Phase	
lement	Formula	Weight%	Weight% sigma	Compound%	Weight%	Weight% sigma	Compound%	Weight%	Weight% sigma	Compound%	Weight%	Weight% sigma	Compound%
		n.d.			<u>п.а</u>			n.d.			n.a.		
a D	Na2O	0.0	0.1	1.2	0.0	0.1	1.2	1.0	0.1	1.4	1.0	0.1	4.1
<u>0</u>	MgO	0.5	0.1	0.9	0.5	0.1	0.9	0.5	0.1	0.9	0.5	0.1	0.9
	Al2O3	1.6	0.1	3.1	1.6	0.1	3.1	1.7	0.1	3.2	1.6	0.1	3.0
	Si02	17.3	0.2	37.1	17.9	0.2	38.3	17.4	0.2	37.2	18.0	0.2	38.6
	P205	0.1	0.1	0.2	0.1	0.0	0.3	0.1	0.1	0.2	0.2	0.1	0.4
	SO3	n.d.			n.d.			n.d.			n.d.		
	K20	0.9	0.1	1.1	1.0	0.1	1.2	1.0	0.1	1.2	1.0	0.1	1.1
a (CaO	2.4	0.1	3.3	2.4	0.1	3.4	2.4	0.1	Э. 4	2.5	0.1	3.5
	Ti02	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2
,	V205	n.d.			n.d.			0.1	0.1	0.1	n.d.		
×	Cr2O3	n.d.			n.d.			n.d.			n.d.		
ے	MnO	0.4	0.1	0.5	0.4	0.1	0.5	0.4	0.1	0.5	0.4	0.1	0.5
Ð	Fe203	5.3	0.1	7.6	5.6	0.1	8.0	5.5	0.1	7.9	5.4	0.1	7.8
0	CoO	.p.u			0.1	0.1	0.1	0.1	0.1	0.1	n.d.		
	Nio	.p.u			n.d.			n.d.			п.d.		
n	CuO	0.1	0.1	0.1	n.d.			n.d.			n.d.		
-	ZnO	7.7	0.2	9.5	7.4	0.2	9.2	7.7	0.2	9.6	7.6	0.2	9.4
s	As203	.p.u			0.1	0.1	0.1	0.1	0.1	0.1	n.d.		
ŋ	Ag2O	n.d.			n.d.			n.d.			n.d.		
q	Sb203	0.4	0.2	0.4	0.3	0.2	0.3	0.4	0.2	0.5	0.4	0.2	0.5
co S	BaO	0.3	0.1	0.3	n.d.			0.2	0.1	0.2	n.d.		
q	PbO	33.9	0.3	36.6	32.6	0.3	35.2	32.7	0.3	35.2	31.7	0.3	34.1
~		29.9	0.3		30.5	0.3		30.1	0.3		30.9	0.3	
otals		100.0			100.0			100.0			100.0		
processing (option : Oxyger	n by stoichio	metry (Normalise	(ਰ		n.d. = not detect	ed						
ample ic no	erations . J Michad												
ample is pr	ononed. vated with Cart	son - thickne	ace (nm): 15 () de	sheity (alom 3).	0.05								
	alea will can		בפס (וווו). וכיכי מנ	and Avancy.	77.7								
etector etti	ciency : Calcui	lation											

160: Site of interest 2 spectra analysis

SCANNING I	ELECTRON M	ICROSCOF	≿I		
Lead smeltir	ıg slag		Sample	Botchergate 160	Site of Interest 3
Element	Formula	Spectrum Weight%	1: Area Weight% sigma	Compound%	
r N	Na2O				
Мg	MgO	0.1	0.1	0.1	
A	AI2O3	n.d.			
Si	SiO2	5.3	0.1	11.4	
۵	P205	0.1	0.1	0.2	
S	SO3	n.d.			
¥	K20	n.d.			
Ca	CaO	0.1	0.1	0.1	
F	Ti02	0.1	0.1	0.1	
>	V205	n.d.			
ŗ	Cr203	n.d.			
Mn	MnO	n.d.			
Ъе	Fe203	0.1	0.1	0.1	
ပိ	000	n.d.			
ïz	0IN	n.d.			
Cu	CuO	n.d.			
Zn	ZnO	0.1	0.2	0.1	
As	As203	n.d.			
Ag	Ag2O	n.d.			
Sb	Sb203	0.2	0.2	0.2	
Ba	BaO	0.1	0.2	0.2	
Pb	PbO	84.2	0.7	20.7	
0		11.6	0.3		
Totals		100.0			
Processing o Number of ite	ption:Oxygen erations:3	hy stoichic	metry (Normalise	()	n.d. = not detected
Sample is po	lished.		- - - - -		
Sample is co Detector effic	ated with Carb siency : Calcula	oon - thickn ation	ess (nm): 15.0, d	ensity (g/cm3): 2.25	

160: Site of interest 3 spectra analysis

Sample: Lead smelting slag – Grinton Smeltings GS-C



Site of interest 1



Site of interest 2

		um 4: Phase	r% weignt% sigma compound% } 0.5 0.0	0.1 0.1			5 0.1 31.1	0.0 0.2			3 0.3 51.5			0.0		0.0							0.2 0.1	0.1 0.9	0.1 1.8	3 0.3	0		
		Spectr	compound% weight 0.0 14.4	0.1	0.1 n.d.	n.d.	31.0 14.5	0.2 0.1	n.d.	n.d.	51.0 36.8	n.d.	n.d.	0.1 0.1	0.1 n.d.	0.2 0.1	n.d.	n.d.	n.d.	n.d.	0.1 n.d.	n.d.	0.1	0.9 0.8	1.8 1.7	31.6	1001		
		13: Phase	vveignt% sigma t 0.5	•	0.0		0.1	0.0			0.3			0.0	0.0	0.0					0.1			0.1	0.1	0.3			
	rest 1	Spectrum	% weignt% 14.8	n.d.	0.1	n.d.	14.5	0.1	n.d.	n.d.	36.4	n.d.	n.d.	0.1	0.1	0.1	n.d.	n.d.	n.d.	n.d.	0.1	n.d.	n.d.	0.8	1.7	31.5	100.0		
	Site of Inte	- - - -	Compound: 0.0	0.3	0.5	2.5	29.9	1.0		0.7	17.1	0.2		0.1	0.2	2.8		0.1		1.2				20.1	17.0			ğ	
	U	2: Area	vveignt% sigma 0.5	0.1	0.1	0.1	0.1	0.0		0.0	0.1	0.1		0.1	0.1	0.1		0.1		0.1				0.2	0.2	0.3		n.d. = not detecle	
	ltings GS-6	Spectrum	vveignt% 6.7	0.2	0.3	1.3	14.0	0.4	n.d.	0.6	12.2	0.1	n.d.	0.1	0.1	1.9	n.d.	0.1	n.d.	1.0	n.d.	n.d.	n.d.	18.0	15.8	27.4	100.0		
	Grinton Sme	i i i i i i i i i i i i i i i i i i i	.compouna% 0.0	0.2	0.6	2.7	29.8	ا .		0.8	15.6	0.1			0.2	2.7			0.1	1.5				20.3	18.9			(þ	
≻ī	Sample	Area	weignt≫ sigma 0.5	0.1	0.1	0.1	0.1	0.1		0.0	0.1	0.1			0.1	0.1			0.1	0.1				0.2	0.3	0.3		netry (Normalise	
ICROSCOP	.,	Spectrum 1	veignt%	0.1	0.3	1.4	13.9	0.5	.p.u	0.6	11.2	0.1	n.d.	n.d.	0.1	1 .0	.p.u	.p.u	0.1	1.2	.p.u	n.d.	n.d.	18.2	17.6	27.1	100.0	h by stoichior	
ELECTRON M	ting slag	Ľ	rormula	Na2O	MgO	AI2O3	SiO2	P205	SO3	K20	CaO	Ti02	V205	Cr203	MnO	Fe203	C00	0.N	CuO	ZnO	As203	Ag2O	Sb203	BaO	PbO			option : Oxygen	iterations : 3 olished
SCANNING	Lead smelt	Ē	Element F	Na	Mg	Ā	Si	۵.	თ	¥	Са	Ξ	>	ن	Mn	Fe	с С	ïz	Cu	Zn	As	ΡG	Sb	Ва	РЬ	0	Totals	Processing	Number of . Sample is n

