



LAMPIRAN I

A. Menghitung jumlah NaOH yang dibutuhkan untuk mengekstrak silika (SiO_2) yang terkandung dalam 100 gram slag

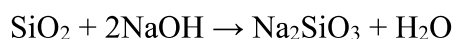
1. Hitung massa silika dalam 100 gram slag

Jika kadar silika = 35,340%, maka :

$$\text{Massa silika} = \frac{35,340}{100} \times 100 \text{ gram} = 35,34 \text{ gram}$$

2. Hitung kebutuhan NaOH untuk mengekstrak silika

Reaksi pelarutan silika dalam NaOH:



Berdasarkan reaksi stoikiometri:

1 mol SiO_2 bereaksi dengan 2 mol NaOH

Massa molar:

- $\text{SiO}_2 = 60,08 \text{ g/mol}$
- $\text{NaOH} = 40,00 \text{ g/mol}$

Hitung mol SiO_2 :

$$\text{Mol SiO}_2 = \frac{35,34 \text{ g}}{60,08 \text{ g/mol}} = 0,588 \text{ mol}$$

Hitung mol NaOH yang dibutuhkan:

$$\text{Mol NaOH} = 2 \times 0,588 \text{ mol} = 1,176 \text{ mol}$$

Hitung massa NaOH yang dibutuhkan:

$$\text{Massa NaOH} = 1,176 \text{ mol} \times 40,00 \text{ g/mol} = 47,04 \text{ gram}$$

B. Selanjutnya dihitung volume NaOH dihitung berdasarkan variasi molaritas untuk ekstraksi silika dari slag.

1. Menghitung Volume NaOH untuk membuat NaOH dengan konsentrasi 0,5 M (molar)

Menggunakan rumus molaritas untuk mencari volume :



$$M = \frac{\text{mol}}{\text{volume (L)}} \rightarrow \text{volume (L)} = \frac{\text{mol}}{M}$$

Maka

$$\text{volume (L)} = \frac{1,176 \text{ mol}}{0,5M} = 2,353 \text{ L}$$

Jadi, untuk membuat larutan NaOH 0,5 M dari 47,04 gram NaOH, dibutuhkan volume larutan sebanyak 2.352 mL.

2. Menghitung Volume NaOH untuk membuat larutan NaOH dengan konsentrasi 1 M

$$\text{volume (L)} = \frac{1,176 \text{ mol}}{1 \text{ M}} = 1,176 \text{ L}$$

Jadi, untuk membuat larutan NaOH 1 M dari 47,04 gram NaOH, dibutuhkan volume larutan sebanyak 1.176 mL.

3. Menghitung Volume NaOH untuk membuat larutan NaOH dengan konsentrasi 1,5 M (molar)

$$\text{volume (L)} = \frac{1,176 \text{ mol}}{1,5 \text{ M}} = 0,784 \text{ L}$$

Jadi, untuk membuat larutan NaOH 1,5 M dari 47,04 gram NaOH, dibutuhkan volume larutan sebanyak 784 mL.

4. Menghitung Volume NaOH untuk membuat larutan NaOH dengan konsentrasi 2 M (molar)

$$\text{volume (L)} = \frac{1,176 \text{ mol}}{2 \text{ M}} = 0,588 \text{ L}$$

Jadi, untuk membuat larutan NaOH 2 M dari 47,04 gram NaOH, dibutuhkan volume larutan sebanyak 588 mL.

5. Menghitung Volume NaOH untuk membuat larutan NaOH dengan konsentrasi 2,5 M (molar)



$$volume (L) = \frac{1,176 \text{ mol}}{2,5 \text{ M}} = 0,4704 \text{ L}$$

Jadi, untuk membuat larutan NaOH 2,5 M dari 47,04 gram NaOH, dibutuhkan volume larutan sebanyak 470,4 mL.



LAMPIRAN II

NO	Gambar	Keterangan
1.		Proses pengambilan bahan baku limbah peleburan baja
2.		Proses penghalusan limbah peleburan baja hingga $< 100 \mu\text{m}$
3.		Pencucian Asam dengan suhu 90°C dan waktu 2 jam



4.		Penyaringan larutan limbah peleburan baja setelah pencucian
5.		Ekstraksi limbah peleburan baja dengan variabel yang telah ditentukan
6.		Penyaringan untuk memisahkan filtrat dengan residu yang telah diekstraksi
7.		Presipitasi Silika dengan HCl dengan HCl 2 M hingga pH turun ke 6 – 7



8.		Saring endapan silika yang terbentuk
9.		Keringkan silika dengan oven selama 3 jam
10.		Serbuk silika yang diperoleh dianalisis untuk menentukan kemurniannya.



LAMPIRAN III

A. Laporan Hasil Uji XRF

Analyzed result

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Sample Information

Sample name	1901-1
File name	1901-1
Application	LPPT
Date	9/2/2025 12:36 PM
Analyzed by	Nayla
Counts	1
Comment	Powder

Analyzed result(FP method)

No.	Component	Result	Unit	Stat. Err.	LLD	LLQ
1	Si	52.9	mass%	0.0828	0.0392	0.118
2	Cl	34.1	mass%	0.0208	0.0021	0.0064
3	Al	11.2	mass%	0.113	0.166	0.499
4	Zr	0.551	mass%	0.0035	0.0005	0.0014
5	Ca	0.432	mass%	0.0047	0.0028	0.0083
6	Fe	0.167	mass%	0.0016	0.0010	0.0029
7	S	0.138	mass%	0.0032	0.0072	0.0216
8	Zn	0.131	mass%	0.0007	0.0002	0.0006
9	K	0.130	mass%	0.0039	0.0055	0.0164
10	Mn	0.0720	mass%	0.0013	0.0010	0.0030
11	Cu	0.0439	mass%	0.0005	0.0004	0.0012
12	Hf	0.0217	mass%	0.0009	0.0022	0.0065
13	V	0.0206	mass%	0.0005	0.0007	0.0022
14	Ni	0.0158	mass%	0.0003	0.0003	0.0010
15	Pb	0.0150	mass%	0.0003	0.0005	0.0015
16	Ti	0.0134	mass%	0.0006	0.0011	0.0034
17	Sn	0.0129	mass%	0.0006	0.0007	0.0021
18	Bi	0.0047	mass%	0.0002	0.0003	0.0008
19	Br	0.0044	mass%	<0.0001	<0.0001	0.0003
20	Sr	0.0042	mass%	<0.0001	0.0001	0.0003
21	Ir	0.0026	mass%	0.0003	0.0008	0.0024
22	As	0.0024	mass%	0.0001	0.0004	0.0011
23	Ta	ND	mass%	0.0009	0.0027	0.0081
24	Co	(0.0018)	mass%	0.0003	0.0009	0.0027
25	Ag	0.0012	mass%	0.0002	0.0002	0.0007
26	Pa	0.0011	mass%	<0.0001	0.0003	0.0008
27	Au	(0.0011)	mass%	0.0003	0.0008	0.0023
28	U	0.0011	mass%	<0.0001	0.0002	0.0006
29	Os	ND	mass%	0.0004	0.0013	0.0039
30	Ga	0.0009	mass%	0.0001	0.0003	0.0009
31	Pt	ND	mass%	0.0003	0.0010	0.0031
32	Cr	ND	mass%	0.0002	0.0006	0.0018
33	Se	(0.0003)	mass%	<0.0001	0.0001	0.0003
34	Fr	ND	mass%	0.0001	0.0004	0.0013
35	P	ND	mass%	0.0055	0.0198	0.0595
36	Na	ND	mass%	2.29	5.59	16.8
37	Sc	ND	mass%	0.0010	0.0030	0.0091
38	Mg	ND	mass%			
39	Ge	ND	mass%			
40	Rb	ND	mass%			
41	Y	ND	mass%			
42	Nb	ND	mass%			
43	Mo	ND	mass%			
44	Ru	ND	mass%			
45	Rh	ND	mass%			
46	Pd	ND	mass%			
47	Cd	ND	mass%			
48	In	ND	mass%			

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Analyzed result

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Sample Information

Sample name	1901-6
File name	1901-6
Application	LPPT
Date	9/2/2025 12:19 PM
Analyzed by	Nayla
Counts	1
Comment	Powder P method)

Analyzed result(F

No.	Component	Result	Unit	Stat. Err.	LLD	LLQ
1	Si	55.83	mass%	0.0698	0.0162	0.0485
2	Cl	35.26	mass%	0.0099	0.0015	0.0044
3	Ca	7.393	mass%	0.0057	0.0020	0.0059
4	Al	0.771	mass%	0.0386	0.0931	0.279
5	Zr	0.338	mass%	0.0023	0.0003	0.0009
6	Zn	0.152	mass%	0.0006	0.0001	0.0004
7	S	0.0908	mass%	0.0022	0.0043	0.0130
8	K	0.0475	mass%	0.0023	0.0040	0.0119
9	Fe	0.0371	mass%	0.0006	0.0004	0.0013
10	Cu	0.0289	mass%	0.0003	0.0003	0.0010
11	Mn	0.0209	mass%	0.0006	0.0007	0.0020
12	Hf	0.0175	mass%	0.0007	0.0015	0.0045
13	Ni	0.0086	mass%	0.0002	0.0002	0.0007
14	Sr	0.0067	mass%	<0.0001	<0.0001	0.0002
15	Ta	(0.0045)	mass%	0.0007	0.0019	0.0056
16	Ti	0.0045	mass%	0.0004	0.0008	0.0025
17	Sn	0.0043	mass%	0.0003	0.0002	0.0007
18	V	0.0040	mass%	0.0003	0.0005	0.0015
19	Sc	ND	mass%	0.0012	0.0033	0.0099
20	Bi	0.0026	mass%	<0.0001	0.0002	0.0005
21	Pb	0.0025	mass%	0.0001	0.0003	0.0010
22	As	0.0016	mass%	<0.0001	0.0002	0.0005
23	Br	0.0014	mass%	<0.0001	<0.0001	0.0002
24	Os	(0.0011)	mass%	0.0003	0.0009	0.0028
25	Cr	(0.0007)	mass%	0.0001	0.0003	0.0010
26	Ag	0.0006	mass%	0.0001	<0.0001	0.0002
27	U	0.0005	mass%	<0.0001	0.0001	0.0004
28	Mo	ND	mass%	0.0002	0.0004	0.0013
29	Pa	(0.0003)	mass%	<0.0001	0.0002	0.0005
30	Rb	(0.0001)	mass%	<0.0001	<0.0001	0.0002
31	P	ND	mass%	0.0031	0.0137	0.0412
32	Mg	ND	mass%			
33	Co	ND	mass%			



Analyzed result

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Sample Information

Sample name	1901-3
File name	1901-3
Application	LPPT
Date	9/2/2025 11:56 AM
Analyzed by	Nayla
Counts	1
Comment	Powder

Analyzed result(FP method)

