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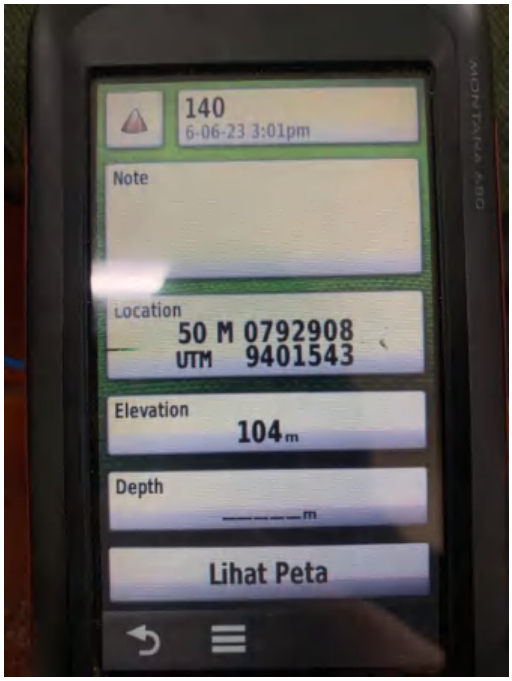
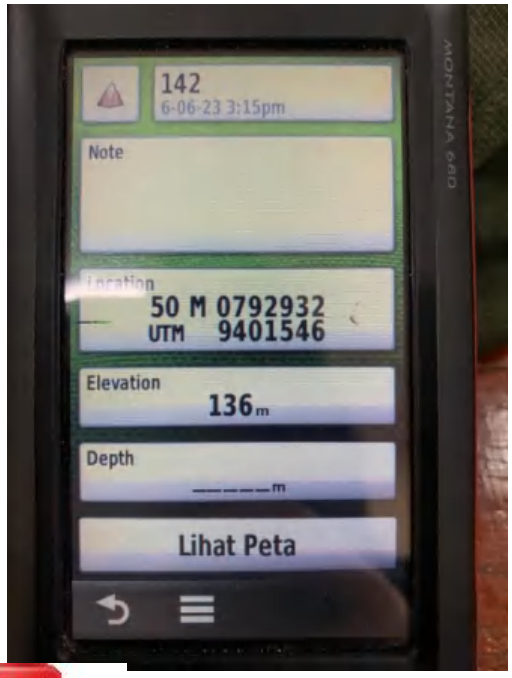
LAMPIRAN

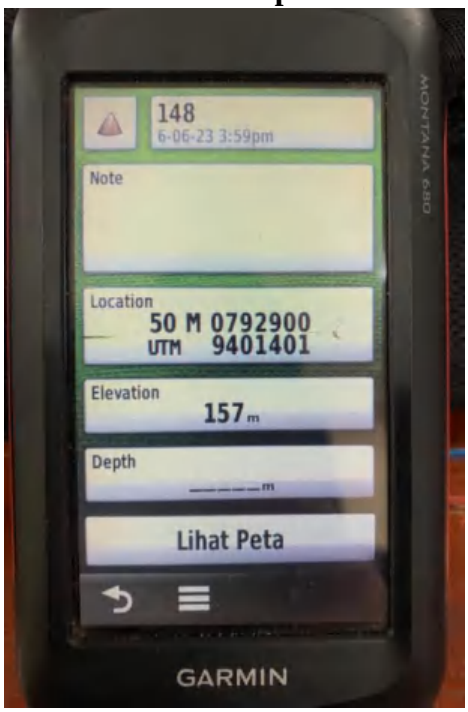
Koordinat dan Sampel Batuan 1



Koordinat dan Sampel Batuan 2

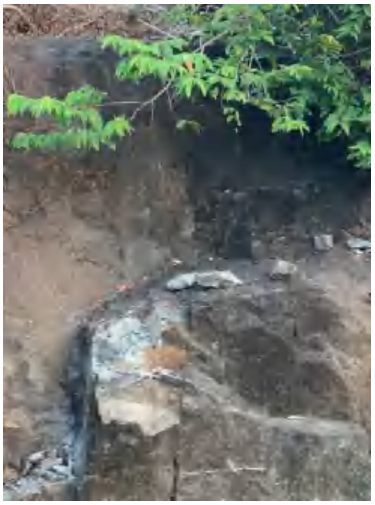


Koordinat dan Sampel 3

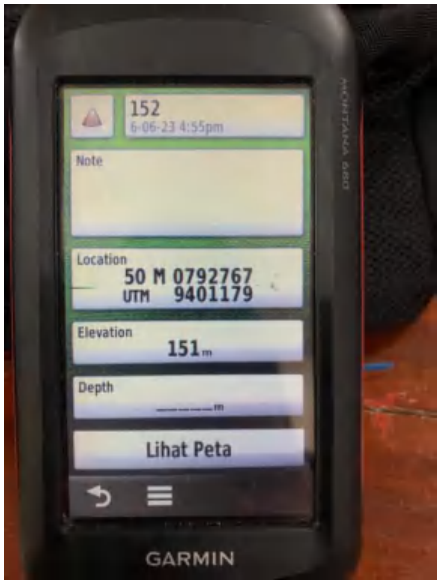


Koordinat dan Sampel 4

Koordinat dan Sampel 5



Koordinat dan Sampel 6



Pengambilan Sampel

Preparasi Sampel

Pengujian Sampel

HASIL XRD

Match! Phase Analysis Report

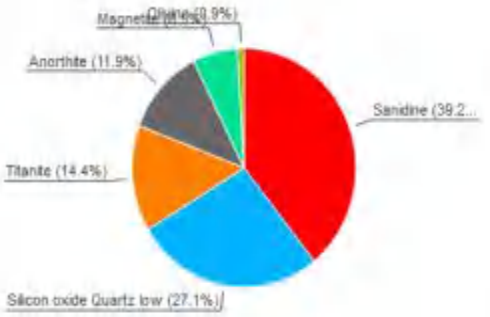
Sample: serbuk ()

Sample Data

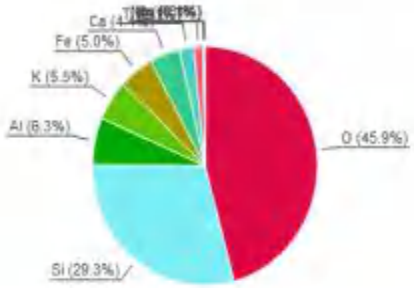
File name	nh#s1.RAW
File path	D:/DATA NUDEK/DATA XRD DAN XRF NUDIA HAJRYANA/XRD/nh#s1
Data collected	Nov 17, 2023 21:26:26
Data range	15.000° - 70.000°
Original data range	15.000° - 70.000°
Number of points	2751
Step size	0.020
Rietveld refinement converged	No
Alpha2 subtracted	No
Background subtr.	No
Data smoothed	Yes
Radiation	X-rays
Wavelength	1.540600 Å

Analysis Results

Phase composition (Weight %)



Elemental composition (Weight %)



Index	*Amount (%)*	*Name*	*Formula sum*
A	39.2	Sanidine	Al K O8 Si3
B	27.1	Silicon oxide Quartz low	O2 Si
C	14.4	Titanite	Al0.2 Ca Nb0.2 O5 Si Ti0.8
D	11.9	Anorthite	Al3.71 Ca1.72 Na0.28 O16 Si4.29
E	6.5	Magnetite	Fe3 O4
F	0.9	Olivine	Fe Mg O4 Si
	17.9	*Unidentified peak area*	

Amounts calculated by RIR (Reference Intensity Ratio) method

Element	*Amount (weight %)*
O	*45.9%(*)*
Si	29.3%
Al	6.3%
K	5.5%
Fe	5.0%
Ca	4.4%
Ti	2.1%
Nb	1.3%
Na	0.1%
Mg	0.1%
**LE (sum)*	*45.9%*

Details of identified phases

A: Sanidine (39.2 %)*

Formula sum	Al K O8 Si3
Entry number	96-900-4246
Figure-of-Merit (FoM)	0.788757*
Total number of peaks	292
Peaks in range	169
Peaks matched	129
Intensity scale factor	0.35*
	C 1 2/m 1
	monoclinic
	a= 8.6080 Å b= 13.0410 Å c= 7.1800 Å β= 115.980 °
	0.73
	2.552 g/cm³

Reference	Ferguson R. B., Ball N. A., Cerny P., "Structure refinement of an adularian end-member high sanidine from theBuck Claim Pegmatite, Bernic Lake, ManitobaSample: IINote: variety adularia", The Canadian Mineralogist **29**, 543-552 (1991)

B: Silicon oxide Quartz low (27.1 %)*

Formula sum	O2 Si
Entry number	96-101-1160
Figure-of-Merit (FoM)	0.688829*
Total number of peaks	70
Peaks in range	18
Peaks matched	15
Intensity scale factor	1.00*
Space group	P 32 2 1 S
Crystal system	trigonal (hexagonal axes)
Unit cell	a= 4.9100 Å c= 5.4000 Å
I/Ic	3.01
Meas. density	2.660 g/cm³
Calc. density	2.654 g/cm³
Reference	Machatschki F, "Kristallstruktur von Tiefquarz", Fortschritte der Mineralogie **20**, 45-47 (1936)

C: Titanite (14.4 %)

Formula sum	Al0.2 Ca Nb0.2 O5 Si Ti0.6
Entry number	96-901-0581
Figure-of-Merit (FoM)	0.711052
Total number of peaks	287
Peaks in range	78
Peaks matched	59
Intensity scale factor	0.28
Space group	A 1 2/a 1
Crystal system	monoclinic
Unit cell	a= 7.0594 Å b= 8.7188 Å c= 6.5651 Å β= 113.747 °
I/Ic	1.61
Calc. density	3.607 g/cm³
Reference	Liferovich R. P., Mitchell R. H., "Solid solutions of niobium in synthetic titaniteSample: AlNb2", The Canadian Mineralogist **44**, 1089-1097 (2006)

D: Anorthite (11.9 %)

Formula sum	Al3.71 Ca1.72 Na0.28 O16 Si4.29
Entry number	96-901-7368
Figure-of-Merit (FoM)	0.000000
Total number of peaks	249
Peaks in range	249
Peaks matched	190
Intensity scale factor	0.08
Space group	I -1
Crystal system	triclinic (anorthic)
Unit cell	a= 8.1880 Å b= 12.8220 Å c= 14.1960 Å α= 93.370° β= 116.040 ° γ= 90.870 °
I/Ic	0.56
Calc. density	2.745 g/cm³
Reference	Chiari G., Benna P., Bruno E., "The structure of bytownite (An85). A new refinement", Zeitschrift fur Kristallographie **169**, 35-49 (1984)

E: Magnetite (6.5 %)*

Formula sum	Fe3 O4
Entry number	96-900-9769
Figure-of-Merit (FoM)	0.706596*
Total number of peaks	36
Peaks in range	11
Peaks matched	10
Intensity scale factor	0.45*
Space group	F d -3 m
Crystal system	cubic
Unit cell	a= 8.4045 Å
I/Ic	5.67
Calc. density	5.181 g/cm³
Reference	Fjellvag H., Gronvold F., Stolen S., Hauback B. C., "On the crystallographic and magnetic structures ofnearly stoichiometric iron monoxideSample: T = 298 K", Journal of Solid State Chemistry **124**, 52-57 (1996)

F: Olivine (0.9 %)

Formula sum	Fe Mg O4 Si
Entry number	96-900-6893
Figure-of-Merit (FoM)	0.655671
Total number of peaks	387
Peaks in range	75
Peaks matched	52
Intensity scale factor	0.01
Space group	P b n m
Crystal system	orthorhombic

Unit cell	a= 4.8497 Å b= 10.5034 Å c= 6.1418 Å
I/Ic	1.02
Calc. density	3.657 g/cm³
Reference	Redfern S. A. T., Artioli G., Rinaldi R., Henderson C. M. B., Knight K. S., Wood B. J., "Octahedral cation ordering in olivine at high temperature. II: an in situneutron powder diffraction study on synthetic MgFeSiO4 (Fa50)Sample: T = 1250 C", Physics and Chemistry of Minerals **27**, 630-637 (2000)

[*]2theta values have been shifted internally for the calculation of the amounts, the intensity scaling factors as well as the figure-of-merit (FoM), due to the active search-match option 'Automatic zero point adaption'.