GS-C: Site of interest 1 spectra analysis

eff Spectrum 1: Areal (Marchine) Spectrum 2: Areal (Marchine) Spectrum 2: Phase (Marchine) Spectrum 2: Phase (March	Eff Farmus Spectrum 1: Area Spectrum 2: Area Spectrum 2: Area Spectrum 4: Phase Spectrum 4: Ph	ad smelting slag	ů,	- ample	Grinton Smell	tings GS-C		Site of Intere	st 2					
off Formula Vergative weights, signar Compounds, weights, weights, signar Compounds, weights, signar Compounds, weights, signar Compounds, weights, weights, weights, signar Compounds, weights,	off Formula Weights Stand Compounds Weights Stand Compounds Weights Stand Compounds Weights Stand Compounds Meights Weights Stand Compounds Meights Weights Stand Compounds Meights Weights Stand Compounds Meights Meights Meights Meights Meights Meights Meights M		Societum 1			Spectra w 2.	Corv.		Coocta managements	2. Dhase		Spectra W	- Dhaca	
		ent Formula	Weight% W	veight% sigma	Compound%	Weight% W	/eight% sigma	Compound%	Weight%	Veight% sigma	Compound%	Weight% \	Veight% sigma	Compound%
			6.3	0.5 0	0.0	, 6 4.0	0.5	0.0	17.9	0.5	0.0	13.4	, 0.5	0.0
	Mgc 0.4 0.1 0.6 0.3 0.1 0.0 0.1 0.0 0.2 0.3 0.1 0.0 0.2 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 <td>Na2O</td> <td>0.1</td> <td>0.1</td> <td>0.2</td> <td>0.2</td> <td>0.1</td> <td>0.3</td> <td>n.d.</td> <td></td> <td></td> <td>n.d.</td> <td></td> <td></td>	Na2O	0.1	0.1	0.2	0.2	0.1	0.3	n.d.			n.d.		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		MgO	0.4	0.1	0.6	0.3	0.0	0.5	0.1	0.0	0.1	0.1	0.0	0.2
SiO2 139 0.1 237 140 0.1 239 144 0.1 307 143 0.1 306 P2056 0.3 0.0 0.3 0.4 0.1 </td <td>SIO2 13.9 0.1 29.7 14.0 0.1 20.7 14.3 0.1 30.7 14.4 0.1 10.1 <</td> <td>AI203</td> <td>1.4</td> <td>0.1</td> <td>2.7</td> <td>1.4</td> <td>0.1</td> <td>2.6</td> <td>n.d.</td> <td></td> <td></td> <td>n.d.</td> <td></td> <td></td>	SIO2 13.9 0.1 29.7 14.0 0.1 20.7 14.3 0.1 30.7 14.4 0.1 10.1 <	AI203	1.4	0.1	2.7	1.4	0.1	2.6	n.d.			n.d.		
P205 03 00 04 0.4 0.1 0.1 0.2 0.0 0.5 703 nd 0 0.7 0.6 0.7 0.6 0.1	P205 0.3 0.0 0.8 0.4 0.0 10 0.1 0.0 0.1 0.2 0.0 0.5 C30 0.4 0.0 0.7 0.8 0.0 0.1	Si02	13.9	0.1	29.7	14.0	0.1	29.9	14.4	0.1	30.7	14.3	0.1	30.6
S03 nd nd nd CaO 112 01 07 06 00 07 06 03 04 364 <t< td=""><td>SC3 nd, nd,</td></t<> <td>P205</td> <td>0.3</td> <td>0.0</td> <td>0.8</td> <td>0.4</td> <td>0.0</td> <td>1.0</td> <td>0.1</td> <td>0.0</td> <td>0.1</td> <td>0.2</td> <td>0.0</td> <td>0.5</td>	SC3 nd,	P205	0.3	0.0	0.8	0.4	0.0	1.0	0.1	0.0	0.1	0.2	0.0	0.5
R20 0.6 0.0 0.7 0.8 0.4 0.1 <td>K2D 0.6 0.0 0.7 0.8 n.d. n.d</td> <td>SO3</td> <td>n.d.</td> <td></td> <td></td> <td>n.d.</td> <td></td> <td></td> <td>n.d.</td> <td></td> <td></td> <td>n.d.</td> <td></td> <td></td>	K2D 0.6 0.0 0.7 0.8 n.d. n.d	SO3	n.d.			n.d.			n.d.			n.d.		
Cal 112 0.1 15.7 118 0.1 16.4 35.3 0.3 49.4 35.8 0.3 50.1 TO2 n.d. 0.1 0.	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	K20	0.6	0.0	0.7	0.6	0.0	0.8	n.d.			n.d.		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	CaO	11.2	0.1	15.7	11.8	0.1	16.4	35.3	0.3	49.4	35.8	0.3	50.1
V205 nd nd nd C203 0.1	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Ti02	n.d.			0.1	0.1	0.1	n.d.			n.d.		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	CI203 01	V205	n.d.			n.d.			n.d.			n.d.		
MnO nd, Fe2O3 2.0 0.1 0.1 0.1 0.2 nd 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.	MnO nd 0.1	Cr203	0.1	0.1	0.1	n.d.			0.1	0.0	0.1	n.d.		
Fe2O3 2.0 0.1 2.8 1.8 0.1 2.6 0.1 0.0 0.2 0.2 0.1 0.2 0.1 0.2 0.1 </td <td>Fe2O3 2.0 0.1 2.8 1.8 0.1 2.6 0.1 0.0 0.2 0.1<!--</td--><td>MnO</td><td>n.d.</td><td></td><td></td><td>0.1</td><td>0.1</td><td>0.2</td><td>n.d.</td><td></td><td></td><td>0.1</td><td>0.0</td><td>0.1</td></td>	Fe2O3 2.0 0.1 2.8 1.8 0.1 2.6 0.1 0.0 0.2 0.1 </td <td>MnO</td> <td>n.d.</td> <td></td> <td></td> <td>0.1</td> <td>0.1</td> <td>0.2</td> <td>n.d.</td> <td></td> <td></td> <td>0.1</td> <td>0.0</td> <td>0.1</td>	MnO	n.d.			0.1	0.1	0.2	n.d.			0.1	0.0	0.1
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	CoO nd. nd. <td>Fe203</td> <td>2.0</td> <td>0.1</td> <td>2.8</td> <td>1.8</td> <td>0.1</td> <td>2.6</td> <td>0.1</td> <td>0.0</td> <td>0.2</td> <td>0.2</td> <td>0.1</td> <td>0.2</td>	Fe203	2.0	0.1	2.8	1.8	0.1	2.6	0.1	0.0	0.2	0.2	0.1	0.2
NiO nd. nd. nd. nd. nd. ZnO 1.0 0.1	NiO n.d. n.d. n.d. n.d. n.d. CuO n.d. 0.1 0.	000	n.d.			n.d.			0.1	0.1	0.1	n.d.		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Nio	n.d.			n.d.			n.d.			n.d.		
ZnO 10 0.1 1.2 1.0 0.1 1.2 n.d. 0.1 <td>$\begin{array}{cccccccccccccccccccccccccccccccccccc$</td> <td>CuO</td> <td>n.d.</td> <td></td> <td></td> <td>0.1</td> <td>0.1</td> <td>0.1</td> <td>0.1</td> <td>0.1</td> <td>0.1</td> <td>n.d.</td> <td></td> <td></td>	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	CuO	n.d.			0.1	0.1	0.1	0.1	0.1	0.1	n.d.		
As203 n.d. 0.1 <t< td=""><td>As203 n.d. 0.1<</td><td>ZnO</td><td>1.0</td><td>0.1</td><td>1.2</td><td>1.0</td><td>0.1</td><td>1.2</td><td>n.d.</td><td></td><td></td><td>0.1</td><td>0.1</td><td>0.1</td></t<>	As203 n.d. 0.1<	ZnO	1.0	0.1	1.2	1.0	0.1	1.2	n.d.			0.1	0.1	0.1