No.	Component	Result	Unit	Stat. Err.	LLD	LLQ
1	Si	58.75	mass%	0.0757	0.0248	0.0744
2	Cl	34.21	mass%	0.0160	0.0017	0.0050
3	Al	4.20	mass%	0.0685	0.122	0.367
4	Ca	1.98	mass%	0.0089	0.0021	0.0064
5	Zr	0.395	mass%	0.0027	0.0003	0.0009
6	S	0.115	mass%	0.0027	0.0056	0.0169
7	Zn	0.0813	mass%	0.0005	0.0002	0.0006
8	K	0.0553	mass%	0.0025	0.0044	0.0132
9	Fe	0.0502	mass%	0.0008	0.0007	0.0020
10	Mn	0.0405	mass%	0.0009	0.0007	0.0021
11	Cu	0.0389	mass%	0.0004	0.0003	0.0010
12	Hf	0.0206	mass%	0.0008	0.0018	0.0054
13	Ni	0.0102	mass%	0.0002	0.0002	0.0007
14	V	0.0076	mass%	0.0003	0.0006	0.0017
15	Sc	(0.0069)	mass%	0.0018	0.0051	0.0152
16	Ti	0.0039	mass%	0.0004	0.0009	0.0027
17	Bi	0.0031	mass%	0.0001	0.0001	0.0004
18	Sn	0.0031	mass%	0.0003	0.0003	0.0009
19	Pb	0.0028	mass%	0.0001	0.0004	0.0011
20	Re	ND	mass%	0.0011	0.0033	0.0099
21	Ga	0.0016	mass%	<0.0001	0.0002	0.0006
22	Cr	0.0014	mass%	0.0002	0.0004	0.0013
23	As	0.0013	mass%	<0.0001	0.0002	0.0005
24	Sr	0.0012	mass%	<0.0001	<0.0001	0.0002
25	Ta	ND	mass%	0.0008	0.0023	0.0068
26	Br	0.0009	mass%	<0.0001	<0.0001	0.0002
27	Au	(0.0009)	mass%	0.0002	0.0005	0.0016
28	Co	(0.0008)	mass%	0.0002	0.0005	0.0016
29	Pa	0.0008	mass%	<0.0001	0.0001	0.0004
30	U	0.0006	mass%	<0.0001	0.0001	0.0004
31	Se	0.0004	mass%	<0.0001	<0.0001	0.0002
32	Os	ND	mass%	0.0004	0.0011	0.0032
33	Pt	ND	mass%	0.0002	0.0008	0.0023
34	I	ND	mass%	0.0003	0.0008	0.0025
35	Rb	(0.0001)	mass%	<0.0001	<0.0001	0.0002
36	Cd	ND	mass%	<0.0001	0.0002	0.0005
37	P	ND	mass%	0.0038	0.0160	0.0480
38	Na	ND	mass%	2.01	4.96	14.9
39	Mg	ND	mass%			
40	Ge	ND	mass%			
41	Y	ND	mass%			
42	Nb	ND	mass%			
43	Mo	ND	mass%			
44	Ru	ND	mass%			
45	Rh	ND	mass%			
46	Pd	ND	mass%			
47	Ag	ND	mass%			
48	In	ND	mass%			

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Analyzed result

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Sample Information

Sample name 1901-4
File name 1901-4
Application LPPT
Date 9/2/2025 12:02 PM
Analyzed by Nayla
Counts 1
Comment Powder

Analyzed result(FP method)

No.	Component	Result	Unit	Stat. Err.	L.L.D	LLQ
1	Si	61.68	mass%	0.0757	0.0236	0.0707
2	Cl	33.77	mass%	0.0145	0.0019	0.0056
3	Al	1.67	mass%	0.0534	0.122	0.365
4	S	0.814	mass%	0.0054	0.0057	0.0170
5	Ca	0.629	mass%	0.0052	0.0026	0.0077
6	Zr	0.411	mass%	0.0028	0.0004	0.0011
7	Fe	0.345	mass%	0.0021	0.0006	0.0018
8	Cu	0.243	mass%	0.0010	0.0004	0.0012
9	Zn	0.178	mass%	0.0007	0.0002	0.0005
10	K	0.0865	mass%	0.0031	0.0050	0.0151
11	Mn	0.0432	mass%	0.0009	0.0008	0.0025
12	As	0.0354	mass%	0.0002	0.0003	0.0008
13	Ti	0.0183	mass%	0.0006	0.0011	0.0032
14	Ta	(0.0115)	mass%	0.0018	0.0051	0.0154
15	Pb	0.0100	mass%	0.0005	0.0013	0.0040
16	Ni	0.0100	mass%	0.0003	0.0003	0.0008
17	V	0.0076	mass%	0.0004	0.0008	0.0023
18	Sn	0.0068	mass%	0.0004	0.0003	0.0010
19	Te	0.0051	mass%	0.0004	0.0005	0.0016
20	Bi	0.0040	mass%	0.0001	0.0002	0.0007
21	Os	(0.0020)	mass%	0.0006	0.0019	0.0057
22	Br	0.0018	mass%	<0.0001	0.0001	0.0003
23	Sr	0.0016	mass%	<0.0001	<0.0001	0.0003
24	Pa	0.0014	mass%	<0.0001	0.0002	0.0005
25	Mo	(0.0009)	mass%	0.0003	0.0005	0.0015
26	U	0.0009	mass%	<0.0001	0.0002	0.0005
27	Au	(0.0008)	mass%	0.0003	0.0008	0.0025
28	Co	ND	mass%	0.0003	0.0010	0.0031
29	Se	0.0003	mass%	<0.0001	<0.0001	0.0003
30	Cr	ND	mass%	0.0002	0.0005	0.0015
31	P	ND	mass%	0.0039	0.0167	0.0501
32	Pt	ND	mass%	0.0003	0.0011	0.0033
33	Sc	ND	mass%	0.0010	0.0032	0.0095
34	Mg	ND	mass%			
35	Ga	ND	mass%			
36	Ge	ND	mass%			
37	Rb	ND	mass%			
38	Y	ND	mass%			
39	Nb	ND	mass%			
40	Ru	ND	mass%			
41	Rh	ND	mass%			
42	Pd	ND	mass%			
43	Ag	ND	mass%			
44	Cd	ND	mass%			
45	In	ND	mass%			
46	Sb	ND	mass%			
47	I	ND	mass%			
48	Cs	ND	mass%			

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Analyzed result

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Sample Information

Sample name 1901-5
File name 1901-5
Application LPPT
Date 9/2/2025 12:13 PM
Analyzed by Nayla
Counts 1
Comment Powder

Analyzed result(FP method)

No.	Component	Result	Unit	Stat. Err.	LLD	LLQ
1	Si	64.6	mass%	0.0812	0.0340	0.102
2	Cl	29.5	mass%	0.0191	0.0023	0.0069
3	Al	4.04	mass%	0.0803	0.161	0.482
4	Ca	0.632	mass%	0.0054	0.0024	0.0072
5	Zr	0.464	mass%	0.0031	0.0004	0.0013
6	Zn	0.301	mass%	0.0010	0.0002	0.0005
7	S	0.108	mass%	0.0031	0.0072	0.0215
8	K	0.0998	mass%	0.0033	0.0048	0.0143
9	Fe	0.0578	mass%	0.0009	0.0006	0.0017
10	Mn	0.0367	mass%	0.0009	0.0009	0.0026
11	Cu	0.0324	mass%	0.0004	0.0005	0.0014
12	Hf	0.0225	mass%	0.0008	0.0018	0.0055
13	Ni	0.0110	mass%	0.0003	0.0003	0.0009
14	V	0.0106	mass%	0.0004	0.0006	0.0019
15	Ta	0.0098	mass%	0.0008	0.0023	0.0068
16	Sn	0.0074	mass%	0.0004	0.0005	0.0016
17	Ti	0.0054	mass%	0.0005	0.0010	0.0029
18	Pb	0.0032	mass%	0.0002	0.0004	0.0013
19	Sr	0.0032	mass%	<0.0001	0.0001	0.0003
20	Bi	0.0029	mass%	0.0001	0.0002	0.0007
21	Ir	0.0029	mass%	0.0003	0.0006	0.0019
22	Br	0.0026	mass%	<0.0001	<0.0001	0.0002
23	As	0.0018	mass%	<0.0001	0.0002	0.0006
24	Cr	0.0016	mass%	0.0002	0.0005	0.0015
25	Au	ND	mass%	0.0004	0.0011	0.0032
26	Os	ND	mass%	0.0004	0.0012	0.0036
27	U	0.0010	mass%	<0.0001	0.0002	0.0006
28	Pa	0.0008	mass%	<0.0001	0.0002	0.0006
29	Pt	ND	mass%	0.0004	0.0014	0.0042
30	Se	(0.0002)	mass%	<0.0001	<0.0001	0.0003
31	Sc	ND	mass%	0.0011	0.0033	0.0098
32	P	ND	mass%	0.0047	0.0193	0.0580
33	Mg	ND	mass%			
34	Co	ND	mass%			
35	Ga	ND	mass%			
36	Ge	ND	mass%			
37	Rb	ND	mass%			
38	Y	ND	mass%			
39	Nb	ND	mass%			
40	Mo	ND	mass%			
41	Ru	ND	mass%			
42	Rh	ND	mass%			
43	Pd	ND	mass%			
44	Ag	ND	mass%			
45	Cd	ND	mass%			
46	In	ND	mass%			
47	Sb	ND	mass%			
48	Te	ND	mass%			

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Rigaku

**Analyzed result**

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Sample Information

Sample name 1901-5
 File name 1901-5
 Application LPPT
 Date 9/2/2025 12:25 PM
 Analyzed by Nayla
 Counts 1
 Comment Powder

Analyzed result(FP method)

No.	Component	Result	Unit	Stat. Err.	LLD	LLQ
1	Si	58.55	mass%	0.0718	0.0216	0.0649
2	Cl	27.3	mass%	0.0144	0.0015	0.0045
3	Al	4.02	mass%	0.0650	0.110	0.329
4	Ca	1.13	mass%	0.0066	0.0020	0.0059
5	Zr	0.412	mass%	0.0027	0.0004	0.0012
6	Zn	0.304	mass%	0.0009	0.0002	0.0005
7	S	0.0899	mass%	0.0024	0.0053	0.0158
8	K	0.076	mass%	0.0027	0.0040	0.0120
9	Fe	0.0524	mass%	0.0008	0.0007	0.0022
10	Mn	0.038	mass%	0.0009	0.0009	0.0026
11	Cu	0.0291	mass%	0.0004	0.0004	0.0011
12	Pb	0.0288	mass%	0.0003	0.0004	0.0013
13	Hf	0.0194	mass%	0.0007	0.0016	0.0049
14	Sr	0.0121	mass%	<0.0001	<0.0001	0.0003
15	Ni	0.0107	mass%	0.0003	0.0003	0.0008
16	Ti	0.0078	mass%	0.0004	0.0008	0.0025
17	Sn	0.0072	mass%	0.0004	0.0004	0.0013
18	V	0.0058	mass%	0.0003	0.0005	0.0015
19	Sc	-0.0045	mass%	0.0013	0.0038	0.0114
20	Ta	-0.0037	mass%	0.0007	0.0020	0.0061
21	As	0.003	mass%	0.0002	0.0004	0.0013
22	Ir	0.0028	mass%	0.0003	0.0007	0.0020
23	Bi	0.0024	mass%	0.0001	0.0003	0.0008
24	Br	0.0021	mass%	<0.0001	<0.0001	0.0002
25	Cr	0.0015	mass%	0.0001	0.0003	0.0010
26	Os	58.55	mass%	0.0004	0.0011	0.0033
27	Ag	27.3	mass%	0.0001	0.0002	0.0005
28	Au	ND	mass%	0.0003	0.0010	0.0030
29	U	0.0007	mass%	<0.0001	0.0002	0.0006
30	Pt	ND	mass%	0.0004	0.0013	0.0039
31	Pa	(0.0005)	mass%	<0.0001	0.0002	0.0006
32	Co	ND	mass%	0.0002	0.0006	0.0019
33	Rb	(0.0002)	mass%	<0.0001	<0.0001	0.0003
34	Mg	ND	mass%	0.450	1.82	5.47
35	P	ND	mass%	0.0036	0.0154	0.0461
36	Na	ND	mass%	1.85	4.58	13.7
37	Ga	ND	mass%			
38	Ge	ND	mass%			
39	Se	ND	mass%			
40	Y	ND	mass%			
41	Nb	ND	mass%			
42	Mo	ND	mass%			
43	Ru	ND	mass%			
44	Rh	ND	mass%			
45	Pd	ND	mass%			
46	Cd	ND	mass%			
47	In	ND	mass%			
48	Sb	ND	mass%			

NEX CGII

Rigaku



Analyzed result

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Sample Information

Sample name 1901-7
File name 1901-7
Application LPPT
Date 9/2/2025 12:07 PM
Analyzed by Nayla
Counts 1
Comment Powder

Analyzed result(FP method)