Candidates

Name	*Formula*	*Entry No.*	*FoM*
Titanomagnetite	Fe2.5 O4 Ti0.5	96-900-0932	0.6796
Magnetite	Fe2.538 O4 Ti0.462	96-901-3536	0.6794
Titanomagnetite	Fe2.5 O4 Ti0.5	96-900-0930	0.6791
Ulvospinel	Fe2 O4 Ti	96-901-6915	0.6780
Magnetite	Fe2.646 O4 Ti0.354	96-901-3535	0.6568
Titanomagnetite	Fe2.5 O4 Ti0.5	96-900-0931	0.6565
Magnetite	Fe2.758 O4 Ti0.242	96-901-3534	0.6551
Titanomagnetite	Fe2.75 O4 Ti0.25	96-900-0928	0.6532
Titanomagnetite	Fe2.75 O4 Ti0.25	96-900-0929	0.6529
Magnetite	Fe2.814 O4 Ti0.186	96-901-3533	0.6466
Magnetite	Fe2.902 O4 Ti0.098	96-901-3532	0.6438
Ulvospinel	Al0.028 Fe2.387 O4 Ti0.585	96-901-3537	0.6251
Potassium	K	96-901-1990	0.6162
Iron	Fe	96-901-6481	0.6118
Ulvospinel	Fe2 O4 Ti	96-901-6916	0.6086
Olivine	Mg Ni O4 Si	96-900-2607	0.5039
Olivine	Mg1.6 Ni0.4 O4 Si	96-900-2627	0.5036
Olivine	Mg Ni O4 Si	96-900-2606	0.5035
Olivine	Mg Ni O4 Si	96-900-2608	0.5034
Olivine	Mg1.6 Ni0.4 O4 Si	96-900-2628	0.5032
Olivine	Mg1.6 Ni0.403 O4 Si	96-900-2629	0.4998
Olivine	Mg Ni O4 Si	96-900-2605	0.4988
Olivine	Mg Ni O4 Si	96-900-2609	0.4927
Co-Olivine	Co2 O4 Si	96-900-0393	0.4918
Olivine	Mg1.6 Ni0.4 O4 Si	96-900-2626	0.4907
Olivine	Co2 O4 Si	96-900-6391	0.4904
Olivine	Mg1.6 Ni0.4 O4 Si	96-900-2625	0.4829
Olivine	Ca0.006 Fe0.825 Mg1.139 Mn0.03 O4 Si	96-900-5911	0.4803
Olivine	Mg1.6 Ni0.4 O4 Si	96-900-2631	0.4790
Olivine	Mg1.6 Ni0.4 O4 Si	96-900-2630	0.4781
Olivine	Ca0.006 Fe0.825 Mg1.139 Mn0.03 O4 Si	96-900-5910	0.4775
Olivine	Co2 O4 Si	96-900-1070	0.4769
Olivine	Ca0.006 Fe0.825 Mg1.139 Mn0.03 O4 Si	96-900-5909	0.4766
Olivine	Mg1.6 Ni0.4 O4 Si	96-900-2632	0.4709
Olivine	Mg Ni O4 Si	96-900-2601	0.4369
Olivine	Mg Ni O4 Si	96-900-2604	0.4350
Olivine	Mg Ni O4 Si	96-900-2603	0.4349
Olivine	Mg Ni O4 Si	96-900-2610	0.4343
Olivine	Mg Ni O4 Si	96-900-2611	0.4302
Olivine	Co1.405 Mg0.595 O4 Si	96-900-1068	0.4267
Olivine	Mg Ni O4 Si	96-900-2602	0.4264
Olivine	Mg1.6 Ni0.4 O4 Si	96-900-2623	0.4230
Olivine	Mg Ni O4 Si	96-900-2612	0.4224
Olivine	Co1.5 Mg0.5 O4 Si	96-900-6393	0.4209
Olivine	Mg1.6 Ni0.4 O4 Si	96-900-2624	0.4195
Olivine	Mg Ni O4 Si	96-900-2600	0.4167
Olivine	Mg Ni O4 Si	96-900-2613	0.4164
Olivine	Co1.249 Mg0.749 O4 Si	96-900-6394	0.4154
Olivine	Mg1.6 Ni0.4 O4 Si	96-900-2622	0.4136
Olivine	Mg Ni O4 Si	96-900-2599	0.4121
Olivine	Mg Ni O4 Si	96-900-2597	0.4116
Olivine	Mg Ni O4 Si	96-900-2598	0.4104

and 285 others...

Search-Match

Settings

Reference database used	COD-Inorg 2023.06.06
Automatic zeropoint adaptation	Yes
Downgrade entries with low scaling factors	Yes
Minimum figure-of-merit (FoM)	0.60
2theta window for peak corr.	0.30 deg.
Minimum rel. int. for peak corr.	0
Parameter/influence 2theta	0.50
Parameter/influence intensities	0.50
Parameter multiple/single phase(s)	0.50

Selection Criteria

Elements:

Elements that may be present or not:	O, Al, Si, K, Ca, Ti, Fe
Elements that must NOT be present:	All elements not mentioned above

Criteria for entries added by user

Reference:

Entry number:

96-900-0490;96-900-0510;96-900-0511;96-900-0512;96-900-0513;96-900-0514;96-900-0924;96-900-0925;96-900-0926;96-900-1324;96-900-1325;96-900-1326;96-900-1327;96-900-1328;96-900-1329;96-900-1330;96-900-1331;96-900-1795;96-900-1843;96-900-1844;96-900-1845;96-900-1846;96-900-1875;96-900-1952;96-900-1970;96-900-2040;96-900-2041;96-900-2042;96-900-2043;96-900-2044;96-900-2206;96-900-2436;96-900-2437;96-900-2438;96-900-2439;96-900-2440;96-900-2441;96-900-2442;96-900-2443;96-900-2444;96-900-2445;96-900-2446;96-900-2447;96-900-2448;96-900-2449;96-900-2450;96-900-2451;96-900-2452;96-900-2453;96-900-2454;96-900-2455;96-900-2456;96-900-2457;96-900-2458;96-900-2459;96-900-2460;96-900-2461;96-900-2462;96-900-2463;96-900-2464;96-900-2465;96-900-2466;96-900-2467;96-900-2468;96-900-2469;96-900-2470;96-900-2471;96-900-2472;96-900-2473;96-900-2474;96-900-2475;96-900-2476;96-900-2477;96-900-2478;96-900-2479;96-900-2480;96-900-4921;96-900-4922;96-900-5081;96-900-5082;96-900-5083;96-900-5084;96-900-5085;96-900-5415;96-900-5416;96-900-5417;96-900-5418;96-900-5419;96-900-5420;96-900-5421;96-900-5422;96-900-5922;96-900-5923;96-900-5924;96-900-5925;96-900-5926;96-900-5927;96-900-5928;96-900-5929;96-900-5930;96-900-7340;96-900-7341;96-900-7342;96-900-7343;96-900-7344;96-900-7345;96-900-7415;96-900-7416;96-900-7417;96-900-7418;96-900-7419;96-901-0578;96-901-0579;96-901-0580;96-901-0581;96-901-5678;96-101-1098;96-101-1160;96-101-1173;96-101-1177;96-101-1201;96-110-0020;96-500-0036;96-900-0776;96-900-0777;96-900-0778;96-900-0779;96-900-0780;96-900-0781;96-900-5018;96-900-5019;96-900-5020;96-900-5021;96-900-5022;96-900-5023;96-900-5024;96-900-5025;96-900-5026;96-900-5027;96-900-5028;96-900-5029;96-900-5030;96-900-5031;96-900-5032;96-900-5033;96-900-5034;96-900-7379;96-900-8093;96-900-8094;96-900-9667;96-901-0145;96-901-0146;96-901-0147;96-901-1494;96-901-1495;96-901-1496;96-901-1497;96-901-2601;96-901-2602;96-901-2603;96-901-2604;96-901-2605;96-901-2606;96-901-3322;96-901-5023;96-100-0035;96-900-0362;96-900-0363;96-900-1172;96-900-1173;96-900-1174;96-900-1259;96-900-1260;96-900-1261;96-900-1262;96-900-5310;96-901-6765;96-901-6766;96-901-6973;96-901-7367;96-901-7368;96-101-0498;96-154-4624;96-154-4625;96-154-4890;96-154-4891;96-900-0393;96-900-0394;96-900-0395;96-900-0397;96-900-0867;96-900-0868;96-900-1066;96-900-1067;96-900-1068;96-900-1069;96-900-1070;96-900-1097;96-900-1098;96-900-1099;96-900-1100;96-900-1101;96-900-1102;96-900-1103;96-900-1194;96-900-1195;96-900-1196;96-900-1197;96-900-1198;96-900-1199;96-900-1200;96-900-1201;96-900-1202;96-900-1203;96-900-1204;96-900-1205;96-900-1206;96-900-2512;96-900-2513;96-900-2514;96-900-2515;96-900-2516;96-900-2586;96-900-2587;96-900-2588;96-900-2589;96-900-2590;96-900-2591;96-900-2592;96-900-2593;96-900-2594;96-900-2595;96-900-2596;96-900-2597;96-900-2598;96-900-2599;96-900-2600;96-900-2601;96-900-2602;96-900-2603;96-900-2604;96-900-2605;96-900-2606;96-900-2607;96-900-2608;96-900-2609;96-900-2610;96-900-2611;96-900-2612;96-900-2613;96-900-2614;96-900-2615;96-900-2616;96-900-2617;96-900-2618;96-900-2619;96-900-2620;96-900-2621;96-900-2622;96-900-2623;96-900-2624;96-900-2625;96-900-2626;96-900-2627;96-900-2628;96-900-2629;96-900-2630;96-900-2631;96-900-2632;96-900-2633;96-900-2634;96-900-5857;96-900-5909;96-900-5910;96-900-5911;96-900-5912;96-900-5913;96-900-5914;96-900-5915;96-900-5916;96-900-5917;96-900-5918;96-900-5919;96-900-5920;96-900-5921;96-900-6391;96-900-6392;96-900-6393;96-900-6394;96-900-6395;96-900-6396;96-900-6397;96-900-6398;96-900-6399;96-900-6400;96-900-6401;96-900-6402;96-900-6403;96-900-6404;96-900-6876;96-900-6877;96-900-6878;96-900-6879;96-900-6880;96-900-6881;96-900-6882;96-900-6883;96-900-6884;96-900-6885;96-900-6886;96-900-6887;96-900-6888;96-900-6889;96-900-6890;96-900-6891;96-900-6892;96-900-6893;96-901-2682;96-901-4596;96-901-6130

Peak List

No.	*2theta [°]*	*d [Å]*	*I/I0 (peak height)*	*Counts (peak area)*	*FWHM*	*Matched*
1	16.96	5.2236	19.47	0.94	0.0800	F
2	18.02	4.9187	24.39	4.12	0.2800	C,E
3	18.64	4.7565	28.03	2.70	0.1600	C
4	18.98	4.6720	36.13	6.10	0.2800	D
5	19.12	4.6381	24.60	2.97	0.2000	A
6	19.76	4.4893	29.57	4.28	0.2400	
7	20.32	4.3668	20.67	1.99	0.1600	C,D,F
8	20.76	4.2753	79.15	11.45	0.2400	A,B,D
9	21.16	4.1953	36.21	3.49	0.1600	
10	21.30	4.1681	38.10	3.68	0.1600	D
11	21.74	4.0847	93.59	11.28	0.2000	D
12	21.88	4.0589	62.22	7.50	0.2000	D
13	22.38	3.9693	40.16	12.59	0.5200	A,D,F
14	22.96	3.8704	32.80	32.43	1.6400	A,D
15	23.42	3.7954	210.39	35.52	0.2800	A,D,F
16	24.76	3.5929	24.53	1.77	0.1200	A,C,D
17	24.92	3.5702	19.61	1.42	0.1200	A,D,F
18	25.22	3.5284	47.52	4.58	0.1600	D
19	25.50	3.4903	117.87	22.74	0.3200	A,D
20	26.60	3.3484	127.23	30.68	0.4000	B,D
21	26.94	3.3069	143.22	75.99	0.8800	A
22	27.26	3.2688	255.38	55.43	0.3600	A
23	27.48	3.2431	256.42	117.49	0.7600	A,C,D
24	29.32	3.0437	71.94	12.14	0.2800	D,F

25	29.62	3.0135	1000.00	96.46	0.1600	A,C
26	30.00	2.9762	206.64	29.90	0.2400	D,E
27	30.60	2.9192	124.67	30.07	0.4000	A,D
28	31.44	2.8431	121.01	11.67	0.1600	C,D,F
29	32.00	2.7946	33.85	2.45	0.1200	A,D
30	32.96	2.7154	63.06	10.64	0.2800	D
31	33.46	2.6759	20.73	5.00	0.4000	D
32	34.20	2.6197	58.21	5.62	0.1600	A,C,D,F
33	34.70	2.5831	122.83	47.39	0.6400	A,C
34	34.84	2.5730	26.31	13.32	0.8400	D,F
35	35.18	2.5489	429.80	31.09	0.1200	A,D
36	35.42	2.5322	273.60	52.79	0.3200	A,D,E,F
37	36.08	2.4874	18.39	2.66	0.2400	A,D
38	36.34	2.4702	21.07	5.59	0.4400	A,B,C,D
39	36.86	2.4365	28.30	4.09	0.2400	D
40	37.06	2.4238	24.12	1.75	0.1200	A,D,E,F
41	37.36	2.4051	21.59	1.04	0.0800	D
42	37.70	2.3842	25.62	1.24	0.0800	A,C,D
43	38.90	2.3133	68.12	6.57	0.1600	A,D,F
44	39.38	2.2862	22.19	1.61	0.1200	A,B,C,D
45	40.70	2.2151	27.28	5.26	0.3200	A,D,F
46	41.50	2.1742	58.13	8.41	0.2400	A,C,D,F
47	42.22	2.1388	59.48	10.04	0.2800	A,D
48	42.72	2.1149	49.88	12.03	0.4000	A,B,C,D
49	42.88	2.1074	19.43	3.75	0.3200	A,D,E
50	44.26	2.0448	60.35	4.37	0.1200	A,D
51	44.52	2.0335	54.59	5.27	0.1600	D
52	44.90	2.0171	30.45	8.08	0.4400	A,D
53	45.82	1.9788	18.82	1.36	0.1200	A,B,C,D
54	46.76	1.9411	20.17	2.92	0.2400	C,D
55	46.90	1.9357	23.27	2.25	0.1600	A,C,D,E,F
56	47.32	1.9195	17.99	1.74	0.1600	A,D
57	48.22	1.8857	24.17	4.08	0.2800	A,C,D,F
58	49.06	1.8554	59.11	8.55	0.2400	A,C,D,F
59	49.54	1.8385	98.38	14.24	0.2400	A,D,F
60	50.14	1.8179	21.01	2.03	0.1600	A,B,C,D
61	50.48	1.8065	66.29	11.19	0.2800	A,C,D
62	50.62	1.8018	46.31	4.47	0.1600	A,B,D
63	50.84	1.7945	26.50	2.56	0.1600	A,D
64	51.02	1.7886	17.85	1.29	0.1200	D,F
65	51.24	1.7815	29.22	2.82	0.1600	A,D,F
66	52.00	1.7572	33.94	2.46	0.1200	C
67	52.24	1.7497	23.94	2.31	0.1600	A,C,F
68	52.92	1.7288	21.96	2.12	0.1600	A,C
69	53.10	1.7233	28.00	2.70	0.1600	A,C,E
70	53.94	1.6985	31.18	3.01	0.1600	A,C
71	54.70	1.6767	17.66	1.28	0.1200	A,B,C,F
72	56.34	1.6317	192.94	18.61	0.1600	A,C,F
73	56.50	1.6274	104.56	7.56	0.1200	A
74	56.70	1.6222	21.35	1.54	0.1200	C
75	56.86	1.6180	28.68	2.77	0.1600	E
76	57.04	1.6133	17.56	2.96	0.2800	A,B,C,F
77	58.60	1.5740	23.05	1.67	0.1200	A,C
78	59.74	1.5467	64.27	4.65	0.1200	F
79	60.02	1.5401	33.29	3.21	0.1600	A,B,F
80	60.32	1.5332	22.34	2.16	0.1600	C,F
81	60.54	1.5281	22.78	1.65	0.1200	A
82	60.96	1.5186	24.16	1.75	0.1200	A,F
83	61.22	1.5128	23.16	2.23	0.1600	A,C
84	61.42	1.5083	40.66	3.92	0.1600	A
85	61.58	1.5048	33.76	10.58	0.5200	A,C
86	61.94	1.4969	39.95	9.64	0.4000	A,C,F
87	62.14	1.4926	35.95	11.27	0.5200	
88	62.38	1.4874	27.52	11.28	0.6800	A,C,E
89	63.54	1.4630	23.18	1.68	0.1200	A,F
90	63.90	1.4557	32.58	5.50	0.2800	A,B,C,F
91	64.98	1.4340	24.24	1.75	0.1200	A,C,F
92	65.44	1.4251	33.53	2.43	0.1200	A,C,F
93	65.72	1.4197	21.58	2.60	0.2000	A,B,C,E,F
94	66.18	1.4109	28.15	2.72	0.1600	A,C,F
95	68.40	1.3704	99.29	9.58	0.1600	A,B
96	68.60	1.3669	30.92	2.98	0.1600	A,C
97	69.24	1.3558	19.17	1.39	0.1200	A,C