Ag20 n.d. n.d. n.d. n.d. n.d. Sb203 0.1 0.2 0.1 n.d. 0.1 0.2 0.3 BaO 18.2 0.2 20.3 17.7 0.2 19.8 0.9 0.1 1.6 1.8 PbO 17.8 0.2 19.2 17.7 0.2 19.4 0.2 0.1 1.0 1.6 PbO 17.8 0.3 27.2 0.3 30.8 0.3 2.6 0.1 1.8 0.3 26.8 0.3 17.0 0.2 18.4 0.2 0.1 0.3 2.6 0.1 1.8 10.0 17.0 0.3 27.2 0.3 30.8 0.3 31.4 0.3 ssing option : Oxygen by stoichiometry (Normalised) n.d. = not detected n.d. = not detected n.d. = not detected 100.0 100.0 100.0 ale is polished. 0.3 n.d. = not detected n.d. = not detected 100.0 100.0 100.0 100.0 100.0	Ag20 n.d. n.d. <th< td=""><td>As203</td><td>n.d.</td><td></td><td></td><td>0.1</td><td>0.1</td><td>0.1</td><td>n.d.</td><td></td><td></td><td>0.1</td><td>0.1</td><td>0.1</td></th<>	As203	n.d.			0.1	0.1	0.1	n.d.			0.1	0.1	0.1
Sb203 0.1 0.2 0.1 n.d. 0.1 0.2 0.1 0.3 0.2 0.3 BaO 18.2 0.2 20.3 17.7 0.2 19.8 0.9 0.1 1.6 0.1 1.8 PbO 17.8 0.2 19.2 17.7 0.2 19.8 0.9 0.1 1.6 0.1 1.8 PbO 17.8 0.2 19.2 17.7 0.2 18.4 0.2 0.1 1.6 0.1 1.8 26.8 0.3 27.2 0.3 30.8 0.3 31.4 0.3 31.4 0.3 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 ssing option : Oxygen by stoichiometry (Normalised) n.d. = not detected 1.00.0 1.00.0 1.00.0 1.00.0 ac of iterations : 3 1 1.0 1.6 1.6 1.6 0.3 1.00.0 1.00.0 ac of iterations : 3 1.0 1.0 1.0 1.6 1.0 1.6 1.6 1.6 1.6 1.6	Sb203 0.1 0.2 0.1 n.d. 0.1 0.2 0.3 0.2 0.3 BaO 18.2 0.2 20.3 17.7 0.2 19.8 0.9 0.1 1.6 0.1 1.8 PbO 17.8 0.2 19.2 17.7 0.2 19.8 0.9 0.1 1.0 1.6 0.1 1.8 PbO 17.8 0.2 19.2 17.7 0.2 18.4 0.2 0.1 1.6 0.1 1.8 26.8 0.3 27.2 0.3 30.8 0.3 31.4 0.3 31.4 0.3 ssing option : Oxygen by stoichiometry (Normalised) 1.00.0 1.00.0 1.00.0 1.00.0 1.00.0 1.00.0 er of iterations : 3 16 is pollshed. n.d. = not detected 1.00.0 1.00.0 1.00.0 1.00.0 1.00.0 le is pollshed. 1.4 0.2 0.3 1.00.0 1.00.0 1.00.0 1.00.0 1.00.0 1.00.0 1.00.0 1.00.0 1.00.0 1.00.0 1.00.0 1.00.0 1.00.0	Ag2O	n.d.			n.d.			n.d.			n.d.		
BaO 18.2 0.2 20.3 17.7 0.2 19.8 0.9 0.1 1.0 1.6 0.1 1.8 PbO 17.8 0.2 19.2 17.0 0.2 18.4 0.2 0.1 1.0 1.6 0.1 1.8 PbO 17.8 0.2 19.2 17.0 0.2 18.4 0.2 0.1 0.3 2.6 0.1 2.8 string option : Oxygen by stoichiometry (Normalised) 100.0 100.0 100.0 100.0 100.0 100.0 100.0 er of iterations : 3 a collished. n.d. = not detected n.d. = not detected n.d. = not detected 100.0 100.	BaO 18.2 0.2 20.3 17.7 0.2 19.8 0.9 0.1 1.6 0.1 1.8 PbO 17.8 0.2 19.2 17.0 0.2 18.4 0.3 2.6 0.1 1.8 PbO 17.8 0.2 19.2 17.0 0.2 18.4 0.3 2.6 0.1 2.8 ssing option : Oxygen by stoichiometry (Normalised) 100.0 <t< td=""><td>Sb203</td><td>0.1</td><td>0.2</td><td>0.1</td><td>n.d.</td><td></td><td></td><td>0.1</td><td>0.2</td><td>0.1</td><td>0.3</td><td>0.2</td><td>0.3</td></t<>	Sb203	0.1	0.2	0.1	n.d.			0.1	0.2	0.1	0.3	0.2	0.3
PbO 17.8 0.2 19.2 17.0 0.2 18.4 0.2 0.1 0.3 2.6 0.1 2.8 26.8 0.3 27.2 0.3 30.8 0.3 31.4 0.3 31.4 0.3 2.8 0.3 31.4 <td>PbO 17.8 0.2 19.2 17.0 0.2 18.4 0.2 0.1 2.8 0.1 2.8 26.8 0.3 27.2 0.3 30.8 0.3 31.4 0.3 31.4 0.3 2.8 0.3 31.4 0.3<td>BaO</td><td>18.2</td><td>0.2</td><td>20.3</td><td>17.7</td><td>0.2</td><td>19.8</td><td>6.0</td><td>0.1</td><td>1.0</td><td>1.6</td><td>0.1</td><td>1.8</td></td>	PbO 17.8 0.2 19.2 17.0 0.2 18.4 0.2 0.1 2.8 0.1 2.8 26.8 0.3 27.2 0.3 30.8 0.3 31.4 0.3 31.4 0.3 2.8 0.3 31.4 0.3 <td>BaO</td> <td>18.2</td> <td>0.2</td> <td>20.3</td> <td>17.7</td> <td>0.2</td> <td>19.8</td> <td>6.0</td> <td>0.1</td> <td>1.0</td> <td>1.6</td> <td>0.1</td> <td>1.8</td>	BaO	18.2	0.2	20.3	17.7	0.2	19.8	6.0	0.1	1.0	1.6	0.1	1.8
26.8 0.3 27.2 0.3 30.8 0.3 31.4 0.3 s 100.0 100.0 100.0 100.0 100.0 100.0 100.0 ssing option : Oxygen by stoichiometry (Normalised) n.d. = not detected n.d. = not detected n.d. = not detected 100.0 <t< td=""><td>26.8 0.3 27.2 0.3 30.8 0.3 31.4 0.3 s 100.0 100.0 100.0 100.0 100.0 100.0 100.0 ssing option : Oxygen by stoichiometry (Normalised) n.d. = not detected 100.0 100.0 100.0 100.0 se of iterations : 3 16 politiced n.d. = not detected 100.0 100.0 100.0 100.0 a of iterations : 3 16 politiced n.d. = not detected 1.4 0.3 100.0</td><td>DPD</td><td>17.8</td><td>0.2</td><td>19.2</td><td>17.0</td><td>0.2</td><td>18.4</td><td>0.2</td><td>0.1</td><td>0.3</td><td>2.6</td><td>0.1</td><td>2.8</td></t<>	26.8 0.3 27.2 0.3 30.8 0.3 31.4 0.3 s 100.0 100.0 100.0 100.0 100.0 100.0 100.0 ssing option : Oxygen by stoichiometry (Normalised) n.d. = not detected 100.0 100.0 100.0 100.0 se of iterations : 3 16 politiced n.d. = not detected 100.0 100.0 100.0 100.0 a of iterations : 3 16 politiced n.d. = not detected 1.4 0.3 100.0	DPD	17.8	0.2	19.2	17.0	0.2	18.4	0.2	0.1	0.3	2.6	0.1	2.8
s 100.0 10	s 100.0 100.		26.8	0.3		27.2	0.3		30.8	0.3		31.4	0.3	
essing option : Oxygen by stoichiometry (Normalised) ber of iterations : 3 ble is polished.	essing option : Oxygen by stoichiometry (Normalised) n.d. = not detected ber of iterations : 3 bet is polished thickness (nm): 15.0. density (q/cm3): 2.25	Ś	100.0			100.0			100.0			100.0		
	de is poissed. De is coated with Carbon - thickness (nm): 15.0. density (q/cm3): 2.25	essing option : Oxyger her of iterations : 3	n by stoichiom	ietry (Normalised	f;	Ċ	.d. = not detect∈	ğ						
	ole is coated with Carbon - thickness (nm); 15.0, density (q/cm3); 2.25	ole is polished.												