No.	Component	Result	Unit	Stat. Err.	LLD	LLQ
1	Si	61.85	mass%	0.0750	0.0264	0.0792
2	Cl	25.70	mass%	0.0152	0.0021	0.0063
3	Al	4.36	mass%	0.0619	0.130	0.389
4	Ca	0.441	mass%	0.0043	0.0020	0.0061
5	Zr	0.387	mass%	0.0026	0.0003	0.0010
6	S	0.179	mass%	0.0032	0.0062	0.0187
7	Zn	0.0955	mass%	0.0005	0.0001	0.0004
8	K	0.0894	mass%	0.0030	0.0040	0.0120
9	Fe	0.0546	mass%	0.0008	0.0005	0.0014
10	Cu	0.0327	mass%	0.0004	0.0004	0.0011
11	P	(0.0237)	mass%	0.0063	0.0173	0.0519
12	Hf	0.0189	mass%	0.0007	0.0017	0.0050
13	Mn	0.0188	mass%	0.0006	0.0007	0.0021
14	Ti	0.0140	mass%	0.0005	0.0008	0.0025
15	Ni	0.0102	mass%	0.0002	0.0002	0.0007
16	V	0.0090	mass%	0.0004	0.0006	0.0019
17	Ta	(0.0044)	mass%	0.0007	0.0021	0.0062
18	Sn	0.0043	mass%	0.0003	0.0004	0.0011
19	Pb	0.0036	mass%	0.0001	0.0003	0.0010
20	Bi	0.0028	mass%	0.0001	0.0002	0.0006
21	Te	0.0027	mass%	0.0003	0.0007	0.0020
22	Ir	0.0024	mass%	0.0002	0.0005	0.0016
23	Br	0.0019	mass%	<0.0001	<0.0001	0.0002
24	As	0.0017	mass%	<0.0001	0.0002	0.0005
25	Co	(0.0015)	mass%	0.0002	0.0005	0.0016
26	Sr	0.0014	mass%	<0.0001	<0.0001	0.0003
27	Os	(0.0012)	mass%	0.0003	0.0010	0.0030
28	U	0.0008	mass%	<0.0001	0.0002	0.0005
29	Pa	0.0008	mass%	<0.0001	0.0002	0.0005
30	Cr	(0.0006)	mass%	0.0002	0.0004	0.0012
31	Sc	ND	mass%	0.0009	0.0026	0.0078
32	Mg	ND	mass%			
33	Ga	ND	mass%			
34	Ge	ND	mass%			
35	Se	ND	mass%			
36	Rb	ND	mass%			
37	Y	ND	mass%			
38	Nb	ND	mass%			
39	Mo	ND	mass%			
40	Ru	ND	mass%			
41	Rh	ND	mass%			
42	Pd	ND	mass%			
43	Ag	ND	mass%			
44	Cd	ND	mass%			
45	In	ND	mass%			
46	Sb	ND	mass%			
47	I	ND	mass%			
48	Cs	ND	mass%			

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Analyzed result

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Sample Information

Sample name 1901-8
File name 1901-8
Application LPPT
Date 9/2/2025 12:36 PM
Analyzed by Nayla
Counts 1
Comment Powder

Analyzed result(FP method)

No.	Component	Result	Unit	Stat. Err.	LLD	LLQ
1	Si	65.15	mass%	0.0828	0.0392	0.118
2	Cl	24.3	mass%	0.0208	0.0021	0.0064
3	Al	5.27	mass%	0.113	0.166	0.499
4	Zr	0.551	mass%	0.0035	0.0005	0.0014
5	Ca	0.432	mass%	0.0047	0.0028	0.0083
6	Fe	0.167	mass%	0.0016	0.0010	0.0029
7	S	0.138	mass%	0.0032	0.0072	0.0216
8	Zn	0.131	mass%	0.0007	0.0002	0.0006
9	K	0.130	mass%	0.0039	0.0055	0.0164
10	Mn	0.0720	mass%	0.0013	0.0010	0.0030
11	Cu	0.0439	mass%	0.0005	0.0004	0.0012
12	Hf	0.0217	mass%	0.0009	0.0022	0.0065
13	V	0.0206	mass%	0.0005	0.0007	0.0022
14	Ni	0.0158	mass%	0.0003	0.0003	0.0010
15	Pb	0.0150	mass%	0.0003	0.0005	0.0015
16	Ti	0.0134	mass%	0.0006	0.0011	0.0034
17	Sn	0.0129	mass%	0.0006	0.0007	0.0021
18	Bi	0.0047	mass%	0.0002	0.0003	0.0008
19	Br	0.0044	mass%	<0.0001	<0.0001	0.0003
20	Sr	0.0042	mass%	<0.0001	0.0001	0.0003
21	Ir	0.0026	mass%	0.0003	0.0008	0.0024
22	As	0.0024	mass%	0.0001	0.0004	0.0011
23	Ta	ND	mass%	0.0009	0.0027	0.0081
24	Co	(0.0018)	mass%	0.0003	0.0009	0.0027
25	Ag	0.0012	mass%	0.0002	0.0002	0.0007
26	Pa	0.0011	mass%	<0.0001	0.0003	0.0008
27	Au	(0.0011)	mass%	0.0003	0.0008	0.0023
28	U	0.0011	mass%	<0.0001	0.0002	0.0006
29	Os	ND	mass%	0.0004	0.0013	0.0039
30	Ga	0.0009	mass%	0.0001	0.0003	0.0009
31	Pt	ND	mass%	0.0003	0.0010	0.0031
32	Cr	ND	mass%	0.0002	0.0006	0.0018
33	Se	(0.0003)	mass%	<0.0001	0.0001	0.0003
34	Fr	ND	mass%	0.0001	0.0004	0.0013
35	P	ND	mass%	0.0055	0.0198	0.0595
36	Na	ND	mass%	2.29	5.59	16.8
37	Sc	ND	mass%	0.0010	0.0030	0.0091
38	Mg	ND	mass%			
39	Ge	ND	mass%			
40	Rb	ND	mass%			
41	Y	ND	mass%			
42	Nb	ND	mass%			
43	Mo	ND	mass%			
44	Ru	ND	mass%			
45	Rh	ND	mass%			
46	Pd	ND	mass%			
47	Cd	ND	mass%			
48	In	ND	mass%			

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Rigaku



Analyzed result

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Sample Information

Sample name	1901-9
File name	1901-9
Application	LPPT
Date	9/2/2025 12:19 PM
Analyzed by	Nayla
Counts	1
Comment	Powder

Analyzed result(FP method)

No.	Component	Result	Unit	Stat. Err.	LLD	LLQ
1	Si	68.45	mass%	0.0698	0.0162	0.0485
2	Cl	24.35	mass%	0.0099	0.0015	0.0044
3	Ca	0.893	mass%	0.0057	0.0020	0.0059
4	Al	5.661	mass%	0.0386	0.0931	0.279
5	Zr	0.338	mass%	0.0023	0.0003	0.0009
6	Zn	0.152	mass%	0.0006	0.0001	0.0004
7	S	0.0908	mass%	0.0022	0.0043	0.0130
8	K	0.0475	mass%	0.0023	0.0040	0.0119
9	Fe	0.0371	mass%	0.0006	0.0004	0.0013
10	Cu	0.0289	mass%	0.0003	0.0003	0.0010
11	Mn	0.0209	mass%	0.0006	0.0007	0.0020
12	Hf	0.0175	mass%	0.0007	0.0015	0.0045
13	Ni	0.0086	mass%	0.0002	0.0002	0.0007
14	Sr	0.0067	mass%	<0.0001	<0.0001	0.0002
15	Ta	(0.0045)	mass%	0.0007	0.0019	0.0056
16	Ti	0.0045	mass%	0.0004	0.0008	0.0025
17	Sn	0.0043	mass%	0.0003	0.0002	0.0007
18	V	0.0040	mass%	0.0003	0.0005	0.0015
19	Sc	ND	mass%	0.0012	0.0033	0.0099
20	Bi	0.0026	mass%	<0.0001	0.0002	0.0005
21	Pb	0.0025	mass%	0.0001	0.0003	0.0010
22	As	0.0016	mass%	<0.0001	0.0002	0.0005
23	Br	0.0014	mass%	<0.0001	<0.0001	0.0002
24	Os	(0.0011)	mass%	0.0003	0.0009	0.0028
25	Cr	(0.0007)	mass%	0.0001	0.0003	0.0010
26	Ag	0.0006	mass%	0.0001	<0.0001	0.0002
27	U	0.0005	mass%	<0.0001	0.0001	0.0004
28	Mo	ND	mass%	0.0002	0.0004	0.0013
29	Pa	(0.0003)	mass%	<0.0001	0.0002	0.0005
30	Rb	(0.0001)	mass%	<0.0001	<0.0001	0.0002
31	P	ND	mass%	0.0031	0.0137	0.0412
32	Mg	ND	mass%			
33	Co	ND	mass%			
34	Ga	ND	mass%			
35	Ge	ND	mass%			
36	Se	ND	mass%			
37	Y	ND	mass%			
38	Nb	ND	mass%			
39	Ru	ND	mass%			
40	Rh	ND	mass%			
41	Pd	ND	mass%			
42	Cd	ND	mass%			
43	In	ND	mass%			
44	Sb	ND	mass%			
45	Te	ND	mass%			
46	I	ND	mass%			
47	Cs	ND	mass%			
48	Ba	ND	mass%			

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Rigaku



Analyzed result

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Sample Information

Sample name 1901-10
File name 1901-10
Application LPPT
Date 9/2/2025 12:25 PM
Analyzed by Nayla
Counts 1
Comment Powder

Analyzed result(FP method)

No.	Component	Result	Unit	Stat. Err.	LLD	LLQ
1	Si	71.75	mass%	0.0718	0.0216	0.0649
2	Cl	24.18	mass%	0.0144	0.0015	0.0045
3	Al	4.91	mass%	0.0650	0.110	0.329
4	Ca	1.83	mass%	0.0066	0.0020	0.0059
5	Zr	0.412	mass%	0.0027	0.0004	0.0012
6	Zn	0.304	mass%	0.0009	0.0002	0.0005
7	S	0.0899	mass%	0.0024	0.0053	0.0158
8	K	0.0760	mass%	0.0027	0.0040	0.0120
9	Fe	0.0524	mass%	0.0008	0.0007	0.0022
10	Mn	0.0380	mass%	0.0009	0.0009	0.0026
11	Cu	0.0291	mass%	0.0004	0.0004	0.0011
12	Pb	0.0288	mass%	0.0003	0.0004	0.0013
13	Hf	0.0194	mass%	0.0007	0.0016	0.0049
14	Sr	0.0121	mass%	<0.0001	<0.0001	0.0003
15	Ni	0.0107	mass%	0.0003	0.0003	0.0008
16	Ti	0.0078	mass%	0.0004	0.0008	0.0025
17	Sn	0.0072	mass%	0.0004	0.0004	0.0013
18	V	0.0058	mass%	0.0003	0.0005	0.0015
19	Sc	(0.0045)	mass%	0.0013	0.0038	0.0114
20	Ta	(0.0037)	mass%	0.0007	0.0020	0.0061
21	As	0.0030	mass%	0.0002	0.0004	0.0013
22	Ir	0.0028	mass%	0.0003	0.0007	0.0020
23	Bi	0.0024	mass%	0.0001	0.0003	0.0008
24	Br	0.0021	mass%	<0.0001	<0.0001	0.0002
25	Cr	0.0015	mass%	0.0001	0.0003	0.0010
26	Os	(0.0012)	mass%	0.0004	0.0011	0.0033
27	Ag	0.0008	mass%	0.0001	0.0002	0.0005
28	Au	ND	mass%	0.0003	0.0010	0.0030
29	U	0.0007	mass%	<0.0001	0.0002	0.0006
30	Pt	ND	mass%	0.0004	0.0013	0.0039
31	Pa	(0.0005)	mass%	<0.0001	0.0002	0.0006
32	Co	ND	mass%	0.0002	0.0006	0.0019
33	Rb	(0.0002)	mass%	<0.0001	<0.0001	0.0003
34	Mg	ND	mass%	0.450	1.82	5.47
35	P	ND	mass%	0.0036	0.0154	0.0461
36	Na	ND	mass%	1.85	4.58	13.7
37	Ga	ND	mass%			
38	Ge	ND	mass%			
39	Se	ND	mass%			
40	Y	ND	mass%			
41	Nb	ND	mass%			
42	Mo	ND	mass%			
43	Ru	ND	mass%			
44	Rh	ND	mass%			
45	Pd	ND	mass%			
46	Cd	ND	mass%			
47	In	ND	mass%			
48	Sb	ND	mass%			