Integrated Profile Areas

Based on calculated profile

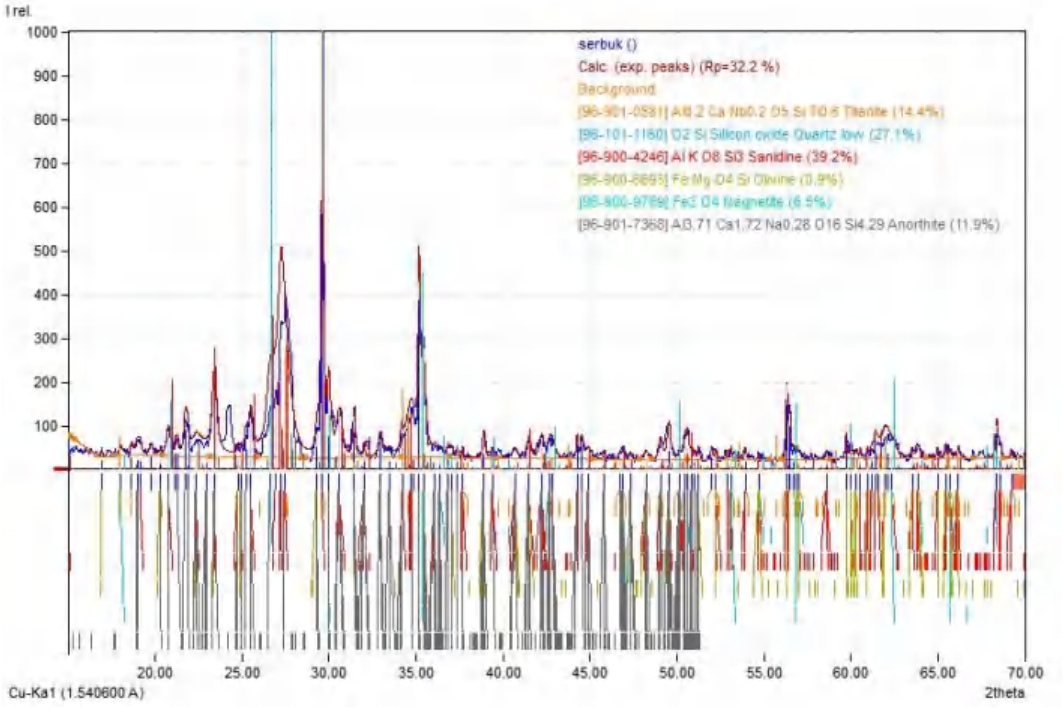
Profile area	*Counts*	*Amount*
Overall diffraction profile	87001	100.00%
Background radiation	38826	44.63%

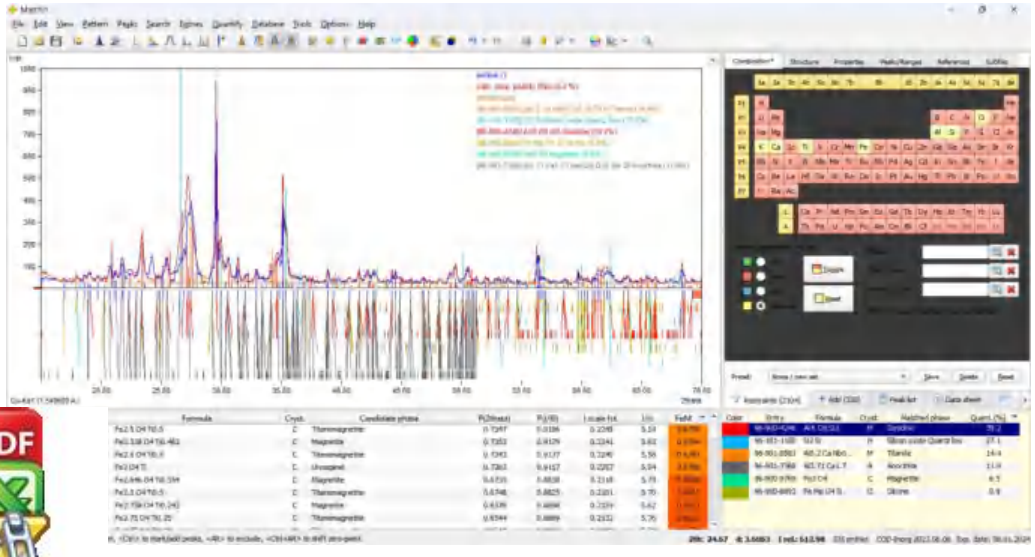
Diffraction peaks	48175	55.37%
Peak area belonging to selected phases	32563	37.43%
Peak area of phase A (Titanite)	*5656*	*6.50%*
Peak area of phase B (Silicon oxide Quartz low)	*3874*	*4.45%*
Peak area of phase C (Sanidine)	*14407*	*16.56%*
Peak area of phase D (Olivine)	*369*	*0.42%*
Peak area of phase E (Magnetite)	*4766*	*5.48%*
Peak area of phase F (Anorthite)	*3491*	*4.01%*
Unidentified peak area	15612	17.95%

Peak Residuals

Peak data	***Counts***	***Amount***
Overall peak intensity	1083	100.00%
Peak intensity belonging to selected phases	1011	93.37%
Unidentified peak intensity	72	6.63%

Diffraction Pattern Graphics





Match! Phase Analysis Report

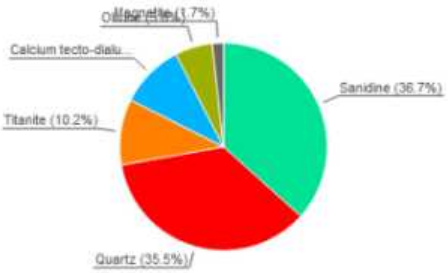
Sample: powder ()

Sample Data

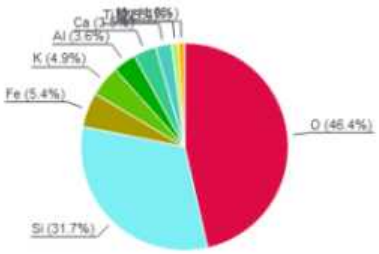
File name	nh#s2.RAW
File path	D:/DATA NUDEK/DATA XRD DAN XRF NUDIA HAJRYANA/XRD/nh#s2
Data collected	Nov 17, 2023 21:26:26
Data range	14.750° - 69.750°
Original data range	15.000° - 70.000°
Number of points	2751
Step size	0.020
Rietveld refinement converged	No
Alpha2 subtracted	No
Background subtr.	No
Data smoothed	Yes
2theta correction	-0.25°
Radiation	X-rays
Wavelength	1.540600 Å

Analysis Results

Phase composition (Weight %)



Elemental composition (Weight %)



Index	*Amount (%)*	*Name*	*Formula sum*
A	36.7	Sanidine	Al0.49 Fe0.5 K0.99 O8 Si3.01
B	35.5	Quartz	O2 Si
C	10.2	Titanite	Ca O5 Si Ti
D	10.0	Calcium tecto-dialumodisilicate Anorthite	Al2 Ca O8 Si2
E	5.8	Olivine	Fe0.34 Mg1.14 Ni0.52 O4 Si
F	1.7	Magnetite	Fe3 O4
	19.5	*Unidentified peak area*	

Element	*Amount (weight %)*
O	*46.4%(*)*
Si	31.7%
Fe	5.4%
K	4.9%
Al	3.6%
Ca	3.5%
Ti	2.5%
Ni	1.1%
Mg	1.0%
**LE (sum)*	*46.4%*

Amounts calculated by RIR (Reference Intensity Ratio) method

Details of identified phases

A: Sanidine (36.7 %)*

Formula sum	Al0.49 Fe0.5 K0.99 O8 Si3.01
Entry number	96-901-7420
Figure-of-Merit (FoM)	0.715551*
Total number of peaks	293
Peaks in range	169
Peaks matched	107
Intensity scale factor	0.18*
Space group	C 1 2/m 1
Crystal system	monoclinic
Unit cell	a= 8.6550 Å b= 13.1010 Å c= 7.2500 Å β= 116.020 °
I/Ic	0.82
Calc. density	2.629 g/cm³
Reference	Lebedeva Y. S., Pushcharovsky D. Y., Pasero M., Merlino S., Kashaev A. A., Taroev V. K., Goettlicher J., Kroll H., Pentinghaus H., Suvorova L. F., Wulf-Bernodat H, Lashkevich V. V., "Synthesis and crystal structure of low ferrialuminosilicate sanidine", Crystallography Reports **48**, 919-924 (2003)

B: Quartz (35.5 %)*

Formula sum	O2 Si
Entry number	96-900-0779
Figure-of-Merit (FoM)	0.734914*
Total number of peaks	66
Peaks in range	15
Peaks matched	13
Intensity scale factor	0.61*
Space group	P 32 2 1 S
Crystal system	trigonal (hexagonal axes)
Unit cell	a= 4.7390 Å c= 5.2790 Å
I/Ic	2.86
Calc. density	2.915 g/cm³
Reference	Levien L., Prewitt C. T., Weidner D. J., "Structure and elastic properties of quartz at pressureP = 48.6 kbar", American Mineralogist **65**, 920-930 (1980)

C: Titanite (10.2 %)*

Formula sum	Ca O5 Si Ti
Entry number	96-900-1330
Figure-of-Merit (FoM)	0.678038*
Total number of peaks	286
Peaks in range	80
Peaks matched	53
Intensity scale factor	0.09*
Space group	C 1 2/c 1
Crystal system	monoclinic
Unit cell	a= 6.6070 Å b= 8.7750 Å c= 7.1100 Å β= 114.080 °
I/Ic	1.41
Calc. density	3.460 g/cm³
Reference	Hawthorne F. C., Groat L. A., Raudsepp M., Ball N. A., Kimata M., Spike F. D., Gaba R., Halden N. M., Lumpkin G. R., Ewing R. C., Greegor R. B., Lytle F. W., Ercit T. S., Rossman G. R., Wicks F. J., Ramik R. A., Sherriff B. L., Fleet M. E., McCammon C. A., "Alpha-decay damage in titanitesample from Cardiff U Mine, Ontario, natural", American Mineralogist **76**, 370-396 (1991)

D: Calcium tecto-dialumodisilicate Anorthite (10.0 %)

Formula sum	Al2 Ca O8 Si2
Entry number	96-100-0035
Figure-of-Merit (FoM)	0.000000
Total number of peaks	495
Peaks in range	495
Peaks matched	319
Intensity scale factor	0.03
Space group	P -1
Crystal system	triclinic (anorthic)
Unit cell	a= 8.1730 Å b= 12.8690 Å c= 14.1650 Å α= 93.113° β= 115.913 ° γ= 91.261 °
I/Ic	0.52
Calc. density	2.765 g/cm³
Reference	Wainwright J E, Starkey J, "A refinement of the structure of anorthite", Zeitschrift fuer Kristallographie, Kristallgeometrie, Kristallphysik,Kristallchemie (-144,1977) **133**, 75-84 (1971)

E: Olivine (5.8 %)

Formula sum	Fe0.34 Mg1.14 Ni0.52 O4 Si
Entry number	96-900-0867
Figure-of-Merit (FoM)	0.000000
Total number of peaks	365
Peaks in range	72
Peaks matched	50
Intensity scale factor	0.05
Space group	P b n m
Crystal system	orthorhombic
Unit cell	a= 4.7620 Å b= 10.2440 Å c= 5.9890 Å
I/Ic	1.31
Calc. density	3.849 g/cm³
Reference	Nord A. G., Annersten H., Filippidis A., "The cation distribution in synthetic Mg-Fe-Ni olivinessample H2", American Mineralogist **67**, 1206-1211 (1982)

F: Magnetite (1.7 %)*

Formula sum	Fe3 O4
Entry number	96-900-2331
Figure-of-Merit (FoM)	0.608557*
Total number of peaks	34
Peaks in range	10
Peaks matched	8
Intensity scale factor	0.06*
Space group	F d -3 m
Crystal system	cubic
Unit cell	a= 8.1177 Å
I/Ic	5.68
Calc. density	5.750 g/cm³
Reference	Haavik C., Stolen S., Fjellvag H., Hanfland M., Hausermann D., "Equation of state of magnetite and its high-pressure modification:Thermodynamics of the Fe-O system at high pressureSample at P = 26.9 GPa", American Mineralogist **85**, 514-523 (2000)

(*)2theta values have been shifted internally for the calculation of the amounts, the intensity scaling factors as well as the figure-of-merit (FoM), due to the active search-match option 'Automatic zero point adaption'.