GS-C: Site of interest 2 spectra analysis

Sample: Lead smelting slag – Grinton Smeltings GS-K



Site of interest 1





SCANNING EL	ECTRON N	(ICROSCOP)	5 -1													
Lead smeltinç	l slag	S)	ample	Grinton Sme	tings GS-K		Site of Interes	it 1								
		Spectrum 1:	Area		Spectrum 2	: Area		Spectrum 3	3: Phase		Spectrum 4	: Phase		Spectrum	5: Phase	
≣lement	Formula	Weight% V	Veight% sigma	Compound%	Weight% \	Neigh:% sigma	Compound%	Weight%	Weight% sigma	Compound%	Weight%	Veicht% sigma	Compound%	Weight%	Weight% sigma	Campound%
1ı		4.0	C.5	0.0	n.d.			6.0	0.4	0.0	4.0	0.5	0.0	0.5	0.7	0.0
e7	Na2O	0.6	C.1	0.8	0.5	0.1	2.0	0.3	0.1	4.0	0.1	0.1	0.1	, G	1.0	0.1
Mg	MgO	0.6	C.1	1.0	0.5	0.1	80	0.1	0.0	0.2	0.2	0.1	0.3	.р.г		
A	AI203	9	C.1	ر. ت	1.7	0.1	31	8.9	0.1	16.9	0.6	0.0	1.1	.р.г		
<u>ର</u>	SiO2	15.2	C.1	32.5	15.3	0.1	32.7	19.5	0.1	41.6	5.2	0.1	11.0	0.3	0.1	0.5
ń	P205	0.4	0.0	0.8	0.3	0.0	00	0.1	0.0	0.1	0.1	0.1	0.1	, O	0.1	0.3
ю	SOB	0.1	0.1	0.1	0.1	0.1	01	n.d.			6.7	0.1	16.8	.р.г		
¥	K20	0.7	0.0	0.9	0.7	0.0	60	2.9	0.1	3.5	0.3	0.1	4.0	лd.		
Ca	CaO	4.7	0.1	6.5	4.7	0.1	66	0.2	0.0	0.2	0. L	0.1	2.6	.р.г		
Ē	TiO2	0.2	0.1	0.3	0.1	0.1	01	0.1	0.1	0.2	0.2	0.1	0.3	.р.г		
>	V205	n.d.			n.d.			n.d.			n.d.			Р.С		
ō	Cr203	n.d.			n.d.			n.d.			n.d.			1.d.		
Mn	MnO	0.2	0.1	0.2	0.1	0.1	01	n.d.			0.1	0.1	0.2	Ъ.С.		
e II	Fe2O3	0.8 0.9	0.1	12.7	9.0	0.1	12.8	2.4	0.1	3.5	5.3	0.1	7.6	, 0	0.1	0.1
ပိ	000	n.d.			0.1	0.1	02	n.d.			n.d.			л.d.		
₽	Ni Ni	0.1	0.1	0.1	n.d.			0.1	0.1	0.1	n.d.			л.d.		
0. C	CnO	0.1	0.1	0.1	n.d.			n.d.			n.d.			ò	0.1	0.2
Zn	ZnO	4.6	0.1	5.7	4.6	0.1	58	1.7	0.1	21	2.0	0.1	2.5	, Ö	0.2	0.1
As	As203	n.d.			0.1	0.1	02	0.2	0.1	0.2	n.d.			.р.г		
Ag	Ag2O	n.d.			n.d.			n.d.			n.d.			.b.г		
Sb	Sb203	n.d.			n.d.			n.d.			n.d.			.р.г		
д а	BaO	14.7	0.2	16.4	14.9	0.2	16.6	25.5	0.2	28.9	5.6	0.2	6.2	.b.г		
¶∩	PbO	17.4	0.2	18.8	17.5	0.2	18.8	1.3	0.1	1.4	47.4	0.4	51.0	93.4	0.C	100.6
0		30.0	0.3		30.0	0.3		35.7	0.3		24.5	0.3		6.5	0.4	
To:als		100.0			100.0			100.0			100.0			100.0		
Processing opt	icn - Owner	t by stoichiom	etrv (Normalise	Ę	_	n d = not detecte	τ									
Number of iter	ations: 3	2		i.			,									
Sample is polic	shed.															
Sample is coat Detector efficie	ied with Cart ney : Calcu :	aon - thicknes ation	ss (nm): 15.0, d	ensity (g/cm3):	2.25											

GS-K: Site of interest 1 spectra analysis

			%punodwo	0.0			0.2	1.8		26.6		0.4					1.7			0.2	0.7				1.2	67.5				
		Phase	/eight% sigma C	0.6			0.0	0.1		0.2		0.1					0.1			0.1	0.1				0.2	0.5	0.3			
		Spectrum 4:	Weight% W	0.1	n.d.	n.d.	0.1	0.8	n.d.	10.6	n.d.	0.3	n.d.	n.d.	n.d.	n.d.	1.2	n.d.	n.d.	0.2	0.6	n.d.	n.d.	n.d.	1.0	62.7	22.7	100.0		
			Compound%	0.0	0.2	0.2	18.6	38.9			2.4	0.1	0.1				3.6	0.1			1.2	0.2			33.0	0.2				
		: Phase	//eight% sigma	0.4	0.1	0.0	0.1	0.1			0.0	0.0	0.1				0.1	0.1			0.1	0.1			0.2	0.1	0.3			
	st 2	Spectrum 3	Weight% V	1.5	0.2	0.1	6.6	18.2	n.d.	n.d.	2.0	0.1	0.1	Р. п	n.d.	n.d.	2.5	0.1	n.d.	n.d.	1.0	0.1	n.d.	n.d.	29.6	0.2	34.8	100.0		
	ite of Intere		%punodwo;		0.7	1.0	3.2	33.1	0.8	0.5	6.0	6.5	0.2			0.1	12.6	0.1	0.1	0.1	5.4	0.1			16.3	18.9				
	Ø	Area	veight% sigma C		0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1			0.1	0.1	0.1	0.1	0.1	0.1	0.1			0.2	0.2	0.3		.d. = not detecled	
	tings GS-K	Spectrum 2:	Weight% V	n.d.	0.5	0.6	1.7	15.5	0.3	0.2	0.7	4.6	0.1	n.d.	n.d.	0.1	8.8	0.1	0.1	0.1	4.4	0.1	n.d.	n.d.	14.6	17.5	30.4	100.0	c	
	Grinton Smelt		Compound% '	0.0	0.8	0.9	3.3	32.4	0.8	0.3	0.8	6.4				0.2	12.8		0.1		5.4				16.4	19.0			÷	
	ample	Area	/eight% sigma	0.5	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.1				0.1	0.1		0.1		0.2				0.2	0.3	0.3		ietry (Normalise	
ICROSCOPY	ώ.	Spectrum 1:	Weight% W	0.5	0.6	0.5	1.7	15.1	0.3	0.1	0.7	4 .6	n.d.	n.d.	n.d.	0.2	0.0	.p.u	0.1	n.d.	6.4 Ω	n.d.	n.d.	n.d.	14.7	17.7	30.0	100.0	by stoichiom	
ELECTRON MI	ng slag		Formula		Na2O	MgO	AI203	Si02	P205	SO3	K20	CaO	Ti02	V205	Cr203	MnO	Fe2O3	CoO	0.N	CuO	ZnO	As203	Ag2O	Sb203	BaO	PbO			pption : Oxygen erations : 3 lichod	
SCANNING	Lead smelti.		Element	ш	Na	Mg	A	Si	۵.	S	¥	Ca	Ξ	>	ن	Mn	Fe	C0	ïz	Cu	Zn	As	Ъg	Sb	Ba	РЬ	0	Totals	Processing c Number of its Semalo is no	יא אי דיאייושט