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Analyzed result

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Sample Information

Sample name 1901-11
File name 1901-11
Application LPPT
Date 9/2/2025 12:31 PM
Analyzed by Nayla
Counts 1
Comment Powder

Analyzed result(FP method)

No.	Component	Result	Unit	Stat. Err.	LLD	LLQ
1	Si	64.2	mass%	0.0774	0.0281	0.0843
2	Cl	22.6	mass%	0.0168	0.0017	0.0050
3	Al	8.70	mass%	0.0922	0.129	0.386
4	Ca	3.08	mass%	0.0114	0.0023	0.0069
5	Zr	0.476	mass%	0.0031	0.0004	0.0013
6	Zn	0.378	mass%	0.0011	0.0002	0.0006
7	Fe	0.131	mass%	0.0014	0.0010	0.0030
8	S	0.0977	mass%	0.0026	0.0059	0.0177
9	Mn	0.0788	mass%	0.0014	0.0010	0.0031
10	K	0.0628	mass%	0.0028	0.0048	0.0145
11	Cu	0.0331	mass%	0.0004	0.0005	0.0015
12	Pb	0.0285	mass%	0.0003	0.0005	0.0016
13	Hf	0.0237	mass%	0.0009	0.0019	0.0057
14	Sr	0.0180	mass%	0.0001	0.0001	0.0004
15	Ni	0.0147	mass%	0.0003	0.0003	0.0010
16	V	0.0134	mass%	0.0004	0.0006	0.0018
17	Ti	0.0113	mass%	0.0006	0.0010	0.0029
18	Sn	0.0108	mass%	0.0005	0.0006	0.0017
19	Ta	0.0085	mass%	0.0008	0.0023	0.0070
20	Te	0.0050	mass%	0.0005	0.0011	0.0034
21	Cr	0.0043	mass%	0.0002	0.0005	0.0015
22	As	0.0040	mass%	0.0002	0.0005	0.0014
23	Ir	0.0039	mass%	0.0003	0.0008	0.0023
24	Se	ND	mass%	0.0022	0.0066	0.0198
25	Bi	0.0029	mass%	0.0001	0.0003	0.0009
26	Br	0.0025	mass%	<0.0001	<0.0001	0.0003
27	Ag	0.0011	mass%	0.0002	0.0002	0.0006
28	Pa	0.0010	mass%	<0.0001	0.0002	0.0007
29	Co	(0.0010)	mass%	0.0003	0.0009	0.0026
30	U	0.0008	mass%	<0.0001	0.0002	0.0007
31	Os	ND	mass%	0.0004	0.0013	0.0039
32	Pt	ND	mass%	0.0005	0.0016	0.0047
33	Au	ND	mass%	0.0004	0.0012	0.0037
34	Fr	ND	mass%	0.0001	0.0003	0.0010
35	Se	(0.0002)	mass%	<0.0001	0.0001	0.0004
36	Mg	ND	mass%	0.562	2.24	6.71
37	P	ND	mass%	0.0039	0.0170	0.0510
38	Na	ND	mass%	1.99	4.81	14.4
39	Ga	ND	mass%			
40	Ge	ND	mass%			
41	Rb	ND	mass%			
42	Y	ND	mass%			
43	Nb	ND	mass%			
44	Mo	ND	mass%			
45	Ru	ND	mass%			
46	Rh	ND	mass%			
47	Pd	ND	mass%			
48	Cd	ND	mass%			

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Rigaku



Analyzed result

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Sample Information

Sample name	1901-12
File name	1901-12
Application	LPPT
Date	9/2/2025 12:19 PM
Analyzed by	Nayla
Counts	1
Comment	Powder

Analyzed result(FP method)

No.	Component	Result	Unit	Stat. Err.	LLD	LLQ
1	Si	68.45	mass%	0.0698	0.0162	0.0485
2	Cl	22.43	mass%	0.0099	0.0015	0.0044
3	Ca	0.893	mass%	0.0057	0.0020	0.0059
4	Al	7.230	mass%	0.0386	0.0931	0.279
5	Zr	0.338	mass%	0.0023	0.0003	0.0009
6	Zn	0.152	mass%	0.0006	0.0001	0.0004
7	S	0.0908	mass%	0.0022	0.0043	0.0130
8	K	0.0475	mass%	0.0023	0.0040	0.0119
9	Fe	0.0371	mass%	0.0006	0.0004	0.0013
10	Cu	0.0289	mass%	0.0003	0.0003	0.0010
11	Mn	0.0209	mass%	0.0006	0.0007	0.0020
12	Hf	0.0175	mass%	0.0007	0.0015	0.0045
13	Ni	0.0086	mass%	0.0002	0.0002	0.0007
14	Sr	0.0067	mass%	<0.0001	<0.0001	0.0002
15	Ta	(0.0045)	mass%	0.0007	0.0019	0.0056
16	Ti	0.0045	mass%	0.0004	0.0008	0.0025
17	Sn	0.0043	mass%	0.0003	0.0002	0.0007
18	V	0.0040	mass%	0.0003	0.0005	0.0015
19	Sc	ND	mass%	0.0012	0.0033	0.0099
20	Bi	0.0026	mass%	<0.0001	0.0002	0.0005
21	Pb	0.0025	mass%	0.0001	0.0003	0.0010
22	As	0.0016	mass%	<0.0001	0.0002	0.0005
23	Br	0.0014	mass%	<0.0001	<0.0001	0.0002
24	Os	(0.0011)	mass%	0.0003	0.0009	0.0028
25	Cr	(0.0007)	mass%	0.0001	0.0003	0.0010
26	Ag	0.0006	mass%	0.0001	<0.0001	0.0002
27	U	0.0005	mass%	<0.0001	0.0001	0.0004
28	Mo	ND	mass%	0.0002	0.0004	0.0013
29	Pa	(0.0003)	mass%	<0.0001	0.0002	0.0005
30	Rb	(0.0001)	mass%	<0.0001	<0.0001	0.0002
31	P	ND	mass%	0.0031	0.0137	0.0412
32	Mg	ND	mass%			
33	Co	ND	mass%			
34	Ga	ND	mass%			
35	Ge	ND	mass%			
36	Se	ND	mass%			
37	Y	ND	mass%			
38	Nb	ND	mass%			
39	Ru	ND	mass%			
40	Rh	ND	mass%			
41	Pd	ND	mass%			
42	Cd	ND	mass%			
43	In	ND	mass%			
44	Sb	ND	mass%			
45	Te	ND	mass%			
46	I	ND	mass%			
47	Cs	ND	mass%			
48	Ba	ND	mass%			

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Analyzed result

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Sample Information

Sample name 1901-13
File name 1901-13
Application LPPT
Date 9/2/2025 12:25 PM
Analyzed by Nayla
Counts 1
Comment Powder

Analyzed result(FP method)

No.	Component	Result	Unit	Stat. Err.	LLD	LLQ
1	Si	72.80	mass%	0.0718	0.0216	0.0649
2	Cl	19.23	mass%	0.0144	0.0015	0.0045
3	Al	5.78	mass%	0.0650	0.110	0.329
4	Ca	1.13	mass%	0.0066	0.0020	0.0059
5	Zr	0.412	mass%	0.0027	0.0004	0.0012
6	Zn	0.304	mass%	0.0009	0.0002	0.0005
7	S	0.0899	mass%	0.0024	0.0053	0.0158
8	K	0.0760	mass%	0.0027	0.0040	0.0120
9	Fe	0.0524	mass%	0.0008	0.0007	0.0022
10	Mn	0.0380	mass%	0.0009	0.0009	0.0026
11	Cu	0.0291	mass%	0.0004	0.0004	0.0011
12	Pb	0.0288	mass%	0.0003	0.0004	0.0013
13	Hf	0.0194	mass%	0.0007	0.0016	0.0049
14	Sr	0.0121	mass%	<0.0001	<0.0001	0.0003
15	Ni	0.0107	mass%	0.0003	0.0003	0.0008
16	Ti	0.0078	mass%	0.0004	0.0008	0.0025
17	Sn	0.0072	mass%	0.0004	0.0004	0.0013
18	V	0.0058	mass%	0.0003	0.0005	0.0015
19	Sc	(0.0045)	mass%	0.0013	0.0038	0.0114
20	Ta	(0.0037)	mass%	0.0007	0.0020	0.0061
21	As	0.0030	mass%	0.0002	0.0004	0.0013
22	Ir	0.0028	mass%	0.0003	0.0007	0.0020
23	Bi	0.0024	mass%	0.0001	0.0003	0.0008
24	Br	0.0021	mass%	<0.0001	<0.0001	0.0002
25	Cr	0.0015	mass%	0.0001	0.0003	0.0010
26	Os	(0.0012)	mass%	0.0004	0.0011	0.0033
27	Ag	0.0008	mass%	0.0001	0.0002	0.0005
28	Au	ND	mass%	0.0003	0.0010	0.0030
29	U	0.0007	mass%	<0.0001	0.0002	0.0006
30	Pt	ND	mass%	0.0004	0.0013	0.0039
31	Pa	(0.0005)	mass%	<0.0001	0.0002	0.0006
32	Co	ND	mass%	0.0002	0.0006	0.0019
33	Rb	(0.0002)	mass%	<0.0001	<0.0001	0.0003
34	Mg	ND	mass%	0.450	1.82	5.47
35	P	ND	mass%	0.0036	0.0154	0.0461
36	Na	ND	mass%	1.85	4.58	13.7
37	Ga	ND	mass%			
38	Ge	ND	mass%			
39	Se	ND	mass%			
40	Y	ND	mass%			
41	Nb	ND	mass%			
42	Mo	ND	mass%			
43	Ru	ND	mass%			
44	Rh	ND	mass%			
45	Pd	ND	mass%			
46	Cd	ND	mass%			
47	In	ND	mass%			
48	Sb	ND	mass%			

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Rigaku



Analyzed result

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Sample Information

Sample name	1901-14
File name	1901-14
Application	LPPT
Date	9/2/2025 12:07 PM
Analyzed by	Nayla
Counts	1
Comment	Powder

Analyzed result(FP method)