Candidates

Name	Formula	Entry No.	FoM
Calcium tecto-dialumodisilicate (Anorthite)	Al2 Ca O8 Si2	96-100-0035	0.0000
Magnesium iron(II) silicate (1.8/.2/1) (Olivine)	Fe0.2 Mg1.8 O4 Si	96-101-0498	0.0000
Iron diiron(III) oxide (Magnetite)	Fe3 O4	96-101-1033	0.0000
Iron diiron(III) oxide (Magnetite)	Fe3 O4	96-101-1085	0.0000
Potassium tecto-alumotrisilicate (Sanidine)	Al K O8 Si3	96-101-1188	0.0000
Potassium tecto-alumotrisilicate * (Sanidine)	Al K O8 Si3	96-101-1225	0.0000
K0.826 Na0.086 Ba0.048 Sr0.04 (Al1.088 Si2.912) O8 (Sanidine)	Al1.088 Ba0.048 K0.826 Na0.086 O8 Si2.912 Sr0.04	96-153-5049	0.0000
K0.41 Na0.56 Ca0.03 (Al1.03 Si2.97 O8) (Sanidine)	Al1.03 Ca0.03 K0.41 Na0.56 O8 Si2.97	96-153-5052	0.0000
Magnetite	Fe3 O4	96-153-9748	0.0000
(Mg0.79Fe0.21)(Mg0.85Fe0.14)SiO4 olivine (olivine)	Fe0.35 Mg1.64 O4 Si	96-154-4624	0.0000
Mg1.62Fe0.38SiO4 olivine (olivine)	Fe0.38 Mg1.62 O4 Si	96-154-4625	0.0000
(Mg0.9Fe0.1)2SiO4 (olivine)	Fe0.2 Mg1.8 O4 Si	96-154-4890	0.0000
(Mg0.88Fe0.12)2SiO4 (olivine)	Fe0.24 Mg1.76 O4 Si	96-154-4891	0.0000
Iron diiron(III) oxide (Magnetite)	Fe3 O4	96-722-8111	0.0000
Sanidine	Al K O8 Si3	96-900-0304	0.0000
Anorthite	Al2 Ca O8 Si2	96-900-0362	0.0000
Anorthite	Al2 Ca O8 Si2	96-900-0363	0.0000
Co-Olivine	Co2 O4 Si	96-900-0393	0.0000
Co-Olivine	Co2 O4 Si	96-900-0394	0.0000
Co-Olivine	Co2 O4 Si	96-900-0395	0.0000
Ni-Olivine (Liebenbergite)	Ni1.985 O4 Si1.015	96-900-0397	0.0000
Sanidine	Al K0.65 Na0.35 O8 Si3	96-900-0683	0.0000
Olivine	Fe0.34 Mg1.14 Ni0.52 O4 Si	96-900-0867	0.0000
Olivine	Fe0.08 Mg1.02 Ni0.9 O4 Si	96-900-0868	0.0000
Magnetite	Fe3 O4	96-900-0927	0.0000
Titanomagnetite	Fe2.75 O4 Ti0.25	96-900-0928	0.0000
Titanomagnetite	Fe2.75 O4 Ti0.25	96-900-0929	0.0000
Titanomagnetite	Fe2.5 O4 Ti0.5	96-900-0930	0.0000
Titanomagnetite	Fe2.5 O4 Ti0.5	96-900-0931	0.0000
Titanomagnetite	Fe2.5 O4 Ti0.5	96-900-0932	0.0000
Titanomagnetite	Fe2.25 O4 Ti0.75	96-900-0933	0.0000
Titanomagnetite	Fe2.25 O4 Ti0.75	96-900-0934	0.0000
Titanomagnetite	Fe2 O4 Ti	96-900-0935	0.0000
Olivine	Co0.401 Mg1.599 O4 Si	96-900-1066	0.0000
Olivine	Co0.953 Mg1.047 O4 Si	96-900-1067	0.0000
Olivine	Co1.405 Mg0.595 O4 Si	96-900-1068	0.0000
Olivine	Co1.735 Mg0.265 O4 Si	96-900-1069	0.0000
Olivine	Co2 O4 Si	96-900-1070	0.0000
Olivine	Mg2 O4 Si	96-900-1097	0.0000
Olivine	Mg1.4 Ni0.6 O4 Si	96-900-1098	0.0000
Olivine	Mg1.276 Ni0.724 O4 Si	96-900-1099	0.0000
Olivine	Mg0.98 Ni1.02 O4 Si	96-900-1100	0.0000
Olivine	Mg0.62 Ni1.38 O4 Si	96-900-1101	0.0000
Olivine	Mg0.5 Ni1.5 O4 Si	96-900-1102	0.0000
Olivine	Ni2 O4 Si	96-900-1103	0.0000
Sanidine-high	Al K O8 Si3	96-900-1104	0.0000
Anorthite	Al Ca O4 Si	96-900-1172	0.0000
Anorthite	Al Ca O4 Si	96-900-1173	0.0000
Anorthite	Al2 Ca O8 Si2	96-900-1174	0.0000
Olivine	Mg1.4 Ni0.6 O4 Si	96-900-1194	0.0000
Olivine	Mg1.384 Ni0.616 O4 Si	96-900-1195	0.0000
Olivine	Mg1.383 Ni0.617 O4 Si	96-900-1196	0.0000
and 245 others...			

Search-Match

Settings

Reference database used	COD-Inorg 2023.06.06
Automatic zeropoint adaptation	Yes
Downgrade entries with low scaling factors	Yes
Minimum figure-of-merit (FoM)	0.60
2theta window for peak corr.	0.30 deg.
Minimum rel. int. for peak corr.	0
Parameter/influence 2theta	0.50
Parameter/influence intensities	0.50
Parameter multiple/single phase(s)	0.50

Selection Criteria

Elements:

Elements that may be present or not:	O, Al, Si, K, Ca, Ti, Fe
Elements that must NOT be present:	All elements not mentioned above

Criteria for entries added by user

Reference:

Entry number:	96-100-0035;96-900-0362;96-900-0363;96-900-1172;96-900-1173;96-900-1174;96-900-1259;96-900-1260;96-900-1261;96-900-1262;96-900-5310;96-901-6765;96-901-6766;96-901-6973;96-901-7367;96-901-7368;96-101-1033;96-

101-1085;96-153-9748;96-722-8111;96-900-0927;96-900-0928;96-900-0929;96-900-0930;96-900-0931;96-900-0932;96-900-0933;96-900-0934;96-900-0935;96-900-2317;96-900-2318;96-900-2319;96-900-2320;96-900-2321;96-900-2322;96-900-2323;96-900-2324;96-900-2325;96-900-2326;96-900-2327;96-900-2328;96-900-2329;96-900-2330;96-900-2331;96-900-2332;96-900-2333;96-900-2674;96-900-2675;96-900-4088;96-900-4156;96-900-4157;96-900-5813;96-900-5814;96-900-5815;96-900-5816;96-900-5817;96-900-5837;96-900-5838;96-900-5839;96-900-5840;96-900-5841;96-900-5842;96-900-5843;96-900-6185;96-900-6190;96-900-6195;96-900-6200;96-900-6243;96-900-6248;96-900-6923;96-900-7645;96-900-7707;96-900-7708;96-900-9769;96-900-9770;96-901-0940;96-901-0941;96-901-0942;96-901-3530;96-901-3531;96-901-3532;96-901-3533;96-901-3534;96-901-3535;96-901-3536;96-901-6802;96-901-6803;96-901-6804;96-901-6805;96-901-6806;96-901-6807;96-901-6808;96-901-6809;96-901-6810;96-901-6811;96-901-6812;96-901-6813;96-901-6814;96-901-6815;96-901-6816;96-901-6817;96-901-6818;96-901-7087;96-901-7088;96-101-0498;96-154-4624;96-154-4625;96-154-4890;96-154-4891;96-900-0393;96-900-0394;96-900-0395;96-900-0397;96-900-0867;96-900-0868;96-900-1066;96-900-1067;96-900-1068;96-900-1069;96-900-1070;96-900-1097;96-900-1098;96-900-1099;96-900-1100;96-900-1101;96-900-1102;96-900-1103;96-900-1194;96-900-1195;96-900-1196;96-900-1197;96-900-1198;96-900-1199;96-900-1200;96-900-1201;96-900-1202;96-900-1203;96-900-1204;96-900-1205;96-900-1206;96-900-2512;96-900-2513;96-900-2514;96-900-2515;96-900-2516;96-900-2586;96-900-2587;96-900-2588;96-900-2589;96-900-2590;96-900-2591;96-900-2592;96-900-2593;96-900-2594;96-900-2595;96-900-2596;96-900-2597;96-900-2598;96-900-2599;96-900-2600;96-900-2601;96-900-2602;96-900-2603;96-900-2604;96-900-2605;96-900-2606;96-900-2607;96-900-2608;96-900-2609;96-900-2610;96-900-2611;96-900-2612;96-900-2613;96-900-2614;96-900-2615;96-900-2616;96-900-2617;96-900-2618;96-900-2619;96-900-2620;96-900-2621;96-900-2622;96-900-2623;96-900-2624;96-900-2625;96-900-2626;96-900-2627;96-900-2628;96-900-2629;96-900-2630;96-900-2631;96-900-2632;96-900-2633;96-900-2634;96-900-5857;96-900-5909;96-900-5910;96-900-5911;96-900-5912;96-900-5913;96-900-5914;96-900-5915;96-900-5916;96-900-5917;96-900-5918;96-900-5919;96-900-5920;96-900-5921;96-900-6391;96-900-6392;96-900-6393;96-900-6394;96-900-6395;96-900-6396;96-900-6397;96-900-6398;96-900-6399;96-900-6400;96-900-6401;96-900-6402;96-900-6403;96-900-6404;96-900-6876;96-900-6877;96-900-6878;96-900-6879;96-900-6880;96-900-6881;96-900-6882;96-900-6883;96-900-6884;96-900-6885;96-900-6886;96-900-6887;96-900-6888;96-900-6889;96-900-6890;96-900-6891;96-900-6892;96-900-6893;96-901-2682;96-901-4596;96-901-6130;96-101-1188;96-101-1225;96-153-5049;96-153-5052;96-900-0304;96-900-0683;96-900-1104;96-900-4245;96-900-4246;96-900-4247;96-900-4248;96-900-5077;96-900-5242;96-900-5265;96-900-5266;96-900-8219;96-900-8220;96-900-9663;96-901-0842;96-901-6740;96-901-6743;96-901-7214;96-901-7222;96-901-7223;96-901-7291;96-901-7397;96-901-7398;96-901-7399;96-901-7420;96-901-7444;96-901-7445;96-901-7446;96-901-7447;96-901-7448;96-901-7449;96-901-7450;96-901-7451;96-901-7452;96-901-7453;96-901-7454;96-901-7455;96-901-7780;96-901-7781;96-901-7799;96-901-7815;96-901-7816;96-901-7817;96-901-7832