GS-K: Site of interest 2 spectra analysis

Sample: Lead smelting slag – Grinton Smeltings GS-B



Site of interest 1

Site of interest 2

Prime Site of Interest 1 Sample Grinton Smeltings GS-B Site of Interest 1 Niellings Sigma Compound% Weight% sigma Spectrum 2: Area 01 00 01 00 00 00 00 01 01 07 01 01 01 01 01 01 07 01 03 01 01 01 01 01 01 07 01 03 01			Spectrum 4: Phase	% Weight% Weight% sigma Compound%	1.4 0.5 0.0	0.7 0.1 0.9	0.5 0.1 0.8	1.2 0.1 2.3	14.6 0.1 31.2	0.4 0.0 0.9	0.1 0.1 0.2	0.6 0.0 0.7	7.2 0.1 10.1	0.1 0.1 0.2	n.d.	n.d.	0.2 0.1 0.2	6.0 0.1 8.6	0.1 0.1 0.1	0.1 0.1 0.1	n.d.	6.3 0.1 7.8	n.d.	n.d.	0.2 0.2 0.3	17.8 0.2 19.8	13.5 0.2 14.6	29.3 0.3	100.0		
Prime Site of Interest 1 Sample Grinton Smeltings GS-B Site of Interest 1 Sample Grinton Smeltings GS-B Site of Interest 1 Weight% sigma Compound% Weight% sigma Spectrum 3: P 0 0.1 0.7 0.1 0.0 1.1 0.1 0.7 0.4 0.1 0.7 0.4 0.1 0.7 0.4 0.1 0.7 0.4 0.1 0.7 0.1 0.7 0.1 0.7 0.4 0.1 0.7 0.1 0.1 0.7 0.4 0.1 0.7 0.4 0.1 0.7 0.1 0.1 0.3 0.1 0.7 0.4 0.1 0.7 0.4 0.1 0.7 0.4 0.1 0.7 0.4 0.1 0.7 0.4 0.1 0.7 0.4 0.1 0.7 0.4 0.1 0.7 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0			hase	ight% sigma Compound	0.5	0.1 1.5	0.0 0.7	0.1 7.8	0.1 37.6	0.0 0.2		0.0	0.1 15.8	0.1 0.2		0.1 0.1		0.1 3.5				0.2 10.2	0.1 0.1			0.2 16.7	0.1 3.7	0.3			
PY Sample Grinton Smeltings GS-B Site Sample Grinton Smeltings GS-B Site Site n1: Area 0.5 0.0 1.4 0.5 0.1 0.7 0.4 0.1 0.1 0.1 0.7 0.4 0.1 0.1 0.1 0.7 0.4 0.1 0.1 0.1 0.7 0.4 0.1 0.1 0.1 0.7 0.4 0.1 0.1 0.1 0.2 0.1 0.1 0.1 0.1 0.2 0.1 0.1 0.1 0.1 0.2 0.1 0.1 0.1 0.1 0.1 0.2 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1		of Interest 1	Spectrum 3: P	pound% Weight% Wei	0.0 1.0	0.9 1.1	0.7 0.4	3.2 4.1	31.3 17.6	0.8 0.1	0.3 n.d.	0.8 0.9	9.3 11.3	0.3 0.1	n.d.	0.1	n.d.	8.4 2.4	0.1 n.d.	n.d.	0.2 n.d.	7.4 8.2	0.2 0.1	0.1 n.d.	0.2 n.d.	20.4 15.0	14.0 3.4	34.3	100.0		
PY Sample Grinton Smeltings GS-E Sample Grinton Smeltings GS-E N1: Area Spectrum n1: Area 0.5 0.0 1.4 0.1 0.7 0.7 0.4 0.1 0.7 0.0 1.4 0.1 0.7 0.3 0.1 0.1 0.7 0.3 0.3 0.1 0.7 0.3 0.1 0.1 0.7 0.3 0.1 0.1 0.7 0.3 0.3 0.1 0.7 0.1 0.1 0.1 0.1 0.2 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.2 0.3 0.2 0.2 0.2 0.1 0.1 0.1 0.1 0.1 0.2 0.3 0.2 0.2 0.2 0.2 0.3		3 Site	2: Area	Weight% sigma Com	0.5	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1				0.1	0.1		0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3		n.d. = not detecled	
PY Cample C Sample Sample 0 N H: Area 0.1 0.1 N H: Area 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.2 0.1 0.1 0.2 0.1 0.1 0.2 0.2 0.2 0.2 0.2 0.3 0.2 0.2 0.3 0.2 0.2 0.3 0.2 0.2 0.3 0.2 0.3 0.3 0.2 0.3 0.3 0.3 0.3 0.3		Brinton Smeltings GS-I	Spectrum	Compound% Weight%	0.0	1.0 0.7	0.7 0.4	3.0 1.7	31.0 14.7	0.8 0.3	0.2 0.1	0.7 0.7	9.3 6.6	0.2 0.2	n.d.	n.d.	0.1 n.d.	8.6 5.9	0.1	0.1 n.d.	0.1	7.7 5.9	0.1 0.1	0.1 0.1	0.3 0.2	20.8 18.3	14.5 13.0	29.5	100.0	-	
	<u> VHC</u>	Sample C	n 1: Area	6 Weight% sigma C	0.5	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1			0.1	0.1		0.1		0.2	0.1	0.1	0.2	0.2	0.2	0.3		iiometry (Normalised)	
	SCANNING EL	Lead smeltinç		Element	ш	Na	Mg	ੇ ਕ	Si	۵.	S	¥	Ca	Ξ	>	ں ت	Mn	Fe	°C	ïz	Cu	Zn	As	Ъд	Sb	Ba	РЬ	0	Totals	Processing opt	

GS-B: Site of interest 1 spectra analysis

ROSCOPY Sample Grinton Smeltings GS-B Sample Grinton Smeltings GS-B Spectrum 1: Area Spectrum 2: Veight% veight% sigma 0.7 0.6 0.0 1.8 0.7 0.1 0.0 1.8 0.7 0.1 0.0 1.8 0.7 0.1 0.0 1.8 0.7 0.1 0.0 1.8 0.7 0.1 0.0 0.1 0.7 0.1 0.3 0.1 0.7 0.1 0.3 0.1 0.7 0.0 0.8 0.6 0.1 0.1 0.3 0.1 0.6 0.1 0.3 0.1 0.1 0.1 0.3 0.1 0.4 0.1 0.3 0.1 0.4 0.1 0.3 0.1 0.4 0.1 0.3 0.1 0.4 0.1 0.1 0.1 0.4 0.1 0.1 0.1
Roscopy sectrum 1: Area Veight% Weight% sigma 1.5 0.1 0.7 0.1 14.5 0.1 14.5 0.1 14.5 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1

GS-B: Site of interest 2 spectra analysis

Sample: Lead smelting slag – Pentre Farm PFCT/YD 14

Site of interest 1

Site of interest 2

SCANNING E	LECTRON N	AICROSCOP)	v _1													
Lead smeltin	g slag	S	ample	Pentre Farm	PFCT/YD-14	4	Site of Intere	st 1								
		Spectrum 1:	Area		Spectrum 2	:: Area		Spectrum 3:	Phase		Spectrum 4:	Phase		Spectrum 5:	Phase	
⊒kement	Formula	Weight% V	Veight% sigma	Compound%	Weight% V	Veigh:% sigma	Compound%	Weight% W	eight% sigma	Compound%	Weight% W	/eicht% sigma	Compound%	Weight% W	eight% sigma	Campor nd%
11		0.1	C:2	0.0	n.d.	0.5	00	n.d.			0.9	0.5	0.0	.р.г		
EN N	Na2O	40	C.1	0.5	0.4	0.1	05	n.d.			0.1	0.1	0.1	0.4		0.5
Mg	MgO	0.7	C.1	1.2	0.7	0.1		0.8	0.0	1.3	0.8	0.0	1.3	0.7	0.1	1.1
A	AI203	Ľ,	C.1	3.2	1.5	0.1	29	n.d.			n.d.			1.9	0.1	3.5
<u>છ</u>	SiO2	19.7	C.2	42.2	20.1	0.2	42.9	24.8	0.2	53.1	24.7	0.2	52.9	15.5	2.C	41.7
n	P205	0.1	0.0	0.3	0.1	0.0	02	n.d.			n.d.			, <u>0</u>	0.0	0.1
ю	SO3	n.d.			n.d.			0.1	0.0	0.1	n.d.			л.d.		
¥	K20	0,	0.1	1.2	0.8	0.0	60	n.d.			n.d.			1.0	0.1	1.3
Ca	CaO	7.8	0.1	10.9	10.1	0.1	14.2	30.6	0.2	42.9	30.5	0.2	4 2.6	5.3	0.1	7.4
Ξ	TiO2	0.2	0.1	0.2	0.1	0.1	02	n.d.			n.d.			0.2	0.1	0.3
>	V205	п.d.			n.d.			n.d.			n.d.			.р.г		
ŏ	Cr203	n.d.			n.d.			0.1	0.0	0.2	0.1	0.0	0.1	n.d.		
Mn	MnO	0.2	0.1	0.2	0.2	0.1	02	0.2	0.0	0.3	0.3	0.0	0.4	, . 0	0.1	0.1
e II	Fe2O3	, Ņ	0.1	1.7	1.3	0.1	18	0.5	D.1	0.7	0.5	0.1	0.6	1.4	0.1	2.0
රී	000	n.d.			n.d.			n.d.			n.d.			.р.г.		
₹	Nic	n.d.			0.1	0.1	0	n.d.			n.d.			.р.г		
3	ono	n.d.			n.d.			n.d.			n.d.			.р.г		
Zn	ZnO	9	0.1	1.9	1.5	0.1	18	0.3	0.1	0.4	0.3	0.1	0.3	1.9	0.1	2.3
As	As2O3	п.d.			n.d.			n.d.			n.d.			, . 0	0.1	0.1
Ag	Ag2O	n.d.			n.d.			n.d.			n.d.			.b.г		
Sb	Sb203	0.2	0.2	0.2	n.d.			n.d.			0.2	0.2	0.2	,. ,.	D.2	0.1
Эа	BaO	0.1	0.1	0.1	0.1	0.1	01	n.d.			n.d.			, ,	2.C	0.1
ዋ ∩	PbO	34.7	0.3	37.4	31.7	0.3	34.2	1.0	0.1	1.1	0.8	0.1	0.0	38.3	4 .C	41.3
0		31.1	0.3		32.1	0.3		41.6	0.3		41.3	0.3		30.2	0.0	
Totals		100.0			100.0			100.0			100.0			100.0		
Processing of	ticn : Oxygei	1 by stoichiom	etry (Normalise	(d)	L	n.d. = not detects	g									
Number of ite	rations : 2 abod															
Sample is cos	ted with Cart	on - thicknes	is (nm): 15.0. de	ensity (a/cm3): ;	2.25											
Detector effici	ency : Calcu	ation		2												