No.	Component	Result	Unit	Stat. Err.	LLD	LLQ
1	Si	77.1	mass%	0.0750	0.0264	0.0792
2	Cl	19.0	mass%	0.0152	0.0021	0.0063
3	Al	2.56	mass%	0.0619	0.130	0.389
4	Ca	0.441	mass%	0.0043	0.0020	0.0061
5	Zr	0.387	mass%	0.0026	0.0003	0.0010
6	S	0.179	mass%	0.0032	0.0062	0.0187
7	Zn	0.0955	mass%	0.0005	0.0001	0.0004
8	K	0.0894	mass%	0.0030	0.0040	0.0120
9	Fe	0.0546	mass%	0.0008	0.0005	0.0014
10	Cu	0.0327	mass%	0.0004	0.0004	0.0011
11	P	(0.0237)	mass%	0.0063	0.0173	0.0519
12	Hf	0.0189	mass%	0.0007	0.0017	0.0050
13	Mn	0.0188	mass%	0.0006	0.0007	0.0021
14	Ti	0.0140	mass%	0.0005	0.0008	0.0025
15	Ni	0.0102	mass%	0.0002	0.0002	0.0007
16	V	0.0090	mass%	0.0004	0.0006	0.0019
17	Ta	(0.0044)	mass%	0.0007	0.0021	0.0062
18	Sn	0.0043	mass%	0.0003	0.0004	0.0011
19	Pb	0.0036	mass%	0.0001	0.0003	0.0010
20	Bi	0.0028	mass%	0.0001	0.0002	0.0006
21	Te	0.0027	mass%	0.0003	0.0007	0.0020
22	Ir	0.0024	mass%	0.0002	0.0005	0.0016
23	Br	0.0019	mass%	<0.0001	<0.0001	0.0002
24	As	0.0017	mass%	<0.0001	0.0002	0.0005
25	Co	(0.0015)	mass%	0.0002	0.0005	0.0016
26	Sr	0.0014	mass%	<0.0001	<0.0001	0.0003
27	Os	(0.0012)	mass%	0.0003	0.0010	0.0030
28	U	0.0008	mass%	<0.0001	0.0002	0.0005
29	Pa	0.0008	mass%	<0.0001	0.0002	0.0005
30	Cr	(0.0006)	mass%	0.0002	0.0004	0.0012
31	Sc	ND	mass%	0.0009	0.0026	0.0078
32	Mg	ND	mass%			
33	Ga	ND	mass%			
34	Ge	ND	mass%			
35	Se	ND	mass%			
36	Rb	ND	mass%			
37	Y	ND	mass%			
38	Nb	ND	mass%			
39	Mo	ND	mass%			
40	Ru	ND	mass%			
41	Rh	ND	mass%			
42	Pd	ND	mass%			
43	Ag	ND	mass%			
44	Cd	ND	mass%			
45	In	ND	mass%			
46	Sb	ND	mass%			
47	I	ND	mass%			
48	Cs	ND	mass%			

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Rigaku



Analyzed result

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Sample Information

Sample name 1901-15
File name 1901-15
Application LPPT
Date 9/2/2025 12:25 PM
Analyzed by Nayla
Counts 1
Comment Powder

Analyzed result(FP method)

No.	Component	Result	Unit	Stat. Err.	LLD	LLQ
1	Si	78.90	mass%	0.0718	0.0216	0.0649
2	Cl	19.23	mass%	0.0144	0.0015	0.0045
3	Al	5.78	mass%	0.0650	0.110	0.329
4	Ca	1.13	mass%	0.0066	0.0020	0.0059
5	Zr	0.412	mass%	0.0027	0.0004	0.0012
6	Zn	0.304	mass%	0.0009	0.0002	0.0005
7	S	0.0899	mass%	0.0024	0.0053	0.0158
8	K	0.0760	mass%	0.0027	0.0040	0.0120
9	Fe	0.0524	mass%	0.0008	0.0007	0.0022
10	Mn	0.0380	mass%	0.0009	0.0009	0.0026
11	Cu	0.0291	mass%	0.0004	0.0004	0.0011
12	Pb	0.0288	mass%	0.0003	0.0004	0.0013
13	Hf	0.0194	mass%	0.0007	0.0016	0.0049
14	Sr	0.0121	mass%	<0.0001	<0.0001	0.0003
15	Ni	0.0107	mass%	0.0003	0.0003	0.0008
16	Ti	0.0078	mass%	0.0004	0.0008	0.0025
17	Sn	0.0072	mass%	0.0004	0.0004	0.0013
18	V	0.0058	mass%	0.0003	0.0005	0.0015
19	Sc	(0.0045)	mass%	0.0013	0.0038	0.0114
20	Ta	(0.0037)	mass%	0.0007	0.0020	0.0061
21	As	0.0030	mass%	0.0002	0.0004	0.0013
22	Ir	0.0028	mass%	0.0003	0.0007	0.0020
23	Bi	0.0024	mass%	0.0001	0.0003	0.0008
24	Br	0.0021	mass%	<0.0001	<0.0001	0.0002
25	Cr	0.0015	mass%	0.0001	0.0003	0.0010
26	Os	(0.0012)	mass%	0.0004	0.0011	0.0033
27	Ag	0.0008	mass%	0.0001	0.0002	0.0005
28	Au	ND	mass%	0.0003	0.0010	0.0030
29	U	0.0007	mass%	<0.0001	0.0002	0.0006
30	Pt	ND	mass%	0.0004	0.0013	0.0039
31	Pa	(0.0005)	mass%	<0.0001	0.0002	0.0006
32	Co	ND	mass%	0.0002	0.0006	0.0019
33	Rb	(0.0002)	mass%	<0.0001	<0.0001	0.0003
34	Mg	ND	mass%	0.450	1.82	5.47
35	P	ND	mass%	0.0036	0.0154	0.0461
36	Na	ND	mass%	1.85	4.58	13.7
37	Ga	ND	mass%			
38	Ge	ND	mass%			
39	Se	ND	mass%			
40	Y	ND	mass%			
41	Nb	ND	mass%			
42	Mo	ND	mass%			
43	Ru	ND	mass%			
44	Rh	ND	mass%			
45	Pd	ND	mass%			
46	Cd	ND	mass%			
47	In	ND	mass%			
48	Sb	ND	mass%			

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Rigaku



Analyzed result

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Sample Information

Sample name 1901-16
File name 1901-16
Application LPPT
Date 9/2/2025 11:56 AM
Analyzed by Nayla
Counts 1
Comment Powder

Analyzed result(FP method)

No.	Component	Result	Unit	Stat. Err.	LLD	LLQ
1	Si	70.15	mass%	0.0757	0.0248	0.0744
2	Cl	19.11	mass%	0.0160	0.0017	0.0050
3	Al	6.92	mass%	0.0685	0.122	0.367
4	Ca	1.98	mass%	0.0089	0.0021	0.0064
5	Zr	0.395	mass%	0.0027	0.0003	0.0009
6	S	0.115	mass%	0.0027	0.0056	0.0169
7	Zn	0.0813	mass%	0.0005	0.0002	0.0006
8	K	0.0553	mass%	0.0025	0.0044	0.0132
9	Fe	0.0502	mass%	0.0008	0.0007	0.0020
10	Mn	0.0405	mass%	0.0009	0.0007	0.0021
11	Cu	0.0389	mass%	0.0004	0.0003	0.0010
12	Hf	0.0206	mass%	0.0008	0.0018	0.0054
13	Ni	0.0102	mass%	0.0002	0.0002	0.0007
14	V	0.0076	mass%	0.0003	0.0006	0.0017
15	Sc	(0.0069)	mass%	0.0018	0.0051	0.0152
16	Ti	0.0039	mass%	0.0004	0.0009	0.0027
17	Bi	0.0031	mass%	0.0001	0.0001	0.0004
18	Sn	0.0031	mass%	0.0003	0.0003	0.0009
19	Pb	0.0028	mass%	0.0001	0.0004	0.0011
20	Re	ND	mass%	0.0011	0.0033	0.0099
21	Ga	0.0016	mass%	<0.0001	0.0002	0.0006
22	Cr	0.0014	mass%	0.0002	0.0004	0.0013
23	As	0.0013	mass%	<0.0001	0.0002	0.0005
24	Sr	0.0012	mass%	<0.0001	<0.0001	0.0002
25	Ta	ND	mass%	0.0008	0.0023	0.0068
26	Br	0.0009	mass%	<0.0001	<0.0001	0.0002
27	Au	(0.0009)	mass%	0.0002	0.0005	0.0016
28	Co	(0.0008)	mass%	0.0002	0.0005	0.0016
29	Pa	0.0008	mass%	<0.0001	0.0001	0.0004
30	U	0.0006	mass%	<0.0001	0.0001	0.0004
31	Se	0.0004	mass%	<0.0001	<0.0001	0.0002
32	Os	ND	mass%	0.0004	0.0011	0.0032
33	Pt	ND	mass%	0.0002	0.0008	0.0023
34	I	ND	mass%	0.0003	0.0008	0.0025
35	Rb	(0.0001)	mass%	<0.0001	<0.0001	0.0002
36	Cd	ND	mass%	<0.0001	0.0002	0.0005
37	P	ND	mass%	0.0038	0.0160	0.0480
38	Na	ND	mass%	2.01	4.96	14.9
39	Mg	ND	mass%			
40	Ge	ND	mass%			
41	Y	ND	mass%			
42	Nb	ND	mass%			
43	Mo	ND	mass%			
44	Ru	ND	mass%			
45	Rh	ND	mass%			
46	Pd	ND	mass%			
47	Ag	ND	mass%			
48	In	ND	mass%			

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Analyzed result

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Sample Information

Sample name 1901-17
 File name 1901-17
 Application LPPT
 Date 9/2/2025 12:25 PM
 Analyzed by Nayla
 Counts 1
 Comment Powder

Analyzed result(FP method)

No.	Component	Result	Unit	Stat. Err.	LLD	LLQ
1	Si	73.86	mass%	0.0718	0.0216	0.0649
2	Cl	19.73	mass%	0.0144	0.0015	0.0045
3	Al	5.22	mass%	0.0650	0.110	0.329
4	Ca	1.13	mass%	0.0066	0.0020	0.0059
5	Zr	0.412	mass%	0.0027	0.0004	0.0012
6	Zn	0.304	mass%	0.0009	0.0002	0.0005
7	S	0.0899	mass%	0.0024	0.0053	0.0158
8	K	0.0760	mass%	0.0027	0.0040	0.0120
9	Fe	0.0524	mass%	0.0008	0.0007	0.0022
10	Mn	0.0380	mass%	0.0009	0.0009	0.0026
11	Cu	0.0291	mass%	0.0004	0.0004	0.0011
12	Pb	0.0288	mass%	0.0003	0.0004	0.0013
13	Hf	0.0194	mass%	0.0007	0.0016	0.0049
14	Sr	0.0121	mass%	<0.0001	<0.0001	0.0003
15	Ni	0.0107	mass%	0.0003	0.0003	0.0008
16	Ti	0.0078	mass%	0.0004	0.0008	0.0025
17	Sn	0.0072	mass%	0.0004	0.0004	0.0013
18	V	0.0058	mass%	0.0003	0.0005	0.0015
19	Sc	(0.0045)	mass%	0.0013	0.0038	0.0114
20	Ta	(0.0037)	mass%	0.0007	0.0020	0.0061
21	As	0.0030	mass%	0.0002	0.0004	0.0013
22	Ir	0.0028	mass%	0.0003	0.0007	0.0020
23	Bi	0.0024	mass%	0.0001	0.0003	0.0008
24	Br	0.0021	mass%	<0.0001	<0.0001	0.0002
25	Cr	0.0015	mass%	0.0001	0.0003	0.0010
26	Os	(0.0012)	mass%	0.0004	0.0011	0.0033
27	Ag	0.0008	mass%	0.0001	0.0002	0.0005
28	Au	ND	mass%	0.0003	0.0010	0.0030
29	U	0.0007	mass%	<0.0001	0.0002	0.0006
30	Pt	ND	mass%	0.0004	0.0013	0.0039
31	Pa	(0.0005)	mass%	<0.0001	0.0002	0.0006
32	Co	ND	mass%	0.0002	0.0006	0.0019
33	Rb	(0.0002)	mass%	<0.0001	<0.0001	0.0003
34	Mg	ND	mass%	0.450	1.82	5.47
35	P	ND	mass%	0.0036	0.0154	0.0461
36	Na	ND	mass%	1.85	4.58	13.7
37	Ga	ND	mass%			
38	Ge	ND	mass%			
39	Se	ND	mass%			
40	Y	ND	mass%			
41	Nb	ND	mass%			
42	Mo	ND	mass%			
43	Ru	ND	mass%			
44	Rh	ND	mass%			
45	Pd	ND	mass%			
46	Cd	ND	mass%			
47	In	ND	mass%			
48	Sb	ND	mass%			

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Rigaku



Analyzed result

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Sample Information

Sample name	1901-18
File name	1901-18
Application	LPPT
Date	9/2/2025 12:07 PM
Analyzed by	Nayla
Counts	1
Comment	Powder

Analyzed result(FP method)