Peak List

No.	2theta [°]	d [Å]	I/I0 (peak height)	Counts (peak area)	FWHM	Matched
1	15.43	5.7380	15.07	1.46	0.2000	D
2	15.71	5.6363	16.00	1.45	0.1876	D
3	16.23	5.4569	11.20	1.11	0.2047	D
4	18.33	4.8362	15.73	1.38	0.1821	C,D
5	18.73	4.7338	24.87	3.66	0.3041	D
6	19.03	4.6598	12.63	0.97	0.1581	A,D,F
7	19.49	4.5509	20.87	2.20	0.2178	D
8	19.75	4.4916	16.20	2.22	0.2839	D
9	20.59	4.3102	30.88	4.62	0.3092	D,E
10	20.99	4.2289	9.54	2.09	0.4536	A,D
11	21.21	4.1856	7.53	3.81	1.0471	
12	21.61	4.1090	137.68	16.28	0.2446	B,D
13	22.59	3.9329	30.99	15.77	1.0523	A,D,E
14	23.27	3.8195	135.34	26.18	0.4000	A,D
15	23.49	3.7842	31.92	1.63	0.1057	D
16	24.07	3.6943	137.12	18.42	0.2778	D,E
17	24.59	3.6174	43.55	3.59	0.1707	A,C,D
18	25.29	3.5188	84.67	14.13	0.3451	D,E
19	25.67	3.4676	12.24	4.47	0.7555	A,D,E
20	26.01	3.4230	46.57	4.50	0.2000	C,D
21	26.23	3.3948	1.56	0.10	0.1322	D
22	26.23	3.3948	1.65	0.10	0.1257	
23	26.75	3.3300	102.06	59.22	1.2000	A,D
24	27.47	3.2443	921.77	175.57	0.3939	A,C,D
25	27.51	3.2397	1000.00	135.39	0.2800	B,D
26	29.07	3.0693	76.46	15.99	0.4326	D
27	29.43	3.0325	168.77	36.84	0.4514	D
28	29.61	3.0145	52.42	12.47	0.4920	A,C,D,E
29	30.05	2.9714	175.39	32.03	0.3777	A,D
30	30.45	2.9332	87.16	11.20	0.2657	A,D
31	31.15	2.8689	59.28	9.17	0.3200	C,D,F
32	31.47	2.8405	33.78	5.88	0.3600	A,D
33	33.19	2.6971	39.00	3.80	0.2012	D
34	33.89	2.6430	34.16	3.30	0.2000	C,D
35	34.15	2.6234	56.67	9.27	0.3383	A,C,D
36	34.59	2.5911	215.24	27.71	0.2662	A,C,D,E
37	35.19	2.5482	286.09	52.93	0.3826	A,D,E
38	36.67	2.4487	41.08	11.42	0.5751	A,D,E,F
39	37.51	2.3958	109.55	10.44	0.1972	A,C,D,E
40	38.65	2.3277	38.89	5.53	0.2938	A,D,F
41	38.91	2.3128	21.06	2.51	0.2469	A,C,D,E
42	40.05	2.2495	30.50	3.76	0.2547	A,C,D,E
43	40.59	2.2208	102.53	9.59	0.1934	A,B,D
44	41.49	2.1747	67.44	12.21	0.3744	A,D
45	41.93	2.1529	237.36	25.93	0.2259	A,B,D,E
46	42.59	2.1210	50.00	12.81	0.5300	A,C,D,E
47	43.19	2.0930	148.71	11.11	0.1545	A,C,D
48	44.03	2.0550	66.09	9.26	0.2898	A,B,D
49	44.57	2.0313	69.54	8.85	0.2633	A,D,E,F

50	48.11	1.8898	27.96	3.30	0.2444	C,D,E
51	48.67	1.8693	54.19	9.13	0.3486	A,C,D
52	48.85	1.8629	15.67	2.60	0.3433	A,C,D,E,F
53	49.29	1.8473	112.22	18.33	0.3378	A,D,E
54	49.71	1.8326	45.75	7.45	0.3368	A,C,D,E
55	50.37	1.8102	121.91	16.83	0.2855	A,C,D,E
56	51.15	1.7844	71.98	10.29	0.2956	A,C,D
57	51.73	1.7657	35.40	5.16	0.3012	A,B,C
58	52.03	1.7562	52.67	5.66	0.2223	A,B,C,E
59	52.95	1.7279	32.43	9.19	0.5861	A,C,E
60	56.01	1.6405	53.37	10.95	0.4244	A,C,E
61	56.21	1.6351	211.60	24.04	0.2350	A,C,E
62	56.43	1.6293	61.17	11.42	0.3862	A
63	56.63	1.6240	1.48	0.10	0.1394	A,B,C,E
64	57.85	1.5926	35.96	3.30	0.1896	A,C,E
65	58.35	1.5802	33.86	4.15	0.2533	A,E
66	58.93	1.5660	80.58	7.24	0.1857	A,C,E,F
67	59.33	1.5564	174.45	16.80	0.1991	
68	59.53	1.5516	62.10	4.44	0.1477	B,E
69	59.81	1.5450	26.64	7.21	0.5600	A,C
70	61.63	1.5037	31.48	8.39	0.5513	A,C,E
71	62.27	1.4898	59.85	17.49	0.6044	A,B,C,E
72	62.73	1.4800	48.37	5.61	0.2400	A,C,E
73	63.55	1.4628	69.14	8.69	0.2598	A,C,E
74	65.07	1.4323	28.59	9.86	0.7134	A,C,E,F
75	65.83	1.4176	46.99	5.59	0.2459	A,B,C,E
76	67.19	1.3921	45.96	3.91	0.1758	A,E
77	68.75	1.3643	16.71	1.39	0.1718	A,B,C,E
78	69.09	1.3584	20.20	1.87	0.1912	C

Integrated Profile Areas

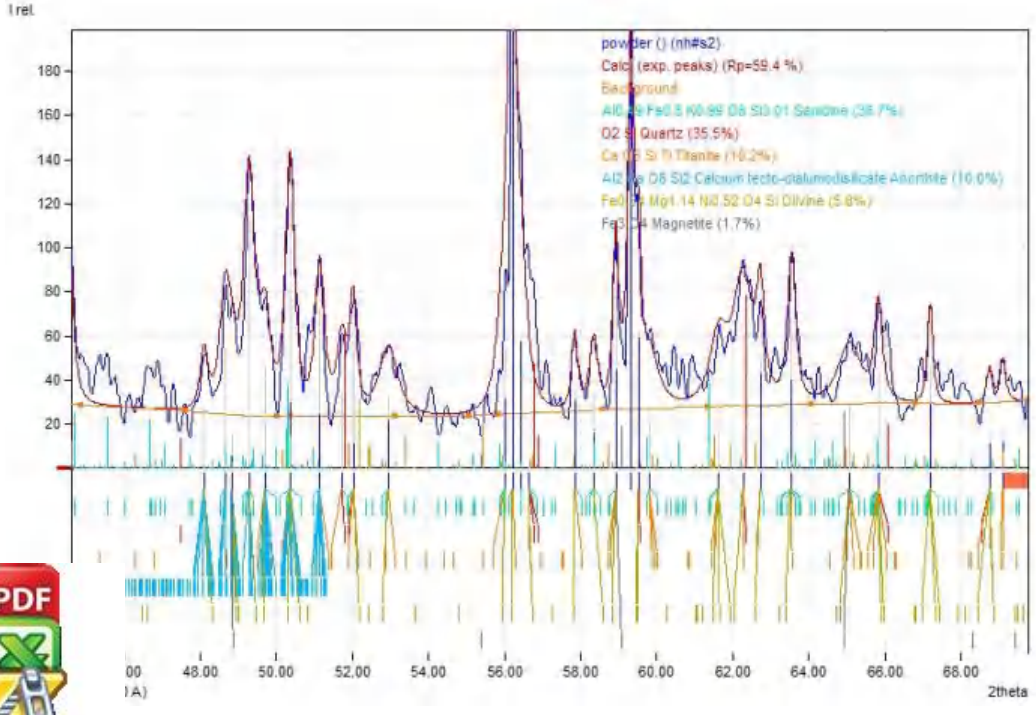
Based on calculated profile

Profile area	*Counts*	*Amount*
Overall diffraction profile	72730	100.00%
Background radiation	29885	41.09%
Diffraction peaks	42845	58.91%
Peak area belonging to selected phases	28683	39.44%
Peak area of phase A (Sanidine)	*11450*	*15.74%*
Peak area of phase B (Quartz)	*7884*	*10.84%*
Peak area of phase C (Titanite)	*2698*	*3.71%*
Peak area of phase D (Calcium tecto-dialumodisilicate Anorthite)	*3819*	*5.25%*
Peak area of phase E (Olivine)	*1915*	*2.63%*
Peak area of phase F (Magnetite)	*918*	*1.26%*
Unidentified peak area	14162	19.47%

Peak Residuals

Peak data	*Counts*	*Amount*
Overall peak intensity	1085	100.00%
Peak intensity belonging to selected phases	984	90.74%
Unidentified peak intensity	100	9.26%

Diffraction Pattern Graphics



Match! Phase Analysis Report

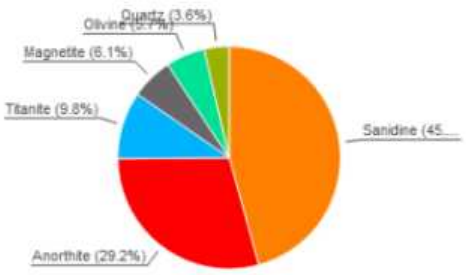
Sample: powder ()

Sample Data

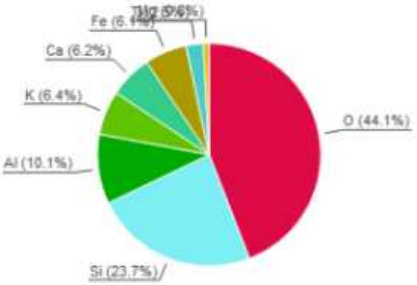
File name	nh#s3.RAW
File path	D:/DATA NUDEK/DATA XRD DAN XRF NUDIA HAJRYANA/XRD/nh#s3
Data collected	Nov 17, 2023 21:26:26
Data range	15.000° - 70.000°
Original data range	15.000° - 70.000°
Number of points	2751
Step size	0.020
Rietveld refinement converged	No
Alpha2 subtracted	No
Background subtr.	No
Data smoothed	Yes
Radiation	X-rays
Wavelength	1.540600 Å

Analysis Results

Phase composition (Weight %)



Elemental composition (Weight %)



Index	*Amount (%)*	*Name*	*Formula sum*
A	45.7	Sanidine	Al K O8 Si3
B	29.2	Anorthite	Al2 Ca O8 Si2
C	9.8	Titanite	Ca O5 Si Ti
D	6.1	Magnetite	Fe2.902 O4 Ti0.098
E	5.7	Olivine	Fe Mg O4 Si
F	3.6	Quartz	O2 Si
	18.0	*Unidentified peak area*	

Amounts calculated by RIR (Reference Intensity Ratio) method

Element	*Amount (weight %)*
O	*44.1%(*)*
Si	23.7%
Al	10.1%
K	6.4%
Ca	6.2%
Fe	6.1%
Ti	2.5%
Mg	0.8%
**LE (sum)*	*44.1%*

Details of identified phases

A: Sanidine (45.7 %)*

Formula sum	Al K O8 Si3
Entry number	96-901-7291
Figure-of-Merit (FoM)	0.844285*
Total number of peaks	293
Peaks in range	167
Peaks matched	162
Intensity scale factor	0.25*
Space group	C 1 2/m 1
Crystal system	monoclinic
Unit cell	a= 8.4800 Å b= 12.9700 Å c= 7.1800 Å β= 115.980 °
I/Ic	0.74
Calc. density	2.604 g/cm³

Reference	Ribbe P. H., "A refinement of the crystal structure of sanidinised orthoclaseNote: Occupancies not provided, estimated using Kroll & Ribbe, 1983", Acta Crystallographica **16**, 426-427 (1963)

B: Anorthite (29.2 %)*

Formula sum	Al2 Ca O8 Si2
Entry number	96-900-0363
Figure-of-Merit (FoM)	0.896478*
Total number of peaks	500
Peaks in range	500
Peaks matched	475
Intensity scale factor	0.11*
Space group	P -1
Crystal system	triclinic (anorthic)
Unit cell	a= 8.2230 Å b= 12.9150 Å c= 14.2040 Å α= 92.750° β= 115.800 ° γ= 91.020 °
I/Ic	0.51
Calc. density	2.727 g/cm³
Reference	Foit F. F., Peacor D. R., "The anorthite crystal structure at 410 and 830 CT = 830 C", American Mineralogist **58**, 665-675 (1973)

C: Titanite (9.8 %)*

Formula sum	Ca O5 Si Ti
Entry number	96-900-2443
Figure-of-Merit (FoM)	0.832764*
Total number of peaks	500
Peaks in range	160
Peaks matched	154
Intensity scale factor	0.11*
Space group	P 1 21/a 1
Crystal system	monoclinic
Unit cell	a= 7.0187 Å b= 8.6965 Å c= 6.5243 Å β= 113.594 °
I/Ic	1.58
Calc. density	3.568 g/cm³
Reference	Kunz M., Arlt T., Stolz J., "In situ powder diffraction study of titanite (CaTiOSiO4) at high pressureand high temperatureSample", American Mineralogist **85**, 1465-1473 (2000)

D: Magnetite (6.1 %)*

Formula sum	Fe2.902 O4 Ti0.098
Entry number	96-901-3532
Figure-of-Merit (FoM)	0.792975*
Total number of peaks	36
Peaks in range	11
Peaks matched	11
Intensity scale factor	0.26*
Space group	F d -3 m
Crystal system	cubic
Unit cell	a= 8.4095 Å
I/Ic	5.82
Calc. density	5.154 g/cm³
Reference	Bosi F., Halenius U., Skogby H., "Crystal chemistry of the magnetite-ulvospinel seriesNote: FeTi50B", American Mineralogist **94**, 181-189 (2009)

E: Olivine (5.7 %)

Formula sum	Fe Mg O4 Si
Entry number	96-900-6893
Figure-of-Merit (FoM)	0.000000
Total number of peaks	387
Peaks in range	78
Peaks matched	76
Intensity scale factor	0.04
Space group	P b n m
Crystal system	orthorhombic
Unit cell	a= 4.8497 Å b= 10.5034 Å c= 6.1418 Å
I/Ic	1.02
Calc. density	3.657 g/cm³
Reference	Redfern S. A. T., Artioli G., Rinaldi R., Henderson C. M. B., Knight K. S., Wood B. J., "Octahedral cation ordering in olivine at high temperature. II: an in situneutron powder diffraction study on synthetic MgFeSiO4 (Fa50)Sample: T = 1250 C", Physics and Chemistry of Minerals **27**, 630-637 (2000)

F: Quartz (3.6 %)*

Formula sum	O2 Si
Entry number	96-901-2602
Figure-of-Merit (FoM)	0.785778*
Total number of peaks	69
Peaks in range	18
Peaks matched	18
Intensity scale factor	0.08*
Space group	P 31 2 1
Crystal system	trigonal (hexagonal axes)

Unit cell	a= 4.8120 Å c= 5.3270 Å
I/Ic	2.93
Calc. density	2.802 g/cm³
Reference	Hazen R. M., Finger L. W., Hemley R. J., Mao H. K., "High-pressure crystal chemistry and amorphization of alpha-quartzSample: P = 2.0 Gpa", Solid State Communications **72**, 507-511 (1989)

(*)2theta values have been shifted internally for the calculation of the amounts, the intensity scaling factors as well as the figure-of-merit (FoM), due to the active search-match option 'Automatic zero point adaption'.