PFCT/YD-14: Site of interest 1 spectra analysis

		Spectrum 4: Phase Jund% Weight% Weight% sigma Compound% Onnd	.1 0.3 0.1 0.5	.3 0.5 0.0 0.8	1.2 0.0 2.2	2.9 21.7 0.2 46.3	.1 0.1 0.0 0.2	n.d.	0.7 0.0 0.8	2.6 4.7 0.1 6.5	0.1 0.1 0.2	n.d.	0.1 0.1 0.1	.4 0.1 0.1 0.2	.9 1.2 0.1 1.8	n.d.	0.1 0.1 0.1	n.d.	.4 1.8 0.1 2.2	n.d.	n.d.	n.d.	.1 n.d.	.2 36.9 0.3 39.8	31.5 0.3	100.0				
	2	bectrum 3: Phase eight% Weight% sigma Comp 0.1 0.5 0.5	0.1 0.1	0.8 0.0 1	n.d.	24.7 0.2 5.	0.1 0.0 0	n.d.	n.d.	30.5 0.2 4;	n.d.	n.d.	n.d.	0.3 0.0 0	0.6 0.1 0	n.d.	n.d.	n.d.	0.3 0.1 G	n.d.	n.d.	n.d.	0.1 0.1 0	1.1 0.1 1	41.5 0.3	100.0				
	Site of Interest 2	Sp a Compound% W	0.6	0.9	2.9	47.2			1.0	7.4	0.3		0.1	0.1	1.7		0.1		1.8					37.6			ecled			
	T/YD-14	ctrum 2: Area ght% Weight% sign d.	.4 0.1).5 0.1	1.5 0.1	2.1 0.2	.d.	<u>a</u>	0.1 0.1	5.3 0.1	0.1 0.1	d.	0.1 0.1	0.1 0.1	2 0.1	.d.	0.1 0.1	.d.	1.5 0.1	<u>.</u>	ġ	ġ.	ġ	4.9 0.3	2.6 0.3	0.00	n.d. = not dete			
	Pentre Farm PFC	Spec Compound% Weig n	0.6	0.9	2.4	45.2 23	0.2 n	С	0.8	10.2 5	0.1	0.2 U	0	0.1 0	1.6	C	0.1	C	1.7 1	E	C	0.1 n	0.1 L	36.6 3.	8	0	(þ		ancibi /a/am3/. 7 75	הציצ ימווח מו אומום
OPY	Sample	m 1: Area 6 Weight% sigma	0.1	0.0	0.0	0.2	0.0		0.0	0.1	0.1	0.1		0.1	0.1		0.1		0.1			0.2	0.1	0.3	0.3		niometry (Normalise		Lacce (am): 16 0 d	
RON MICROSCI	-	Spectrul nula Weight9 n.d.	0.4	0.5	33 1.3	21.1	5 0.1	n.d.	0.7	7.3	0.1	ତ .1	33 n.d.	0.1	03 1.1	n.d.	0.1	n.d.	1.4	03 n.d.	o D'u	03 0.1	0.1	34.0	32.2	100.0	Oxygen by stoict	l	ith Carbon - thick	
SCANNING ELECT	Lead smelting slaç	Element Forn F	Na Na20	Mg MgC	AI AI2C	Si SiO2	P P20	S SO3	K K20	Ca CaO	Ti Ti02	V V20	Cr Cr2(Mh MhC	Fe Fe2(Co Co Co Co Co Co	Ni NiO	Cu CuO	Zn ZnO	As As2(Ag Ag2(Sb Sb2(Ba BaO	Pb PbO	0	Totals	Processing option : Number of iterations	Sample is polished.	Sample is coated w	

PFCT/YD-14: Site of interest 2 spectra analysis

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Sample: Lead smelting slag – Pentre Farm PF8-31

Site of interest 2

			igma Compound%	0.0	0.6	0.5	3.3	42.4	4.0		1.1	1.0	0.2				1.5							0.1	0.2	49.7				
		n 4: Phase	6 Weight%s	0.6	0.1	0.1	0.1	0.2	0.1		0.1	0.1	0.1				0.1							0.2	0.2	0.4	0.3			
		Spectrur	1% Weight%	0.6	0.4	0.3	1.8	19.8	0.2	n.d.	6.0	0.7	0.1	n.d.	n.d.	n.d.	1.1	n.d.	n.d.	n.d.	п.d.	n.d.	n.d.	0.1	0.2	46.1	28.5	100.0		
			Compound		4 .0	0.3	3.7	43.5	0.3		1.2	0.9	0.2	0.2		0.1	1.6		0.1	0.1		0.1		0.1		48.9				
		3: Phase	Weight% sigma		0.1	0.1	0.1	0.2	0.1		0.1	0.1	0.1	0.1		0.1	0.1		0.1	0.1		0.1		0.2		0.4	0.3			
	est 1	Spectrum	Weight%	n.d.	0.3	0.2	2.0	20.3	0.1	n.d.	1.0	0.6	0.1	0.1	n.d.	0.1	1.1	'n.d.	0.1	0.1	n.d.	0.1	n.d.	0.1	р.с	45.4	29.2	100.0		
	Site of Inter		Compound%	0.0	0.5	0.4	3.6	44.1			1.3	0.7	0.4			0.1	1.3							0.2	0.1	48.2			q	
		2: Area	Weight% sigma	0.5	0.1	0.1	0.1	0.2			0.1	0.1	0.1			0.1	0.1							0.1	0.2	0.4	0.3		n.d. = not detecte	
	PF8-31	Spectrum	Weight%	0.4	0.4	0.3	1.9	20.6	n.d.	n.d.	1.0	0.5	0.2	n.d.	n.d.	0.1	0.9	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	0.2	0.1	44.8	29.3	100.0		
	Pentre Farm		Compound%	0.0	0.4	0. 4.	3.7	43.8			1.3	0.6	0.2				1.7			0.2	0.2					49.0			d)	
≿I	Sample	1: Area	Weight% sigma	0.5	0.1	0.1	0.1	0.2			0.1	0.1	0.1				0.1			0.1	0.1					0.4	0.3		metry (Normalise	
MICROSCOP		Spectrum .	Weight%	0.3	0.3	0.3	1.9	20.5	n.d.	n.d.	1.0	0.5	0.1	n.d.	n.d.	n.d.	1.2	n.d.	.p.u	0.1	0.1	n.d.	n.d.	.p.u	n.d.	45.5	29.0	100.0	n by stoichio	
ELECTRON A	ing slag		Formula		Na2O	MgO	Al203	Si02	P205	SO3	K20	CaO	Ti02	V205	Cr203	MnO	Fe203	CoO	0 N	CuO	ZnO	As203	Ag2O	Sb203	BaO	PbO			option : Oxygei terations : 2	olishad
SCANNING	Lead smelt		Element	ш	Na	Mg	A	Si	۵.	ю	¥	Са	Ξ	>	ن ن	Mh	Fe	с С	ïz	Cu	Zn	As	₽d	Sb	Ba	Рb	0	Totals	Processing Number of i	Sample is n

PF8-31: Site of interest 1 spectra analysis

		Spectrum 4: Phase	nt% sigma compound% vveignt% vveignt% sigma compound% of		0.1 0.1 0.3 0.1 0.0	0.1 0.4 0.2 0.0 0.3	0.1 5.2 2.2 0.1 4.2	0.2 48.4 21.7 0.2 46.4	n.d.	n.d.	0.1 1.3 0.9 0.1 1.1	0.1 0.1 0.2 0.1 0.3	0.1 0.3 0.2 0.1 0.4	n.d.	0.1 0.1 0.1	n.d.	0.1 1.4 1.1 0.1 1.5	n.d.	n.d.	n.d.	0.1 0.1 0.1 0.1 0.1	0.1 0.3 0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.2 0.1 0.1 0.1	0.2 0.1 n.d.	0.4 42.8 42.0 0.4 45.3	0.3 30.7 0.3	100.0			
	erest 2	Spectrum 3: Pha	a% weignt% weign		G .0	0.2	2.7	22.6	n.d.	n.d.	1.0	0.1	0.2	n.d.	n.d.	n.d.	1.0	л.d.	n.d.	n.d.	0.1	0.2	n.d.	0.2	0.1	39.7	32.0	100.0			
	Site of Int	ea Autor Comment	Int% sigma Compoun	0.0	0.1 U.6	0.0 0.5	0.1 4.5	0.2 48.0			0.1 1.2	0.1 0.4	0.1 0.4	0.1 0.1			0.1 1.7	0.1 0.1						0.1 0.2		0.4 43.0	0.3			= not detected	
	Farm PF8-31	Spectrum 2: Are	una% weignt% weig	7.0	4.0.	4 0.3	0 2.4	4 22.4	n.d.	n.d.	1 1.0	4 0.3	4 0.3	0.1	n.d.	n.d.	7 1.2	0.1	n.d.	1 n.d.	n.d.	n.d.	n.d.	0.1	n.d.	0 39.9	31.8	100.0		n.a. =	
	mple Pentre	rrea	eignt% sigma compo		0.1	0.0	0.1 4.1	0.2 47.			0.1	0.1 0	0.1 0.4				0.1			0.1 0.						0.4 46.	0.3		:	try (Normalised)	
MICROSCOPY	Sai	Spectrum 1: A	vveignt% vve 5.4	.D.L.	0.3	0.2	2.1	22.2	n.d.	n.d.	0.0	0.3	0.2	n.d.	n.d.	.p.u	1.2	n.d.	n.d.	0.1	n.d.	n.d.	n.d.	.p.u	.p.u	42.7	31.0	100.0		en by stoichiome.	
3 ELECTRON I	tting slag		Formula		NaZO	MgO	AI203	SiO2	P205	SO3	K20	CaO	Ti02	V205	Cr203	MnO	Fe203	C00	0 N	CuO	ZnO	As203	Ag2O	Sb2O3	BaO	PbO			•	a option : Uxyg∈	nerations : Z
SCANNINC	Lead smel		Element	L 4	Ra S	[NIg	A	Gi	<u>م</u>	S	¥	Ca	Ξ	>	٦	Mn	Fе	с С	ïZ	Cu	Zn	As	Ъд	Sb	Ba	Рb	0	Totals		Processing	Number or