No.	Component	Result	Unit	Stat. Err.	LLD	LLQ
1	Si	77.58	mass%	0.0750	0.0264	0.0792
2	Cl	18.52	mass%	0.0152	0.0021	0.0063
3	Al	2.56	mass%	0.0619	0.130	0.389
4	Ca	0.441	mass%	0.0043	0.0020	0.0061
5	Zr	0.387	mass%	0.0026	0.0003	0.0010
6	S	0.179	mass%	0.0032	0.0062	0.0187
7	Zn	0.0955	mass%	0.0005	0.0001	0.0004
8	K	0.0894	mass%	0.0030	0.0040	0.0120
9	Fe	0.0546	mass%	0.0008	0.0005	0.0014
10	Cu	0.0327	mass%	0.0004	0.0004	0.0011
11	P	(0.0237)	mass%	0.0063	0.0173	0.0519
12	Hf	0.0189	mass%	0.0007	0.0017	0.0050
13	Mn	0.0188	mass%	0.0006	0.0007	0.0021
14	Ti	0.0140	mass%	0.0005	0.0008	0.0025
15	Ni	0.0102	mass%	0.0002	0.0002	0.0007
16	V	0.0090	mass%	0.0004	0.0006	0.0019
17	Ta	(0.0044)	mass%	0.0007	0.0021	0.0062
18	Sn	0.0043	mass%	0.0003	0.0004	0.0011
19	Pb	0.0036	mass%	0.0001	0.0003	0.0010
20	Bi	0.0028	mass%	0.0001	0.0002	0.0006
21	Te	0.0027	mass%	0.0003	0.0007	0.0020
22	Ir	0.0024	mass%	0.0002	0.0005	0.0016
23	Br	0.0019	mass%	<0.0001	<0.0001	0.0002
24	As	0.0017	mass%	<0.0001	0.0002	0.0005
25	Co	(0.0015)	mass%	0.0002	0.0005	0.0016
26	Sr	0.0014	mass%	<0.0001	<0.0001	0.0003
27	Os	(0.0012)	mass%	0.0003	0.0010	0.0030
28	U	0.0008	mass%	<0.0001	0.0002	0.0005
29	Pa	0.0008	mass%	<0.0001	0.0002	0.0005
30	Cr	(0.0006)	mass%	0.0002	0.0004	0.0012
31	Sc	ND	mass%	0.0009	0.0026	0.0078
32	Mg	ND	mass%			
33	Ga	ND	mass%			
34	Ge	ND	mass%			
35	Se	ND	mass%			
36	Rb	ND	mass%			
37	Y	ND	mass%			
38	Nb	ND	mass%			
39	Mo	ND	mass%			
40	Ru	ND	mass%			
41	Rh	ND	mass%			
42	Pd	ND	mass%			
43	Ag	ND	mass%			
44	Cd	ND	mass%			
45	In	ND	mass%			
46	Sb	ND	mass%			
47	I	ND	mass%			
48	Cs	ND	mass%			

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Rigaku



Analyzed result

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Sample Information

Sample name	1901-19
File name	1901-19
Application	LPPT
Date	9/2/2025 12:02 PM
Analyzed by	Nayla
Counts	1
Comment	Powder

Analyzed result(FP method)

No.	Component	Result	Unit	Stat. Err.	LLD	LLQ
1	Si	81.29	mass%	0.0757	0.0236	0.0707
2	Cl	18.39	mass%	0.0145	0.0019	0.0056
3	Al	1.58	mass%	0.0534	0.122	0.365
4	S	0.814	mass%	0.0054	0.0057	0.0170
5	Ca	0.629	mass%	0.0052	0.0026	0.0077
6	Zr	0.411	mass%	0.0028	0.0004	0.0011
7	Fe	0.345	mass%	0.0021	0.0006	0.0018
8	Cu	0.243	mass%	0.0010	0.0004	0.0012
9	Zn	0.178	mass%	0.0007	0.0002	0.0005
10	K	0.0865	mass%	0.0031	0.0050	0.0151
11	Mn	0.0432	mass%	0.0009	0.0008	0.0025
12	As	0.0354	mass%	0.0002	0.0003	0.0008
13	Ti	0.0183	mass%	0.0006	0.0011	0.0032
14	Ta	(0.0115)	mass%	0.0018	0.0051	0.0154
15	Pb	0.0100	mass%	0.0005	0.0013	0.0040
16	Ni	0.0100	mass%	0.0003	0.0003	0.0008
17	V	0.0076	mass%	0.0004	0.0008	0.0023
18	Sn	0.0068	mass%	0.0004	0.0003	0.0010
19	Te	0.0051	mass%	0.0004	0.0005	0.0016
20	Bi	0.0040	mass%	0.0001	0.0002	0.0007
21	Os	(0.0020)	mass%	0.0006	0.0019	0.0057
22	Br	0.0018	mass%	<0.0001	0.0001	0.0003
23	Sr	0.0016	mass%	<0.0001	<0.0001	0.0003
24	Pa	0.0014	mass%	<0.0001	0.0002	0.0005
25	Mo	(0.0009)	mass%	0.0003	0.0005	0.0015
26	U	0.0009	mass%	<0.0001	0.0002	0.0005
27	Au	(0.0008)	mass%	0.0003	0.0008	0.0025
28	Co	ND	mass%	0.0003	0.0010	0.0031
29	Se	0.0003	mass%	<0.0001	<0.0001	0.0003
30	Cr	ND	mass%	0.0002	0.0005	0.0015
31	P	ND	mass%	0.0039	0.0167	0.0501
32	Pt	ND	mass%	0.0003	0.0011	0.0033
33	Sc	ND	mass%	0.0010	0.0032	0.0095
34	Mg	ND	mass%			
35	Ga	ND	mass%			
36	Ge	ND	mass%			
37	Rb	ND	mass%			
38	Y	ND	mass%			
39	Nb	ND	mass%			
40	Ru	ND	mass%			
41	Rh	ND	mass%			
42	Pd	ND	mass%			
43	Ag	ND	mass%			
44	Cd	ND	mass%			
45	In	ND	mass%			
46	Sb	ND	mass%			
47	I	ND	mass%			
48	Cs	ND	mass%			

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Rigaku



Analyzed result

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Sample Information

Sample name	1901-20
File name	1901-20
Application	LPPT
Date	9/2/2025 12:19 PM
Analyzed by	Nayla
Counts	1
Comment	Powder

Analyzed result(FP method)

No.	Component	Result	Unit	Stat. Err.	LLD	LLQ
1	Si	89.5	mass%	0.0698	0.0162	0.0485
2	Cl	8.09	mass%	0.0099	0.0015	0.0044
3	Ca	0.893	mass%	0.0057	0.0020	0.0059
4	Al	0.771	mass%	0.0386	0.0931	0.279
5	Zr	0.338	mass%	0.0023	0.0003	0.0009
6	Zn	0.152	mass%	0.0006	0.0001	0.0004
7	S	0.0908	mass%	0.0022	0.0043	0.0130
8	K	0.0475	mass%	0.0023	0.0040	0.0119
9	Fe	0.0371	mass%	0.0006	0.0004	0.0013
10	Cu	0.0289	mass%	0.0003	0.0003	0.0010
11	Mn	0.0209	mass%	0.0006	0.0007	0.0020
12	Hf	0.0175	mass%	0.0007	0.0015	0.0045
13	Ni	0.0086	mass%	0.0002	0.0002	0.0007
14	Sr	0.0067	mass%	<0.0001	<0.0001	0.0002
15	Ta	(0.0045)	mass%	0.0007	0.0019	0.0056
16	Ti	0.0045	mass%	0.0004	0.0008	0.0025
17	Sn	0.0043	mass%	0.0003	0.0002	0.0007
18	V	0.0040	mass%	0.0003	0.0005	0.0015
19	Sc	ND	mass%	0.0012	0.0033	0.0099
20	Bi	0.0026	mass%	<0.0001	0.0002	0.0005
21	Pb	0.0025	mass%	0.0001	0.0003	0.0010
22	As	0.0016	mass%	<0.0001	0.0002	0.0005
23	Br	0.0014	mass%	<0.0001	<0.0001	0.0002
24	Os	(0.0011)	mass%	0.0003	0.0009	0.0028
25	Cr	(0.0007)	mass%	0.0001	0.0003	0.0010
26	Ag	0.0006	mass%	0.0001	<0.0001	0.0002
27	U	0.0005	mass%	<0.0001	0.0001	0.0004
28	Mo	ND	mass%	0.0002	0.0004	0.0013
29	Pa	(0.0003)	mass%	<0.0001	0.0002	0.0005
30	Rb	(0.0001)	mass%	<0.0001	<0.0001	0.0002
31	P	ND	mass%	0.0031	0.0137	0.0412
32	Mg	ND	mass%			
33	Co	ND	mass%			
34	Ga	ND	mass%			
35	Ge	ND	mass%			
36	Se	ND	mass%			
37	Y	ND	mass%			
38	Nb	ND	mass%			
39	Ru	ND	mass%			
40	Rh	ND	mass%			
41	Pd	ND	mass%			
42	Cd	ND	mass%			
43	In	ND	mass%			
44	Sb	ND	mass%			
45	Te	ND	mass%			
46	I	ND	mass%			
47	Cs	ND	mass%			
48	Ba	ND	mass%			

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Rigaku



Analyzed result

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Sample Information

Sample name	1901-21
File name	1901-21
Application	LPPT
Date	9/2/2025 11:56 AM
Analyzed by	Nayla
Counts	1
Comment	Powder

Analyzed result(FP method)

No.	Component	Result	Unit	Stat. Err.	LLD	LLQ
1	Si	71.3	mass%	0.0757	0.0248	0.0744
2	Cl	21.8	mass%	0.0160	0.0017	0.0050
3	Al	4.08	mass%	0.0685	0.122	0.367
4	Ca	1.98	mass%	0.0089	0.0021	0.0064
5	Zr	0.395	mass%	0.0027	0.0003	0.0009
6	S	0.115	mass%	0.0027	0.0056	0.0169
7	Zn	0.0813	mass%	0.0005	0.0002	0.0006
8	K	0.0553	mass%	0.0025	0.0044	0.0132
9	Fe	0.0502	mass%	0.0008	0.0007	0.0020
10	Mn	0.0405	mass%	0.0009	0.0007	0.0021
11	Cu	0.0389	mass%	0.0004	0.0003	0.0010
12	Hf	0.0206	mass%	0.0008	0.0018	0.0054
13	Ni	0.0102	mass%	0.0002	0.0002	0.0007
14	V	0.0076	mass%	0.0003	0.0006	0.0017
15	Sc	(0.0069)	mass%	0.0018	0.0051	0.0152
16	Ti	0.0039	mass%	0.0004	0.0009	0.0027
17	Bi	0.0031	mass%	0.0001	0.0001	0.0004
18	Sn	0.0031	mass%	0.0003	0.0003	0.0009
19	Pb	0.0028	mass%	0.0001	0.0004	0.0011
20	Re	ND	mass%	0.0011	0.0033	0.0099
21	Ga	0.0016	mass%	<0.0001	0.0002	0.0006
22	Cr	0.0014	mass%	0.0002	0.0004	0.0013
23	As	0.0013	mass%	<0.0001	0.0002	0.0005
24	Sr	0.0012	mass%	<0.0001	<0.0001	0.0002
25	Ta	ND	mass%	0.0008	0.0023	0.0068
26	Br	0.0009	mass%	<0.0001	<0.0001	0.0002
27	Au	(0.0009)	mass%	0.0002	0.0005	0.0016
28	Co	(0.0008)	mass%	0.0002	0.0005	0.0016
29	Pa	0.0008	mass%	<0.0001	0.0001	0.0004
30	U	0.0006	mass%	<0.0001	0.0001	0.0004
31	Se	0.0004	mass%	<0.0001	<0.0001	0.0002
32	Os	ND	mass%	0.0004	0.0011	0.0032
33	Pt	ND	mass%	0.0002	0.0008	0.0023
34	I	ND	mass%	0.0003	0.0008	0.0025
35	Rb	(0.0001)	mass%	<0.0001	<0.0001	0.0002
36	Cd	ND	mass%	<0.0001	0.0002	0.0005
37	P	ND	mass%	0.0038	0.0160	0.0480
38	Na	ND	mass%	2.01	4.96	14.9
39	Mg	ND	mass%			
40	Ge	ND	mass%			
41	Y	ND	mass%			
42	Nb	ND	mass%			
43	Mo	ND	mass%			
44	Ru	ND	mass%			
45	Rh	ND	mass%			
46	Pd	ND	mass%			
47	Ag	ND	mass%			
48	In	ND	mass%			