Candidates

Name	*Formula*	*Entry No.*	*FoM*
Anorthite	Al2 Ca O8 Si2	96-900-0362	0.8665
Anorthite	Al2 Ca O8 Si2	96-900-0363	0.8663
Ca (Al2 Si2 O8)	Al2 Ca O8 Si2	96-210-7236	0.8459
Anorthite	Al2 Ca O8 Si2	96-900-1260	0.8380
Anorthite	Al2 Ca O8 Si2	96-900-1259	0.8372
Calcium tecto-dialumodisilicate (Anorthite)	Al2 Ca O8 Si2	96-100-0035	0.8341
Microcline	Al K O8 Si3	96-900-0702	0.8339
Titanite	Ca O5 Si Ti	96-900-2444	0.8324
K (Al Si3 O8)	Al K O8 Si3	96-152-1703	0.8311
(Ca Fe) (Si O3)2 (Ferrobustamite)	Ca Fe O6 Si2	96-810-3623	0.8272
potassium iron silicon oxide	Fe K2 O12 Si5	96-210-8249	0.8271
Titanite	Ca O5 Si Ti	96-900-2443	0.8258
	Ca2 O5 Si	96-901-1377	0.8241
Potassium tecto-alumotrisilicate (Sanidine)	Al K O8 Si3	96-101-1188	0.8239
Pyroxferroite	Ca0.94 Fe6.06 O21 Si7	96-901-2890	0.8220
K0.95 (Al Si3 O8)	Al K0.95 O8 Si3	96-152-1704	0.8209
Orthoclase	Al K O8 Si3	96-900-0163	0.8152
Microcline	Al0.93 K O8 Si3.07	96-900-0190	0.8149
Orthoclase	Al0.98 K O8 Si3.02	96-901-7289	0.8144
Potassium tecto-alumotrisilicate * (Sanidine)	Al K O8 Si3	96-101-1225	0.8142
Titanite	Ca O5 Si Ti	96-900-2478	0.8130
Sanidine-high	Al K O8 Si3	96-900-1104	0.8129
Titanite	Ca O5 Si Ti	96-900-2480	0.8125
Sanidine	Al K O8 Si3	96-901-7452	0.8125
Sanidine	Al K O8 Si3	96-901-7453	0.8125
Sanidine	Al K O8 Si3	96-901-7454	0.8125
Sanidine	Al K O8 Si3	96-901-7455	0.8125
Titanite	Ca O5 Si Ti	96-900-2477	0.8123
Sanidine	Al K O8 Si3	96-900-8220	0.8118
Titanite	Ca O5 Si Ti	96-900-2479	0.8113
Sanidine	Al K O8 Si3	96-900-4245	0.8105
Sanidine	Al K O8 Si3	96-901-7781	0.8105
Sanidine	Al K O8 Si3	96-900-9663	0.8097
Breyite	Ca O3 Si	96-901-7872	0.8087
Anorthite	Al Ca0.5 O4 Si	96-901-6765	0.8086
Sanidine	Al K O8 Si3	96-900-0304	0.8085
Orthoclase	Al1.02 K O8 Si2.98	96-900-0305	0.8081
Sanidine	Al K O8 Si3	96-901-7450	0.8076
Sanidine	Al K O8 Si3	96-901-7451	0.8075
Sanidine	Al K O8 Si3	96-901-7291	0.8073
Sanidine	Al K O8 Si3	96-901-7449	0.8073
Sanidine	Al K O8 Si3	96-901-7799	0.8073
Sanidine	Al K O8 Si3	96-901-7448	0.8071
Sanidine	Al K O8 Si3	96-900-8219	0.8069
Orthoclase	Al K O8 Si3	96-900-6349	0.8068
Dmitryivanovite	Al2 Ca O4	96-901-3918	0.8065
Sanidine	Al K O8 Si3	96-900-4247	0.8061
Titanite	Ca O5 Si Ti	96-900-0926	0.8054
Orthoclase	Al K O8 Si3	96-901-7778	0.8052
Sanidine	Al K O8 Si3	96-901-7445	0.8049
Titanite	Ca O5 Si Ti	96-900-2439	0.8048
Sanidine	Al K O8 Si3	96-901-7447	0.8045

and 1355 others...

Search-Match

Settings

Reference database used	COD-Inorg 2023.06.06
Automatic zeropoint adaptation	Yes
Downgrade entries with low scaling factors	Yes
Minimum figure-of-merit (FoM)	0.60
2theta window for peak corr.	0.30 deg.
Minimum rel. int. for peak corr.	0
Parameter/influence 2theta	0.50
Parameter/influence intensities	0.50
Parameter multiple/single phase(s)	0.50

Selection Criteria

Elements:

Elements that may be present or not:	O, Al, Si, K, Ca, Ti, Fe
Elements that must NOT be present:	All elements not mentioned above

Criteria for entries added by user

Reference:

Entry number:

96-101-0498;96-154-4624;96-154-4625;96-154-4890;96-154-4891;96-900-0393;96-900-0394;96-900-0395;96-900-0397;96-900-0867;96-900-0868;96-900-1066;96-900-1067;96-900-1068;96-900-1069;96-900-1070;96-900-1097;96-900-1098;96-900-1099;96-900-1100;96-900-1101;96-900-1102;96-900-1103;96-900-1194;96-900-1195;96-900-1196;96-900-1197;96-900-1198;96-900-1199;96-900-1200;96-900-1201;96-900-1202;96-900-1203;96-900-1204;96-900-1205;96-900-1206;96-900-2512;96-900-2513;96-900-2514;96-900-2515;96-900-2516;96-900-2586;96-900-2587;96-900-2588;96-900-2589;96-900-2590;96-900-2591;96-900-2592;96-900-2593;96-900-2594;96-900-2595;96-900-2596;96-900-2597;96-900-2598;96-900-2599;96-900-2600;96-900-2601;96-900-2602;96-900-2603;96-900-2604;96-900-2605;96-900-2606;96-900-2607;96-900-2608;96-900-2609;96-900-2610;96-900-2611;96-900-2612;96-900-2613;96-900-2614;96-900-2615;96-900-2616;96-900-2617;96-900-2618;96-900-2619;96-900-2620;96-900-2621;96-900-2622;96-900-2623;96-900-2624;96-900-2625;96-900-2626;96-900-2627;96-900-2628;96-900-2629;96-900-2630;96-900-2631;96-900-2632;96-900-2633;96-900-2634;96-900-5857;96-900-5909;96-900-5910;96-900-5911;96-900-5912;96-900-5913;96-900-5914;96-900-5915;96-900-5916;96-900-5917;96-900-5918;96-900-5919;96-900-5920;96-900-5921;96-900-6391;96-900-6392;96-900-6393;96-900-6394;96-900-6395;96-900-6396;96-900-6397;96-900-6398;96-900-6399;96-900-6400;96-900-6401;96-900-6402;96-900-6403;96-900-6404;96-900-6876;96-900-6877;96-900-6878;96-900-6879;96-900-6880;96-900-6881;96-900-6882;96-900-6883;96-900-6884;96-900-6885;96-900-6886;96-900-6887;96-900-6888;96-900-6889;96-900-6890;96-900-6891;96-900-6892;96-900-6893;96-901-2682;96-901-4596;96-901-6130;96-101-1033;96-101-1085;96-153-9748;96-722-8111;96-900-0927;96-900-0928;96-900-0929;96-900-0930;96-900-0931;96-900-0932;96-900-0933;96-900-0934;96-900-0935;96-900-2317;96-900-2318;96-900-2319;96-900-2320;96-900-2321;96-900-2322;96-900-2323;96-900-2324;96-900-2325;96-900-2326;96-900-2327;96-900-2328;96-900-2329;96-900-2330;96-900-2331;96-900-2332;96-900-2333;96-900-2674;96-900-2675;96-900-4088;96-900-4156;96-900-4157;96-900-5813;96-900-5814;96-900-5815;96-900-5816;96-900-5817;96-900-5837;96-900-5838;96-900-5839;96-900-5840;96-900-5841;96-900-5842;96-900-5843;96-900-6185;96-900-6190;96-900-6195;96-900-6200;96-900-6243;96-900-6248;96-900-6253;96-900-6266;96-900-6921;96-900-6922;96-900-6923;96-900-7645;96-900-7707;96-900-7708;96-900-9769;96-900-9770;96-901-0940;96-901-0941;96-901-0942;96-901-3530;96-901-3531;96-901-3532;96-901-3533;96-901-3534;96-901-3535;96-901-3536;96-901-6802;96-901-6803;96-901-6804;96-901-6805;96-901-6806;96-901-6807;96-901-6808;96-901-6809;96-901-6810;96-901-6811;96-901-6812;96-901-6813;96-901-6814;96-901-6815;96-901-6816;96-901-6817;96-901-6818;96-901-7087;96-901-7088

Peak List

No.	*2theta [°]*	*d [Å]*	*I/I0 (peak height)*	*Counts (peak area)*	*FWHM*	*Matched*
1	15.12	5.8549	0.68	0.10	0.4897	A,B
2	15.50	5.7122	14.61	2.14	0.4897	
3	15.52	5.7049	0.32	0.10	1.0523	B
4	15.66	5.6542	0.70	0.10	0.4800	B
5	15.90	5.5694	0.70	0.10	0.4800	B
6	16.10	5.5007	34.05	4.88	0.4800	
7	16.28	5.4403	51.31	0.61	0.0400	B
8	16.34	5.4204	0.70	0.10	0.4800	
9	16.60	5.3361	36.91	2.43	0.2208	
10	16.72	5.2981	24.28	0.29	0.0400	
11	16.84	5.2606	34.91	1.27	0.1214	
12	16.88	5.2482	0.62	0.04	0.1879	E
13	16.94	5.2298	45.85	0.21	0.0154	
14	16.98	5.2175	53.25	0.36	0.0225	
15	17.10	5.1812	60.03	0.40	0.0225	C
16	17.30	5.1217	45.64	1.59	0.1164	B
17	17.60	5.0351	34.29	0.75	0.0731	B
18	17.82	4.9734	67.15	0.65	0.0325	B
19	17.90	4.9514	36.05	0.68	0.0636	
20	17.96	4.9350	29.13	0.50	0.0571	B,C
21	18.20	4.8704	63.37	0.73	0.0388	D
22	18.34	4.8336	73.00	0.47	0.0215	
23	18.48	4.7973	64.15	0.50	0.0261	
24	18.56	4.7768	56.69	0.58	0.0340	B
25	18.72	4.7363	28.74	1.22	0.1422	C
26	18.96	4.6769	4.28	0.05	0.0426	B
27	19.14	4.6333	36.88	1.00	0.0903	
28	19.22	4.6142	15.15	3.17	0.7003	
29	19.30	4.5953	55.60	0.16	0.0096	B
30	19.38	4.5765	53.85	0.16	0.0096	A
31	19.54	4.5394	70.34	0.84	0.0400	
32	19.70	4.5029	70.39	3.01	0.1430	
33	19.76	4.4893	74.43	0.38	0.0173	B
34	19.96	4.4448	80.00	5.18	0.2167	B
35	20.20	4.3925	102.49	1.10	0.0360	B,E
36	20.34	4.3626	90.14	1.00	0.0370	C