PF8-31: Site of interest 2 spectra analysis

Sample: Lead smelting slag – Pentre Farm PF7-46

Site of interest 1

Site of interest 3

add smotting sign and smotting sign for mulai Sample smotting sign sector mulai Sample smotting sign sector mulai Sample spectrum 1; Area (weights) weights signa (weights) signa (weights) signa (weights) weights signa (weights) weights signa (weights) weights signa (weights) weights signa (weights) weights signa (weights) (weight	CANNING E	LECTRON M	IICROSCOP	∑I										
International Spectrum 1: / Net Magn/% weight's signal Spectrum 2: / Net Ma	ıd smeltin _ç	g slag		Sample	Pentre Farm F	F7-46		Site of Intere	st 1					
ment Famula Weights/signar Compounds/signar Como <th></th> <th></th> <th>Spectrum [×]</th> <th>l: Area</th> <th></th> <th>Spectrum 2</th> <th>: Area</th> <th></th> <th>Spectrum</th> <th>3: Phase</th> <th></th> <th>Spectrum 4</th> <th>I: Phase</th> <th></th>			Spectrum [×]	l: Area		Spectrum 2	: Area		Spectrum	3: Phase		Spectrum 4	I: Phase	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ement	Formula	Weight%	Weight% sigma	Compound%	Weight%	Weight% sigma	Compound%	Weight%	Weight% sigma	Compound%	Weight%	Weight% sigm 0 6	a Compound%
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		Na2O	; ~ _ <	5	40		ç	<u>م</u>	j a E C	-	∀ ∪) - -	0.0
M203 10 01 30 17 01 30 17 01 30 17 01 30 17 01 30 17 01 30 17 01 30 17 01 30 17 01 30 17 01 0		MaO (t e c	, t	0 C) C		t t	0.0 0		i e
Si2 Dial Qi Qi <th< td=""><td></td><td>AI203</td><td>0.0</td><td>1.0</td><td>9 9 9 9</td><td>, , 8, ,</td><td></td><td>9. 4. 7. 4.</td><td>1 L</td><td>1.0</td><td>- ი ი</td><td>20</td><td>- 1 - 1</td><td>3.7</td></th<>		AI203	0.0	1.0	9 9 9 9	, , 8, ,		9. 4. 7. 4.	1 L	1.0	- ი ი	20	- 1 - 1	3.7
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		Si02	20.1	0.2	42.9	21.6	0.2	46.1	21.7	0.2	46.4	20.0	0.2	42.9
		P205	n.d.			n.d.			0.1	0.1	0.1	n.d.		
K20 0.8 0.1 0.9 0.8 0.1 0.9 0.8 0.1 0.9 0.8 0.1 0.9 0.8 0.1 0.9 0.8 0.1 0.9 0.8 0.1 0.9 0.8 0.1 <td></td> <td>SO3</td> <td>n.d.</td> <td></td> <td></td> <td>n.d.</td> <td></td> <td></td> <td>n.d.</td> <td></td> <td></td> <td>n.d.</td> <td></td> <td></td>		SO3	n.d.			n.d.			n.d.			n.d.		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		K20	0.8	0.1	0.9	0.8	0.1	0.9	0.8	0.1	0.0	0.7	0.1	0.9
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	_	CaO	0.3	0.1	0.4	0.8	0.1	1.1	1.0	0.1	1.3	0.1	0.1	0.2
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		Ti02	0.2	0.1	<u>0</u> .4	0.2	0.1	0.4	0.1	0.1	0.2	0.2	0.1	0.3
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		V205	n.d.			n.d.			n.d.			0.1	0.1	0.1
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		Cr203	n.d.			n.d.			n.d.			n.d.		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		MnO	n.d.			n.d.			n.d.			n.d.		
Co0 nd. nd. nd. nd. nd. 01 <		Fe2O3	1.0	0.1	1.5	1.1	0.1	1.5	1.1	0.1	1.5	1.0	0.1	4.1
NO nd nd nd nd nd ZOO 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.2 0.1 0.2 ZOO 0.4 0.1 0.5 0.1 0.1 0.1 0.1 0.1 0.1 0.2 Ag20 n.d 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.2 0.1 0.2 Ag20 n.d n.d n.d 0.1 0.1 0.1 0.1 0.1 0.2 Ba0 n.d n.d n.d n.d n.d n.d n.d 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.2 0.2		C00	.p.u			n.d.			'n.d.			0.1	0.1	0.1
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		0 <u>i</u> N	.p.u			n.d.			n.d.			n.d.		
Zn0 0.4 0.1 0.5 0.1 0.7 0.1 0.8 0.2 0.1 0.1 0.2 As203 n.d. n.d. 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.2 0.1 0.1 0.2 0.1 0.2 0.1 0.2 0.1 0.1 0.2 0.1 </td <td></td> <td>CuO</td> <td>0.1</td> <td>0.1</td> <td>0.1</td> <td>n.d.</td> <td></td> <td></td> <td>n.d.</td> <td></td> <td></td> <td>n.d.</td> <td></td> <td></td>		CuO	0.1	0.1	0.1	n.d.			n.d.			n.d.		
As203 n.d. 0.1<		ZnO	0.4	0.1	0.5	0.5	0.1	0.7	0.7	0.1	0.8	0.2	0.1	0.2
Ag20 n.d. n.d. n.d. n.d. n.d. Sb203 n.d. n.d. n.d. n.d. n.d. n.d. Sb203 n.d. 0.1 0.1 0.1 n.d. n.d. BaO n.d. 0.1 0.2 0.1 n.d. n.d. PbO 46.9 0.4 50.5 42.8 0.3 30.6 0.3 28.6 0.3 als 28.7 0.3 30.7 0.3 30.6 0.3 28.6 0.3 als 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 0.3 28.6 0.3 50.5 als 100.0 100.0 100.0 0.0 100.0 0.4 50.5 als 100.0 100.0 100.0 0.3 30.6 0.3 28.6 0.3 able is polished. n.d. n.d. n.d. 100.0 100.0 100.0 <		As203	n.d.			0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Sb203 n.d. n.d. n.d. n.d. n.d. BaO n.d. 0.1 0.2 0.1 n.d. n.d. BaO n.d. 0.1 0.2 0.1 n.d. n.d. PbO 46.9 0.4 50.5 42.8 0.3 30.6 0.3 28.6 0.3 0.4 50.5 als 100.0 100.0 100.0 0.3 30.6 0.3 28.6 0.3 50.5 als 100.0 <td></td> <td>Ag2O</td> <td>n.d.</td> <td></td> <td></td> <td>n.d.</td> <td></td> <td></td> <td>'n.d.</td> <td></td> <td></td> <td>.р.п</td> <td></td> <td></td>		Ag2O	n.d.			n.d.			'n.d.			.р.п		
BaO n.d. 0.1 0.2 0.1 n.d. n.d. PbO 46.9 0.4 50.5 42.8 0.4 46.1 42.5 0.4 45.9 0.4 50.5 als 28.7 0.3 50.5 42.8 0.3 30.6 0.3 45.9 0.4 50.5 als 100.0		Sb203	.p.u			n.d.			n.d.			n.d.		
PbO 46.9 0.4 50.5 42.8 0.4 45.9 0.4 50.5 als 100.0 28.7 0.3 30.7 0.3 30.6 0.3 45.9 0.4 50.5 als 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 mber of iterations : 2 0.3 n.d. = not detected n.d. = not detected 100.0 <t< td=""><td></td><td>BaO</td><td>.p.u</td><td></td><td></td><td>0.1</td><td>0.2</td><td>0.1</td><td>р. Ч</td><td></td><td></td><td>.р.п</td><td></td><td></td></t<>		BaO	.p.u			0.1	0.2	0.1	р. Ч			.р.п		
28.7 0.3 30.7 0.3 28.6 0.3 als 100.0 100.0 100.0 100.0 100.0 ocessing option : Oxygen by stoichiometry (Normalised) n.d. = not detected 100.0 100.0 100.0 mber of iterations : 2 mple is polished. n.d. = not detected n.d. = not detected n.d. = not detected		PbO	46.9	0.4	50.5	42.8	0.4	46.1	42.5	0.4	45.8	46.9	0.4	50.5
als 100.0 10			28.7	0.3		30.7	0.3		30.6	0.3		28.6	0.3	
ocessing option : Oxygen by stoichiometry (Normalised) n.d. = not detected mber of iterations : 2 mple is polished.	tals		100.0			100.0			100.0			100.0		
mple is polished. mple is coated with Carbon -thickness (nm): 15.0, density (g/cm3): 2.25	ocessing op mber of iter	tion:Oxyger ations:2	n by stoichio	netry (Normalised	÷	£	n.d. = not detect∈	pe						
mple is coated with Carbon - thickness (nm): 15.0, density (g/cm3): 2.25	mple is poli	shed.												
	mple is coa	ted with Carb	oon - thickn∈	ss (nm): 15.0, de	nsity (g/cm3): 2	2.25								