NEX CGII

Rigaku



Analyzed result

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Sample Information

Sample name 1901-22
File name 1901-22
Application LPPT
Date 9/2/2025 12:25 PM
Analyzed by Nayla
Counts 1
Comment Powder

Analyzed result(FP method)

No.	Component	Result	Unit	Stat. Err.	LLD	LLQ
1	Si	73.70	mass%	0.0718	0.0216	0.0649
2	Cl	18.56	mass%	0.0144	0.0015	0.0045
3	Al	5.55	mass%	0.0650	0.110	0.329
4	Ca	1.13	mass%	0.0066	0.0020	0.0059
5	Zr	0.412	mass%	0.0027	0.0004	0.0012
6	Zn	0.304	mass%	0.0009	0.0002	0.0005
7	S	0.0899	mass%	0.0024	0.0053	0.0158
8	K	0.0760	mass%	0.0027	0.0040	0.0120
9	Fe	0.0524	mass%	0.0008	0.0007	0.0022
10	Mn	0.0380	mass%	0.0009	0.0009	0.0026
11	Cu	0.0291	mass%	0.0004	0.0004	0.0011
12	Pb	0.0288	mass%	0.0003	0.0004	0.0013
13	Hf	0.0194	mass%	0.0007	0.0016	0.0049
14	Sr	0.0121	mass%	<0.0001	<0.0001	0.0003
15	Ni	0.0107	mass%	0.0003	0.0003	0.0008
16	Ti	0.0078	mass%	0.0004	0.0008	0.0025
17	Sn	0.0072	mass%	0.0004	0.0004	0.0013
18	V	0.0058	mass%	0.0003	0.0005	0.0015
19	Sc	(0.0045)	mass%	0.0013	0.0038	0.0114
20	Ta	(0.0037)	mass%	0.0007	0.0020	0.0061
21	As	0.0030	mass%	0.0002	0.0004	0.0013
22	Ir	0.0028	mass%	0.0003	0.0007	0.0020
23	Bi	0.0024	mass%	0.0001	0.0003	0.0008
24	Br	0.0021	mass%	<0.0001	<0.0001	0.0002
25	Cr	0.0015	mass%	0.0001	0.0003	0.0010
26	Os	(0.0012)	mass%	0.0004	0.0011	0.0033
27	Ag	0.0008	mass%	0.0001	0.0002	0.0005
28	Au	ND	mass%	0.0003	0.0010	0.0030
29	U	0.0007	mass%	<0.0001	0.0002	0.0006
30	Pt	ND	mass%	0.0004	0.0013	0.0039
31	Pa	(0.0005)	mass%	<0.0001	0.0002	0.0006
32	Co	ND	mass%	0.0002	0.0006	0.0019
33	Rb	(0.0002)	mass%	<0.0001	<0.0001	0.0003
34	Mg	ND	mass%	0.450	1.82	5.47
35	P	ND	mass%	0.0036	0.0154	0.0461
36	Na	ND	mass%	1.85	4.58	13.7
37	Ga	ND	mass%			
38	Ge	ND	mass%			
39	Se	ND	mass%			
40	Y	ND	mass%			
41	Nb	ND	mass%			
42	Mo	ND	mass%			
43	Ru	ND	mass%			
44	Rh	ND	mass%			
45	Pd	ND	mass%			
46	Cd	ND	mass%			
47	In	ND	mass%			
48	Sb	ND	mass%			

NEX CGII

Rigaku



Analyzed result

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Sample Information

Sample name	1901-23
File name	1901-23
Application	LPPT
Date	9/2/2025 12:25 PM
Analyzed by	Nayla
Counts	1
Comment	Powder

Analyzed result(FP method)

No.	Component	Result	Unit	Stat. Err.	LLD	LLQ
1	Si	76.1	mass%	0.0718	0.0216	0.0649
2	Cl	17.5	mass%	0.0144	0.0015	0.0045
3	Al	4.21	mass%	0.0650	0.110	0.329
4	Ca	1.13	mass%	0.0066	0.0020	0.0059
5	Zr	0.412	mass%	0.0027	0.0004	0.0012
6	Zn	0.304	mass%	0.0009	0.0002	0.0005
7	S	0.0899	mass%	0.0024	0.0053	0.0158
8	K	0.0760	mass%	0.0027	0.0040	0.0120
9	Fe	0.0524	mass%	0.0008	0.0007	0.0022
10	Mn	0.0380	mass%	0.0009	0.0009	0.0026
11	Cu	0.0291	mass%	0.0004	0.0004	0.0011
12	Pb	0.0288	mass%	0.0003	0.0004	0.0013
13	Hf	0.0194	mass%	0.0007	0.0016	0.0049
14	Sr	0.0121	mass%	<0.0001	<0.0001	0.0003
15	Ni	0.0107	mass%	0.0003	0.0003	0.0008
16	Ti	0.0078	mass%	0.0004	0.0008	0.0025
17	Sn	0.0072	mass%	0.0004	0.0004	0.0013
18	V	0.0058	mass%	0.0003	0.0005	0.0015
19	Sc	(0.0045)	mass%	0.0013	0.0038	0.0114
20	Ta	(0.0037)	mass%	0.0007	0.0020	0.0061
21	As	0.0030	mass%	0.0002	0.0004	0.0013
22	Ir	0.0028	mass%	0.0003	0.0007	0.0020
23	Bi	0.0024	mass%	0.0001	0.0003	0.0008
24	Br	0.0021	mass%	<0.0001	<0.0001	0.0002
25	Cr	0.0015	mass%	0.0001	0.0003	0.0010
26	Os	(0.0012)	mass%	0.0004	0.0011	0.0033
27	Ag	0.0008	mass%	0.0001	0.0002	0.0005
28	Au	ND	mass%	0.0003	0.0010	0.0030
29	U	0.0007	mass%	<0.0001	0.0002	0.0006
30	Pt	ND	mass%	0.0004	0.0013	0.0039
31	Pa	(0.0005)	mass%	<0.0001	0.0002	0.0006
32	Co	ND	mass%	0.0002	0.0006	0.0019
33	Rb	(0.0002)	mass%	<0.0001	<0.0001	0.0003
34	Mg	ND	mass%	0.450	1.82	5.47
35	P	ND	mass%	0.0036	0.0154	0.0461
36	Na	ND	mass%	1.85	4.58	13.7
37	Ga	ND	mass%			
38	Ge	ND	mass%			
39	Se	ND	mass%			
40	Y	ND	mass%			
41	Nb	ND	mass%			
42	Mo	ND	mass%			
43	Ru	ND	mass%			
44	Rh	ND	mass%			
45	Pd	ND	mass%			
46	Cd	ND	mass%			
47	In	ND	mass%			
48	Sb	ND	mass%			

NEX CGII

Rigaku



Analyzed result

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Sample Information

Sample name	1901-24
File name	1901-24
Application	LPPT
Date	9/2/2025 12:02 PM
Analyzed by	Nayla
Counts	1
Comment	Powder

Analyzed result(FP method)

No.	Component	Result	Unit	Stat. Err.	LLD	LLQ
1	Si	81.2	mass%	0.0757	0.0236	0.0707
2	Cl	17.43	mass%	0.0145	0.0019	0.0056
3	Al	3.68	mass%	0.0534	0.122	0.365
4	S	0.814	mass%	0.0054	0.0057	0.0170
5	Ca	0.629	mass%	0.0052	0.0026	0.0077
6	Zr	0.411	mass%	0.0028	0.0004	0.0011
7	Fe	0.345	mass%	0.0021	0.0006	0.0018
8	Cu	0.243	mass%	0.0010	0.0004	0.0012
9	Zn	0.178	mass%	0.0007	0.0002	0.0005
10	K	0.0865	mass%	0.0031	0.0050	0.0151
11	Mn	0.0432	mass%	0.0009	0.0008	0.0025
12	As	0.0354	mass%	0.0002	0.0003	0.0008
13	Ti	0.0183	mass%	0.0006	0.0011	0.0032
14	Ta	(0.0115)	mass%	0.0018	0.0051	0.0154
15	Pb	0.0100	mass%	0.0005	0.0013	0.0040
16	Ni	0.0100	mass%	0.0003	0.0003	0.0008
17	V	0.0076	mass%	0.0004	0.0008	0.0023
18	Sn	0.0068	mass%	0.0004	0.0003	0.0010
19	Te	0.0051	mass%	0.0004	0.0005	0.0016
20	Bi	0.0040	mass%	0.0001	0.0002	0.0007
21	Os	(0.0020)	mass%	0.0006	0.0019	0.0057
22	Br	0.0018	mass%	<0.0001	0.0001	0.0003
23	Sr	0.0016	mass%	<0.0001	<0.0001	0.0003
24	Pa	0.0014	mass%	<0.0001	0.0002	0.0005
25	Mo	(0.0009)	mass%	0.0003	0.0005	0.0015
26	U	0.0009	mass%	<0.0001	0.0002	0.0005
27	Au	(0.0008)	mass%	0.0003	0.0008	0.0025
28	Co	ND	mass%	0.0003	0.0010	0.0031
29	Se	0.0003	mass%	<0.0001	<0.0001	0.0003
30	Cr	ND	mass%	0.0002	0.0005	0.0015
31	P	ND	mass%	0.0039	0.0167	0.0501
32	Pt	ND	mass%	0.0003	0.0011	0.0033
33	Sc	ND	mass%	0.0010	0.0032	0.0095
34	Mg	ND	mass%			
35	Ga	ND	mass%			
36	Ge	ND	mass%			
37	Rb	ND	mass%			
38	Y	ND	mass%			
39	Nb	ND	mass%			
40	Ru	ND	mass%			
41	Rh	ND	mass%			
42	Pd	ND	mass%			
43	Ag	ND	mass%			
44	Cd	ND	mass%			
45	In	ND	mass%			
46	Sb	ND	mass%			
47	I	ND	mass%			
48	Cs	ND	mass%			

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Rigaku



Analyzed result

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Sample Information

Sample name 1901-25
File name 1901-25
Application LPPT
Date 9/2/2025 11:50 AM
Analyzed by Nayla
Counts 1
Comment Powder

Analyzed result(FP method)