37	20.50	4.3289	64.78	5.02	0.2593	B
38	20.58	4.3123	8.98	0.21	0.0772	B
39	20.76	4.2753	78.20	1.87	0.0800	B
40	20.88	4.2510	83.92	2.74	0.1094	B
41	21.00	4.2269	99.77	5.58	0.1873	
42	21.08	4.2111	61.05	14.11	0.7735	A
43	21.42	4.1450	116.17	12.59	0.3626	B,F
44	21.62	4.1071	150.53	14.39	0.3200	B
45	21.66	4.0996	144.48	10.36	0.2400	
46	21.94	4.0479	76.96	6.10	0.2652	B
47	22.08	4.0226	71.19	3.36	0.1577	
48	22.32	3.9799	57.71	2.36	0.1370	B,E
49	22.52	3.9450	80.72	1.63	0.0675	
50	22.58	3.9346	81.01	0.56	0.0233	
51	22.70	3.9141	82.88	2.79	0.1126	A,B
52	22.82	3.8938	83.83	5.28	0.2108	B
53	22.92	3.8770	74.97	1.64	0.0732	B
54	22.98	3.8670	30.43	2.47	0.2717	B
55	23.30	3.8146	111.20	9.01	0.2711	A,B
56	23.36	3.8050	91.10	16.23	0.5962	B,E
57	23.48	3.7858	105.85	19.47	0.6157	B
58	23.56	3.7731	108.35	5.86	0.1810	
59	23.64	3.7605	326.29	42.90	0.4400	A
60	23.74	3.7449	422.70	55.57	0.4400	
61	23.82	3.7325	325.59	31.13	0.3200	
62	23.86	3.7264	341.45	24.49	0.2400	
63	23.94	3.7141	251.19	15.01	0.2000	B
64	24.08	3.6928	132.41	7.91	0.2000	B
65	24.20	3.6748	104.04	1.24	0.0400	B
66	24.60	3.6159	144.70	15.56	0.3600	
67	24.66	3.6073	192.89	11.53	0.2000	A,B
68	24.70	3.6015	178.80	6.41	0.1200	B,C
69	24.94	3.5674	104.63	1.25	0.0400	B,E
70	25.08	3.5478	77.54	7.41	0.3200	B
71	25.32	3.5147	59.81	2.20	0.1229	A,B,C
72	25.40	3.5038	85.10	1.02	0.0400	
73	25.48	3.4930	118.13	7.06	0.2000	
74	25.62	3.4742	114.40	16.41	0.4800	B,C
75	25.76	3.4557	220.16	18.42	0.2800	A,B
76	25.80	3.4504	216.87	25.92	0.4000	B
77	25.86	3.4425	241.72	31.78	0.4400	B,C
78	26.62	3.3459	127.44	9.14	0.2400	B
79	26.68	3.3385	81.79	41.63	1.7036	
80	26.76	3.3287	57.39	4.72	0.2751	B
81	26.82	3.3214	77.17	5.10	0.2213	
82	26.92	3.3093	110.29	20.11	0.6102	
83	27.06	3.2925	349.14	66.77	0.6400	A
84	27.20	3.2759	398.73	100.08	0.8400	B,F
85	27.30	3.2641	482.66	98.07	0.6800	A,B
86	27.48	3.2431	768.56	55.12	0.2400	A
87	27.60	3.2293	1000.00	143.42	0.4800	A,B
88	27.66	3.2224	901.14	161.56	0.6000	B,C
89	27.76	3.2111	783.91	131.17	0.5600	C
90	27.80	3.2065	755.93	108.42	0.4800	B
91	27.90	3.1953	678.53	89.21	0.4400	B
92	28.06	3.1774	421.17	40.27	0.3200	B
93	28.20	3.1620	241.60	20.21	0.2800	
94	28.30	3.1510	4.93	0.10	0.0680	B
95	28.36	3.1445	62.88	13.53	0.7200	B
96	28.60	3.1186	84.45	4.66	0.1845	B
97	29.02	3.0744	86.27	0.66	0.0254	B,E
98	29.30	3.0457	110.67	1.08	0.0327	B,C
99	29.62	3.0135	143.26	15.23	0.3557	C
100	29.68	3.0076	276.32	6.61	0.0800	B
101	29.72	3.0036	0.94	0.10	0.3565	B
102	29.86	2.9898	37.14	7.91	0.7128	A,B,C
103	30.04	2.9723	358.66	38.43	0.3586	D
104	30.10	2.9666	0.70	0.10	0.4800	B
105	30.26	2.9512	0.70	0.10	0.4800	B
106	30.26	2.9512	0.70	0.10	0.4800	
107	30.40	2.9380	264.25	9.48	0.1200	B
108	30.50	2.9285	255.83	91.73	1.2000	A,B
109	30.80	2.9007	290.57	52.09	0.6000	B
110	30.84	2.8970	286.32	61.60	0.7200	A,B
111	30.94	2.8879	322.85	30.87	0.3200	A
112	31.04	2.8788	237.20	28.35	0.4000	
113	31.18	2.8662	211.28	7.58	0.1200	B
114	32.54	2.7495	119.02	16.25	0.4569	A,B
115	32.60	2.7445	0.50	0.10	0.6747	B
116	32.74	2.7331	1.10	0.10	0.3032	B
117	33.22	2.6947	34.37	2.37	0.2306	B,C

118	33.56	2.6682	21.69	4.57	0.7048	B
119	33.98	2.6362	34.95	7.09	0.6792	B,C,E
120	34.12	2.6257	64.17	2.30	0.1200	B,E
121	34.36	2.6079	36.29	5.88	0.5425	B,C
122	34.52	2.5962	127.60	65.45	1.7166	B
123	34.64	2.5874	49.31	11.95	0.8113	C
124	34.72	2.5817	187.39	129.05	2.3047	A,B,C,E
125	34.92	2.5673	312.60	41.10	0.4400	B
126	35.04	2.5588	385.24	78.28	0.6800	A,B
127	35.12	2.5532	376.14	94.41	0.8400	B
128	35.22	2.5461	428.79	76.87	0.6000	A,B
129	35.42	2.5322	266.24	98.65	1.2400	B,D
130	35.70	2.5130	402.55	48.11	0.4000	B,E
131	35.94	2.4968	273.52	16.35	0.2000	A,B
132	36.04	2.4901	115.31	2.76	0.0800	B
133	36.60	2.4532	68.95	9.89	0.4800	A,B,C
134	36.94	2.4314	60.77	8.72	0.4800	B,D
135	37.12	2.4201	120.60	5.77	0.1600	B,E
136	37.26	2.4113	191.31	6.86	0.1200	A,B,E
137	37.38	2.4038	26.05	2.02	0.2594	B,F
138	37.44	2.4001	153.06	21.95	0.4800	
139	37.64	2.3878	64.61	0.50	0.0258	B
140	37.82	2.3769	105.14	20.84	0.6635	B
141	37.90	2.3720	118.65	1.42	0.0400	A,B,C
142	38.12	2.3588	77.11	2.55	0.1108	A,B,C,E
143	38.58	2.3318	70.03	3.88	0.1856	B,E
144	38.86	2.3156	55.89	3.65	0.2185	A,B,E
145	39.24	2.2941	86.68	1.01	0.0388	A,B
146	39.36	2.2873	69.21	0.40	0.0195	A,B,C
147	39.42	2.2840	40.52	0.24	0.0195	B,C
148	39.50	2.2796	22.63	0.13	0.0195	B
149	39.54	2.2773	36.45	1.02	0.0937	
150	39.60	2.2740	13.92	2.19	0.5269	B
151	39.76	2.2652	70.00	1.05	0.0501	B
152	40.00	2.2522	22.98	0.34	0.0501	A,B,C
153	40.22	2.2404	33.25	7.53	0.7583	B,F
154	40.34	2.2340	40.23	0.28	0.0230	B
155	40.56	2.2224	53.62	1.76	0.1096	A,B,C
156	40.66	2.2172	51.03	2.62	0.1720	B
157	40.68	2.2161	49.93	2.57	0.1720	
158	40.74	2.2130	1.51	0.10	0.2215	B,E
159	41.18	2.1904	64.50	3.62	0.1880	A,B,E,F
160	41.30	2.1843	70.91	3.39	0.1600	B
161	41.56	2.1712	162.05	13.50	0.2789	B,C
162	41.68	2.1652	130.88	20.23	0.5174	C
163	41.78	2.1603	127.46	5.80	0.1523	A,E
164	41.82	2.1583	59.80	1.87	0.1047	B
165	41.86	2.1563	39.73	1.43	0.1202	B
166	41.94	2.1524	211.20	25.24	0.4000	A,B,C
167	42.04	2.1475	131.13	47.02	1.2000	A,B,C
168	42.30	2.1349	117.27	43.45	1.2400	B,C
169	42.54	2.1234	174.43	12.51	0.2400	B
170	42.86	2.1083	149.87	3.58	0.0800	A,B,C
171	43.06	2.0990	120.47	8.39	0.2332	A,B,C,D
172	43.44	2.0815	98.52	6.76	0.2296	A,B,C,E,F
173	43.72	2.0688	91.48	3.11	0.1137	A,B,E
174	43.86	2.0625	69.83	2.90	0.1388	B
175	43.96	2.0581	29.92	1.73	0.1932	A,B,C
176	44.12	2.0510	54.60	30.13	1.8468	A,B
177	44.20	2.0474	59.23	4.96	0.2800	A,B,C
178	44.52	2.0335	82.58	2.49	0.1011	B
179	44.66	2.0274	16.79	0.89	0.1765	B,C
180	44.72	2.0248	64.10	6.13	0.3200	B,C
181	44.90	2.0171	95.57	2.15	0.0754	B
182	45.04	2.0112	118.57	5.47	0.1544	B
183	45.12	2.0078	35.62	2.15	0.2016	B
184	45.22	2.0036	96.84	1.16	0.0400	B
185	45.38	1.9969	82.23	4.36	0.1775	B,E
186	45.44	1.9944	61.79	0.28	0.0152	A,B,C,E
187	45.56	1.9894	33.67	0.15	0.0152	A
188	45.66	1.9853	48.77	15.91	1.0917	B
189	45.72	1.9829	3.44	0.10	0.0973	B
190	45.92	1.9747	5.73	0.12	0.0721	B
191	46.02	1.9706	51.01	6.09	0.3993	B,C
192	46.16	1.9650	128.96	10.25	0.2660	B
193	46.22	1.9626	0.16	0.10	2.0675	A,B
194	46.34	1.9578	114.55	1.37	0.0400	B
195	46.40	1.9554	82.13	2.37	0.0964	B
196	46.52	1.9506	30.76	2.01	0.2190	B
197	46.66	1.9451	79.50	2.04	0.0859	A,B
198	46.76	1.9411	41.89	2.83	0.2262	B,C,F

199	46.92	1.9349	72.86	4.12	0.1890	B,C
200	47.06	1.9295	92.01	11.93	0.4341	B,D,E
201	47.16	1.9256	106.04	6.34	0.2000	B,C
202	47.34	1.9187	62.86	7.51	0.4000	A,B
203	47.46	1.9141	52.93	11.39	0.7200	A
204	47.56	1.9103	49.82	0.60	0.0400	A
205	47.62	1.9081	53.21	6.36	0.4000	A,B,C,E
206	48.30	1.8828	42.19	5.04	0.4000	B,E
207	48.38	1.8799	60.05	19.55	1.0895	A
208	48.46	1.8769	4.06	0.24	0.1948	B
209	48.46	1.8769	0.03	0.00	0.1921	
210	48.54	1.8740	2.93	0.27	0.3119	A,B,C,E
211	49.16	1.8518	59.89	33.90	1.8945	B,C,E
212	49.32	1.8462	92.52	4.42	0.1600	A,B,E
213	49.46	1.8413	21.55	5.87	0.9111	B,C,E
214	49.62	1.8358	120.71	43.97	1.2191	B,C
215	49.72	1.8323	129.75	5.74	0.1481	A
216	49.78	1.8302	201.49	19.27	0.3200	B
217	49.84	1.8282	184.67	11.04	0.2000	A,B
218	50.04	1.8213	75.60	1.81	0.0800	A,B,C
219	50.34	1.8112	70.68	17.59	0.8331	A,B,C
220	50.54	1.8045	2.43	0.10	0.1375	A,B,C
221	50.74	1.7978	149.16	25.28	0.5672	A,B
222	50.90	1.7925	275.04	32.87	0.4000	A,B
223	51.10	1.7860	373.23	40.15	0.3600	B,E,F
224	51.22	1.7821	239.76	20.06	0.2800	A,E
225	51.36	1.7776	123.11	25.01	0.6800	E,F
226	51.76	1.7648	83.96	1.00	0.0400	C
227	51.90	1.7603	53.22	1.52	0.0958	A,C
228	52.16	1.7522	62.60	4.99	0.2666	
229	52.26	1.7491	41.24	13.07	1.0609	E
230	52.38	1.7453	54.74	2.99	0.1827	A
231	52.42	1.7441	115.85	8.31	0.2400	
232	52.56	1.7398	64.97	9.32	0.4800	
233	52.64	1.7373	60.59	0.14	0.0079	A,C
234	52.90	1.7294	38.38	2.28	0.1989	A,C
235	53.06	1.7246	90.30	2.76	0.1025	A,C
236	53.34	1.7162	102.30	8.56	0.2800	A,D
237	53.54	1.7102	74.48	1.78	0.0800	A,C,E
238	53.74	1.7043	89.28	6.04	0.2265	C
239	53.84	1.7014	88.15	1.05	0.0400	C
240	53.96	1.6979	74.65	1.78	0.0800	
241	54.12	1.6933	63.24	3.78	0.2000	A
242	54.44	1.6841	63.01	2.31	0.1228	C,E
243	54.58	1.6801	40.63	1.73	0.1423	A,C
244	54.78	1.6744	73.75	0.96	0.0435	
245	54.92	1.6705	68.16	6.48	0.3181	C,E
246	55.06	1.6665	57.68	1.91	0.1108	A
247	55.14	1.6643	59.08	2.37	0.1341	C
248	55.16	1.6638	136.58	1.63	0.0400	
249	55.24	1.6615	96.26	5.75	0.2000	C,E
250	55.38	1.6577	102.31	1.25	0.0410	A
251	55.64	1.6505	82.04	11.77	0.4800	
252	55.84	1.6451	92.91	3.24	0.1166	A,E
253	55.98	1.6413	30.98	0.74	0.0805	A,C,F
254	56.32	1.6322	54.24	19.53	1.2052	A,E,F
255	56.54	1.6264	69.88	10.84	0.5193	C
256	56.62	1.6243	130.73	17.19	0.4400	A
257	56.72	1.6217	0.73	0.10	0.4586	A
258	56.82	1.6190	122.62	13.19	0.3600	A,D
259	56.96	1.6154	129.56	3.10	0.0800	A,C,E
260	57.18	1.6097	109.84	8.86	0.2699	A,C
261	57.30	1.6066	59.43	1.78	0.1001	C
262	57.40	1.6040	95.07	13.63	0.4800	C
263	57.54	1.6005	74.68	4.46	0.2000	A,C,E
264	57.84	1.5929	4.34	0.16	0.1197	A,C,E
265	58.12	1.5859	59.91	1.56	0.0872	E
266	58.16	1.5849	59.69	1.55	0.0872	A,C
267	58.54	1.5755	65.46	1.82	0.0931	A,C,F
268	58.68	1.5721	84.84	3.30	0.1302	A
269	58.88	1.5672	57.08	5.12	0.3005	
270	58.98	1.5648	21.49	1.34	0.2090	A
271	59.02	1.5638	13.96	0.95	0.2281	E
272	59.12	1.5614	58.79	4.22	0.2400	
273	59.20	1.5595	86.80	2.07	0.0800	A,C
274	59.28	1.5576	66.16	1.58	0.0800	
275	59.36	1.5557	0.70	0.10	0.4800	
276	59.38	1.5552	62.17	1.91	0.1031	C
277	59.48	1.5528	33.97	1.64	0.1612	
278	59.60	1.5500	18.68	2.39	0.4277	A,C,E
279	59.94	1.5420	94.52	3.39	0.1200	A,E