PF7-46: Site of interest 1 spectra analysis

SCANNING	ELECTRON A	MICROSCOP	≿I										
Lead smelt	ing slag		Sample	Pentre Farm	PF7-46		Site of Intere	st 2					
		Spectrum '	1: Area		Spectrum	2: Area		Spectrum	3: Phase		Spectrum 4	: Phase	
Element	Formula	Weight%	Weight% sigma	Compound%	Weight%	Weight% sigma	Compound%	Weight%	Weight% sigma	Compound%	Weight% V	Veight% sigma	Compound
ш		0.1	0.5	0.0	n.d.			0.5	0.4	0.0	0.6	0.4	0.0
Na	Na2O	0.8	0.1	1.1	0.8	0.1	1.1	n.d.			n.d.		
Mg	MgO	0.8	0.0	1.3	1.1	0.0	1.8	n.d.			n.d.		
A	AI203	3.7	0.1	7.0	4.9	0.1	9.3	n.d.			n.d.		
Si	Si02	37.6	0.2	80.5	35.9	0.2	76.8	46.8	0.2	100.0	46.6	0.3	90.8
٩.	P205	0.1	0.0	0.3	0.2	0.0	0.5	n.d.			0.1	0.0	0.1
S	SO3	0.1	0.0	0.2	0.1	0.0	0.1	n.d.			0.1	0.0	0.2
¥	K20	1.4	0.0	1.7	1.5	0.0	1.8	n.d.			n.d.		
Ca	CaO	0.1	0.0	0.1	0.1	0.0	0.1	n.d.			n.d.		
Ξ	Ti02	0.2	0.0	0.4 4	0.2	0.0	0.3	n.d.			n.d.		
>	V205	n.d.			n.d.			Ъ. Ч			n.d.		
ŗ	Cr203	0.1	0.0	0.1	n.d.			n.d.			n.d.		
Mn	MnO	n.d.			n.d.			n.d.			n.d.		
Fe	Fe2O3	5.2	0.1	7.4	6.4	0.1	9.1	0.2	0.0	0.2	0.1	0.0	0.1
Co	CoO	0.1	0.1	0.1	n.d.			n.d.			n.d.		
ïŻ	0 N	.p.u			n.d.			n.d.			n.d.		
Cu	CuO	n.d.			n.d.			n.d.			n.d.		
Zn	ZnO	.p.u			n.d.			n.d.			п.d.		
As	As203	.p.u			0.1	0.1	0.1	n.d.			0.1	0.1	0.1
Pg	Ag2O	.p.u			n.d.			n.d.			n.d.		
Sb	Sb203	n.d.			n.d.			n.d.			n.d.		
Ba	BaO	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	n.d.		
РЬ	PbO	.p.u			n.d.			n.d.			n.d.		
0		49.9	0.3		49.8	0.3		53.3	0.3		53.2	0.3	
Totals		100.0			100.0			100.0			100.0		
Processing Number of it	option : Oxyge erations : 3	n by stoichio	metry (Normalise	d)		n.d. = not detect	pe						
Sample is p	olished.												
Sample is c	oated with Can	bon - thickne	ess (nm): 15.0, de	ensity (g/cm3):	2.25								
Detector eff	ciency : Calcu	lation											

PF7-46: Site of interest 2 spectra analysis

SCANNING E	LECTRON N	AICROSCOP	×١													
Lead smeltin	g slag	ŗ	Sample	Pentre Farm	PF7-46		Site of Interv	st 3								
		Spectrum 1	I: Area		Spectrum	i 2: Area		Spectrum 3	3: Phase		Spectrum 4	: Phase		Spectrum.	5: Phase	
≣lement	Formula	Weight%	Weight% sigma	Compound%	Weight%	Weight% sigma	Compound%	Weight% N	Weight% sigma	Compound%	Weight%	Veicht% sigma	Compound%	Weight%	Weight% sigma	Campound%
h		0.5	0.5	0.0	0.1	0.5	00	n.d.			4.0	0.5	0.0	0.2	0.0	0.0
e N	Na2O	4.0	C.1	0.5	0.3	0.1	04	0.3	0.1	0.4	0.3	0.1	0.4	л.d.		
Mg	MgO	0.3	C.1	0.5	0.3	0.1	05	0.3	0.1	0.4	0.4	0.1	0.6	л.d.		
A	AI203	2.2	C.1	4.1	2.0	0.1	37	1.9	0.1	3.6	2.2	0.1	4.2	.d.		
Si	SiO2	21.0	C.2	45.0	20.3	0.2	43.3	20.1	0.2	42.9	21.8	0.2	46.7	46.9	0.3	100.4
ń	P205	n.d.			0.1	0.0	02	n.d.			n.d.			л.d.		
ю	SO3	n.d.			n.d.			n.d.			n.d.			, . 0	0.0	0.2
¥	K2O	0.8	0.1	1.0	0.7	0.1	60	0.7	0.1	0.8	0.8	0.1	6.0	лd.		
Ca	CaO	0.3	0.1	0.4	0.2	0.1	03	0.3	0.1	0.4	0.6	0.1	0.9	.d.		
Ξ	TiO2	0.1	0.1	0.2	0.1	0.1	02	0.2	0.1	0.3	0.2	0.1	4.0	.d.		
>	V205	n.d.			n.d.			0.1	0.1	0.1	n.d.			.р.г		
ŏ	Cr2O3	0.1	0.1	0.1	n.d.			n.d.			n.d.			1.d.		
Mn	MnO	n.d.			0.1	0.1	01	n.d.			n.d.			.р.г		
n. G	Fe2O3	, Ņ	0.1	1.7	1.1	0.1	16	1.1	D.1	1.5	1.4	0.1	2.0	.р.г.		
റ്	000	n.d.			n.d.			n.d.			0.1	0.1	0.1	.р.г		
ī	NiC	n.d.			<u> </u>	0.1	01	n.d.			n.d.			.р.г		
0. O	ono	п.d.			0.1	0.1	01	n.d.			n.d.			л.d.		
Zn	ZnO	4.0	0.1	0.5	0.3	0.1	04	0.5	D.1	0.6	0.4	0.1	0.5	, Ö	0.1	0.1
As	As203	0.1	0.1	0.1	0.1	0.1	01	n.d.			n.d.			-р.г		
Ag	A920	n.d.			n.d.			n.d.			0.1	0.1	0.1	.b.г		
Sb	Sb203	n.d.			n.d.			n.d.			n.d.			ים.		
r	BaO	n.d.			n.d.			n.d.			n.d.			.р.г		
٩c	PbO	43.5	0.4	46.9	45.6	0.4	49.2	47.1	0.4	50.7	40.8	0.4	43.9	Ъ.Г		
0		29.9	0.3		29.1	0.3		28.5	0.3		31.0	0.3		53.5	0.3	
Totals		100.0			100.0			100.0			100.0			100.0		
	Cation sum	_														
Processing of Number of iter	otion : Oxyger ations : 2	n by stoichior	netry (Normalise	(þ		n.d. = not detect	pa									
Sample is pcli	shed.			- 20 J J	Ц С С											
Sample Is cos Detector effici	ency : Calcu :	ation - unickne ation	с 'л.с. :(шш): ssa	ensity (g.cm.).	C7.7											

PF7-46: Site of interest 3 spectra analysis