No.	Component	Result	Unit	Stat. Err.	LLD	LLQ
1	Si	91.1	mass%	0.0723	0.0129	0.0387
2	Cl	4.70	mass%	0.0074	0.0012	0.0037
3	Ca	3.00	mass%	0.0100	0.0018	0.0054
4	Al	0.353	mass%	0.0320	0.0829	0.249
5	Zr	0.352	mass%	0.0023	0.0003	0.0008
6	Zn	0.200	mass%	0.0007	0.0001	0.0004
7	S	0.0762	mass%	0.0019	0.0036	0.0107
8	K	0.0610	mass%	0.0024	0.0039	0.0117
9	Fe	0.0508	mass%	0.0007	0.0004	0.0012
10	Mn	0.0309	mass%	0.0007	0.0006	0.0019
11	Cu	0.0289	mass%	0.0003	0.0004	0.0011
12	Hf	0.0191	mass%	0.0006	0.0015	0.0044
13	Sc	(0.0138)	mass%	0.0020	0.0058	0.0173
14	Ni	0.0130	mass%	0.0003	0.0002	0.0006
15	Pb	0.0085	mass%	0.0002	0.0003	0.0009
16	Ta	0.0076	mass%	0.0007	0.0019	0.0056
17	Sn	0.0039	mass%	0.0003	0.0002	0.0006
18	Sr	0.0037	mass%	<0.0001	<0.0001	0.0002
19	Ti	0.0031	mass%	0.0004	0.0008	0.0025
20	Bi	0.0029	mass%	<0.0001	0.0002	0.0005
21	As	0.0019	mass%	<0.0001	0.0002	0.0007
22	V	0.0018	mass%	0.0002	0.0005	0.0014
23	Os	(0.0013)	mass%	0.0003	0.0009	0.0028
24	Sb	0.0012	mass%	0.0002	0.0003	0.0008
25	Cr	0.0012	mass%	0.0001	0.0003	0.0009
26	Au	(0.0010)	mass%	0.0003	0.0008	0.0023
27	Pa	0.0008	mass%	<0.0001	0.0001	0.0004
28	Co	(0.0008)	mass%	0.0002	0.0005	0.0016
29	Ag	0.0006	mass%	0.0001	<0.0001	0.0002
30	Br	0.0006	mass%	<0.0001	<0.0001	0.0002
31	U	0.0006	mass%	<0.0001	0.0001	0.0004
32	Mo	(0.0004)	mass%	0.0002	0.0004	0.0012
33	Se	0.0002	mass%	<0.0001	<0.0001	0.0002
34	Pt	ND	mass%	0.0003	0.0010	0.0030
35	Cd	ND	mass%	<0.0001	0.0002	0.0005
36	P	ND	mass%	0.0027	0.0129	0.0387
37	Mg	ND	mass%			
38	Ga	ND	mass%			
39	Ge	ND	mass%			
40	Rb	ND	mass%			
41	Y	ND	mass%			
42	Nb	ND	mass%			
43	Ru	ND	mass%			
44	Rh	ND	mass%			
45	Pd	ND	mass%			
46	In	ND	mass%			
47	Te	ND	mass%			
48	I	ND	mass%			

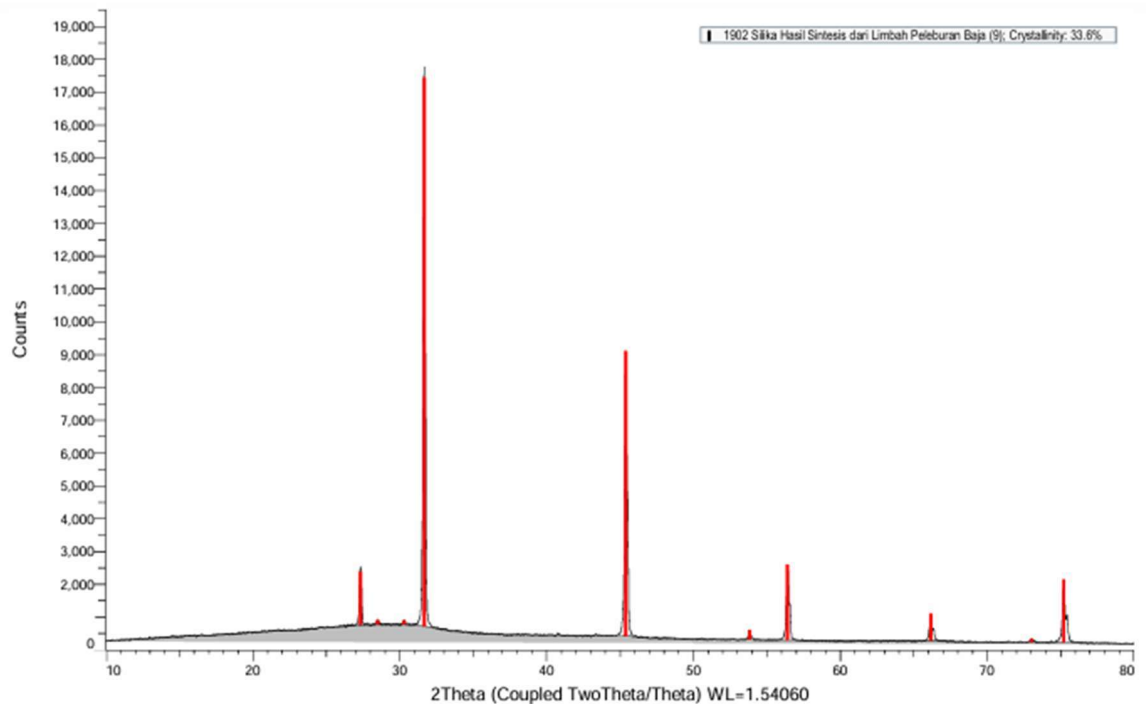
NEX CGII

Rigaku



B. Laporan Hasil Uji XRF

Puncak-puncak difraksi (ka Peaks).



Peak List #1

Inde x	Angle	d Value	Net Intensity	Net Intensity (CPS)	Gross Intensity	Gross Intensity (CPS)	Rel. Intensity	Crystallite Size	FWHM
1	27.341 °	3.25934 Å	1351.47 Counts	17.5973 CPS	2099.80 Counts	27.3411 CPS	9.8%	869.8 Å	0.10555 °
2	28.527 °	3.12648 Å	116.153 Counts	1.51240 CPS	884.405 Counts	11.5157 CPS	0.8%	936.0 Å	0.1°
3	30.319 °	2.94566 Å	113.963 Counts	1.48389 CPS	879.296 Counts	11.4492 CPS	0.8%	939.8 Å	0.1°
4	31.675 °	2.82251 Å	13829.6 Counts	180.073 CPS	14545.2 Counts	189.390 CPS	100.0%	942.9 Å	0.1°
5	45.408 °	1.99573 Å	7189.14 Counts	93.6085 CPS	7607.26 Counts	99.0528 CPS	52.0%	859.9 Å	0.11094 °
6	53.824 °	1.70187 Å	232.695 Counts	3.02988 CPS	543.575 Counts	7.07781 CPS	1.7%	563.5 Å	0.16415 °
7	56.430 °	1.62929 Å	1888.71 Counts	24.5926 CPS	2193.27 Counts	28.5582 CPS	13.7%	698.5 Å	0.13708 °
8	66.182 °	1.41089 Å	685.141 Counts	8.92110 CPS	959.598 Counts	12.4948 CPS	5.0%	754.5 Å	0.13396 °
9	73.047 °	1.29429 Å	85.3183 Counts	1.11092 CPS	312.364 Counts	4.06724 CPS	0.6%	462.2 Å	0.21736 °
10	75.240 °	1.26192 Å	1587.41 Counts	20.6693 CPS	1815.74 Counts	23.6425 CPS	11.5%	867.2 Å	0.12482 °



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WA. 0811274565 Email. lppt_info@mail.ugm.ac.id Website. <https://lppt.ugm.ac.id>

2Theta

Visible	Yes
Icon	
Color	
Index	1
Parent	2Theta
Method Name	
Sample ID	1902 Silika Hasil Sintesis dari Limbah Peleburan Baja (9)
File Name	1902 Silika Hasil Sintesis dari Limbah Peleburan Baja (9).bml (Smooth)
Experiment ID	0
Experiment File Name	COMMANDER_MEASUREMENT_BrukerAXS.bml
Experiment Comment	
Job ID	
Scan Type	Coupled TwoTheta/Theta
Scan Mode	Continuous PSD fast
Scan Status	Completed
Sub Scan Number	0
Start	10.000 °
End	80.012 °
Step Size	0.020 °
Total Time/Step	76.80 s
Time/Step	0.40 s
Delay Time	0.0 s
Axis Offset	
Temperature	25 °C (Room)
Temp. Diff.	
Heating Rate	
Target Force	
Target Position	
Force	
Position	
Load Cell Mode	
Mean Current	
Min. Current	
Max. Current	
Mean Voltage	
Min. Voltage	
Max. Voltage	
Target Current	
Target Voltage	
Applied Current	
Applied Voltage	
Execution Time	
Follow Up Mode (CV)	
Follow Up Mode (CC)	
Start Point	
Segment Mode	
Segment Number	
Original Sub Scan	0
Time Started	0.0
Goniometer Radius	280.0 mm
Goniometer Radius Primary	
Goniometer Radius Secondary	

LPPT UGM - XRD TEST RESUME - 26/08/2025 - PAGE 3 OF 6



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IPA Model	
2θ	10.000 °
2θ Osc. Amplitude	
2θ Osc. Speed	
2θ _nc	
Theta	5.000 °
Theta Osc. Amplitude	
Theta Osc. Speed	
Detector	
Detector Osc. Amplitude	
Detector Osc. Speed	
Δ Omega	
Chi	
Chi Osc. Amplitude	
Chi Osc. Speed	
Phi	
Phi Osc. Amplitude	
Phi Osc. Speed	
Phi	
Phi Osc. Amplitude	
Phi Osc. Speed	
X-Drive	
X-drive Osc. Amplitude	
X-drive Osc. Speed	
Y-Drive	
Y-drive Osc. Amplitude	
Y-drive Osc. Speed	
Z-Drive	
Z-drive Osc. Amplitude	
Z-drive Osc. Speed	
Spinner	
Spinner Osc. Amplitude	
Spinner Osc. Speed	
Alpha.1	
Beam Translation	
X0	
Z-KEC	
Zeta	
Aux1	
Aux2	
Aux3	
Sample Rotation	20.000 1/min
Anodo	Cu
Focus Orientation	Line Focus
Ka1	1.54060 Å
Ka2	1.54439 Å
Ka2/Ka1	0.999 00
Kβ	1.39222 Å
Kβ/Ka1	0.897 00
Kβ Filter	
Wavelength for display	1.54060 Å
Generator kV	40.0 kV
Generator mA	25.0 mA
Absorber	

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Primary Monochromator	
Primary Monochromator alpha	
Secondary Monochromator	
Calcium Channel	
Calcium Channel Time	
Detector Name	LYNXEYE_XE_T (1D mode)
LynEye ID	No
Detector Opening	2.947 °
Detector Opening Initial	
2θ For Final Detector Opening	
2θ For Last Step with Full Detector Opening	
Detector Slit Opening	
Lower Discriminator	0.772 V
Upper Discriminator	0.822 V
Discriminator Width	
Detector Counts 9D	
Detector Profile	
Detector ROI 2θ	
Detector ROI Gamma	
Detector Distance	
POLYCAP	No
UBC Collimator Opening	
Primary Soller slit	
Secondary Soller slit	2.500 °
Center Soller slit	
Air-Scatter Screen	Yes
Air-Scatter Screen Mode	Automatic
Air-Scatter Opening	
Divergence Slit	0.8 mm (0.46 °) mm
Divergence Slit 2	
Height Slit	
Antiscatter Slit	18.000 mm
Slit Mode	Fixed
Simul. Slit Mode	Default
Center Slit	
X-Offset	0.000 °
Displacement	0.000 mm
Y-Scale Factor	1
Y-Offset	0.000 Counts
Humidity	n.a.
Curvature	1.000
Threshold	1.000
Auto Curv. & Thr.	Yes
Enhanced	No
Background Subtracted	No
Displ. normal beam	0.000 mm
Displ. along beam	0.000 mm
Compute Crystallinity	Yes
Crystallinity - From	10.000
Crystallinity - To	80.012
% Crystallinity	33.6%
% Amorphous	66.4%
Global Area	256.19
Reduced Area	86.205

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WA. 0811274565 Email: ippt_info@mail.ugm.ac.id Website: <https://ippt.ugm.ac.id>

Transmission without Blank	
Transmission	
Company Name	
Operator Name	Lab Manager
Instrument Name	Brucker AOS DB Advance Eco, Universitas Gadjah Mada
Instrument Serial#	214962
Instrument Alignment	
User Comment	
Sample Position	1A01
Creation Date/Time	20/08/2025 09:48:03
Last Write Date/Time	20/08/2025 10:12:00
Measurement Duration	00:23:57
Analyzer Crystal	
Set index	Not used
Application Type	Powder Diffraction
Save Results to Database	No
Geometry	Bragg Braggino
Linear absorption	0
Beam Polarization	No
Sample thickness (mm)	0
Capillary diameter (mm)	0
Absorption displ. slope	0.000 °
Use Fitted Background	No