280	60.06	1.5392	74.92	3.38	0.1512	
281	60.20	1.5360	25.06	1.19	0.1584	E
282	60.26	1.5346	100.33	13.04	0.4350	C
283	60.34	1.5327	0.15	0.10	2.1799	E
284	60.44	1.5304	178.65	23.49	0.4400	C
285	60.52	1.5286	0.38	0.10	0.8893	C
286	60.64	1.5259	166.25	5.96	0.1200	A,C
287	60.90	1.5200	0.70	0.10	0.4800	A,E
288	61.08	1.5159	101.13	2.42	0.0800	A,C
289	61.34	1.5101	117.29	15.42	0.4400	A,C,F
290	61.52	1.5061	103.88	18.31	0.5900	A,C
291	61.64	1.5035	192.19	39.05	0.6800	A,C
292	61.78	1.5004	281.84	33.69	0.4000	E
293	62.00	1.4956	217.85	5.21	0.0800	A,C
294	62.16	1.4922	204.25	51.26	0.8400	A
295	62.34	1.4883	247.31	20.69	0.2800	C,D
296	63.00	1.4743	135.00	14.20	0.3521	C,E
297	63.12	1.4717	132.77	7.93	0.2000	A,C,E
298	63.88	1.4561	68.46	5.75	0.2811	A,C
299	64.12	1.4512	58.37	8.64	0.4953	A,C,E
300	64.44	1.4448	78.64	3.76	0.1600	A
301	64.66	1.4404	67.46	6.06	0.3007	A
302	65.02	1.4333	68.33	11.53	0.5649	A,C,E
303	65.36	1.4266	57.95	1.39	0.0800	A,E,F
304	65.42	1.4255	49.37	3.75	0.2540	
305	65.62	1.4216	49.68	3.77	0.2540	A,C,D
306	65.74	1.4193	59.08	9.45	0.5353	A,C,E
307	65.90	1.4162	56.92	2.91	0.1710	A,C,E
308	66.04	1.4136	103.88	2.70	0.0870	A,C
309	66.30	1.4087	19.87	3.73	0.6288	C,E
310	66.36	1.4075	76.62	0.92	0.0400	A
311	66.44	1.4060	66.75	1.72	0.0864	A,C
312	66.54	1.4042	62.86	2.60	0.1384	C,E
313	66.70	1.4012	63.04	1.51	0.0800	A,C,D
314	67.14	1.3931	50.60	1.36	0.0899	A,C,E
315	67.32	1.3898	57.01	0.68	0.0400	A,F
316	67.56	1.3854	75.80	1.64	0.0814	C
317	67.78	1.3815	113.25	2.31	0.0683	A,E
318	67.86	1.3800	154.56	1.78	0.0385	A,E
319	67.96	1.3782	80.84	2.47	0.1024	A,C,E
320	68.18	1.3743	54.58	17.82	1.0925	
321	68.66	1.3659	65.89	2.06	0.1044	A,C
322	68.88	1.3621	25.74	2.70	0.3515	A
323	68.96	1.3607	62.25	1.49	0.0800	A
324	69.08	1.3586	32.28	0.77	0.0800	A,C
325	69.14	1.3576	38.57	1.06	0.0920	A,C,F
326	69.36	1.3538	38.20	3.61	0.3161	
327	69.46	1.3521	49.69	1.19	0.0800	F
328	69.62	1.3494	25.02	3.85	0.5144	A,C,E
329	69.72	1.3477	1.38	0.10	0.2422	C
330	69.80	1.3463	18.71	1.35	0.2422	
331	69.86	1.3453	22.04	1.59	0.2422	C,E,F

Integrated Profile Areas

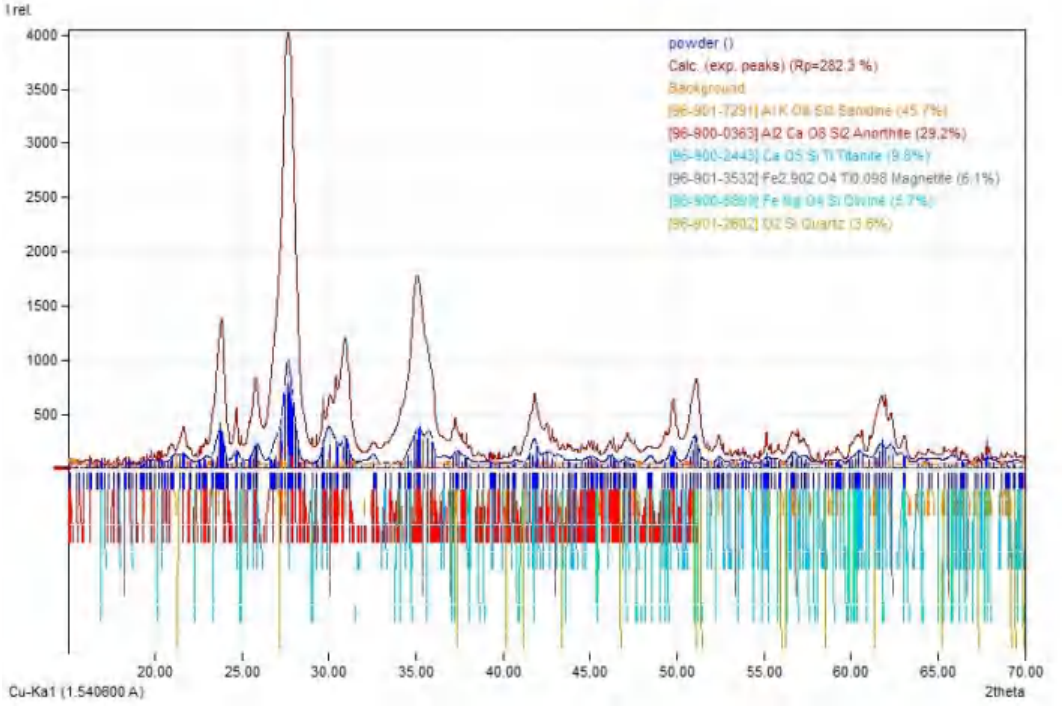
Based on calculated profile

Profile area	*Counts*	*Amount*
Overall diffraction profile	79146	100.00%
Background radiation	29013	36.66%
Diffraction peaks	50133	63.34%
Peak area belonging to selected phases	35858	45.31%
Peak area of phase A (Sanidine)	*17657*	*22.31%*
Peak area of phase B (Anorthite)	*7209*	*9.11%*
Peak area of phase C (Titanite)	*3668*	*4.63%*
Peak area of phase D (Magnetite)	*4289*	*5.42%*
Peak area of phase E (Olivine)	*2019*	*2.55%*
Peak area of phase F (Quartz)	*1016*	*1.28%*
Unidentified peak area	14275	18.04%

Peak Residuals

Peak data	*Counts*	*Amount*
Overall peak intensity	4057	100.00%
Peak intensity belonging to selected phases	1911	47.11%
Unidentified peak intensity	2146	52.89%

Diffraction Pattern Graphics



Match! Phase Analysis Report

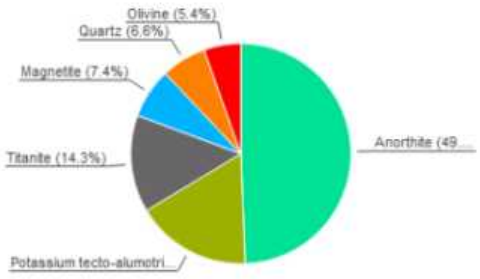
Sample: powder ()

Sample Data

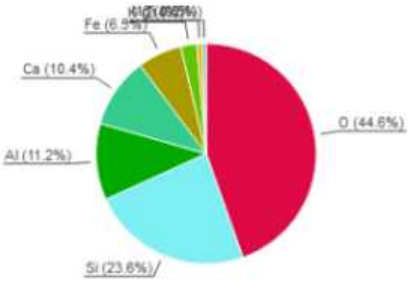
File name	nh#s4.RAW
File path	D:/DATA NUDEK/DATA XRD DAN XRF NUDIA HAJRYANA/XRD/nh#s4
Data collected	Nov 17, 2023 21:26:26
Data range	15.000° - 70.000°
Original data range	15.000° - 70.000°
Number of points	2751
Step size	0.020
Rietveld refinement converged	No
Alpha2 subtracted	No
Background subtr.	No
Data smoothed	Yes
Radiation	X-rays
Wavelength	1.540600 Å

Analysis Results

Phase composition (Weight %)



Elemental composition (Weight %)



Index	*Amount (%)*	*Name*	*Formula sum*
A	49.4	Anorthite	Al2 Ca O8 Si2
B	17.0	Potassium tecto-alumotrisilicate * Sanidine	Al K O8 Si3
C	14.3	Titanite	Ca O5 Si2
D	7.4	Magnetite	Fe2.646 O4 Ti0.354
E	6.6	Quartz	O2 Si
F	5.4	Olivine	Fe Mg O4 Si
	25.5	*Unidentified peak area*	

Amounts calculated by RIR (Reference Intensity Ratio) method

Element	*Amount (weight %)*
O	*44.6%(*)*
Si	23.6%
Al	11.2%
Ca	10.4%
Fe	6.5%
K	2.4%
Mg	0.8%
Ti	0.5%
**LE (sum)*	*44.6%*

Details of identified phases

A: Anorthite (49.4 %)*

Formula sum	Al2 Ca O8 Si2
Entry number	96-900-1260
Figure-of-Merit (FoM)	0.786082*
Total number of peaks	497
Peaks in range	497
Peaks matched	414
Intensity scale factor	1.17*
Space group	P -1
Crystal system	triclinic (anorthic)
Unit cell	a= 8.1796 Å b= 12.8747 Å c= 14.1720 Å α= 93.134° β= 115.885 ° γ= 91.236 °
I/Ic	0.54
Calc. density	2.760 g/cm³
Reference	Angel R. J., Carpenter M. A., Finger L. W., "Structural variation associated with compositional variation andorder-disorder behavior in anorthite-rich feldspars sample from Monte Somma", American Mineralogist **75**, 150-162

(1990)

B: Potassium tecto-alumotrisilicate *

Sanidine (17.0 %)*

Formula sum	Al K O8 Si3
Entry number	96-101-1225
Figure-of-Merit (FoM)	0.705804*
Total number of peaks	293
Peaks in range	168
Peaks matched	136
Intensity scale factor	0.59*
Space group	C 1 2/m 1
Crystal system	monoclinic
Unit cell	a= 8.4500 Å b= 12.9000 Å c= 7.1500 Å β= 116.100 °
I/Ic	0.79
Meas. density	2.560 g/cm³
Calc. density	2.641 g/cm³
Reference	Taylor W H, "The structure of sanidine and other feldspars 2.56", Zeitschrift fuer Kristallographie, Kristallgeometrie, Kristallphysik,Kristallchemie (-144,1977) **85**, 425-442 (1933)

C: Titanite (14.3 %)*

Formula sum	Ca O5 Si2
Entry number	96-900-2040
Figure-of-Merit (FoM)	0.693052*
Total number of peaks	286
Peaks in range	70
Peaks matched	56
Intensity scale factor	0.64*
Space group	A 1 2/n 1
Crystal system	monoclinic
Unit cell	a= 6.5430 Å b= 8.3918 Å c= 6.3416 Å β= 113.175 °
I/Ic	1.03
Calc. density	3.657 g/cm³
Reference	Angel R. J., Kunz M., Miletich R., Woodland A. B., Koch M., Knoche R. L., "Effect of isovalent Si,Ti substitution on the bulk moduli of Ca(Ti1-xSix)SiO5titanites P = 1 atm", American Mineralogist **84**, 282-287 (1999)

D: Magnetite (7.4 %)*

Formula sum	Fe2.646 O4 Ti0.354
Entry number	96-901-3535
Figure-of-Merit (FoM)	0.717772*
Total number of peaks	36
Peaks in range	11
Peaks matched	11
Intensity scale factor	1.84*
Space group	F d -3 m
Crystal system	cubic
Unit cell	a= 8.4348 Å
I/Ic	5.73
Calc. density	5.063 g/cm³
Reference	Bosi F., Halenius U., Skogby H., "Crystal chemistry of the magnetite-ulvospinel seriesNote: FeTi20A", American Mineralogist **94**, 181-189 (2009)

E: Quartz (6.6 %)*

Formula sum	O2 Si
Entry number	96-900-0781
Figure-of-Merit (FoM)	0.749373*
Total number of peaks	64
Peaks in range	15
Peaks matched	13
Intensity scale factor	0.81*
Space group	P 32 2 1 S
Crystal system	trigonal (hexagonal axes)
Unit cell	a= 4.7020 Å c= 5.2560 Å
I/Ic	2.81
Calc. density	2.974 g/cm³
Reference	Levien L., Prewitt C. T., Weidner D. J., "Structure and elastic properties of quartz at pressureP = 61.4 kbar", American Mineralogist **65**, 920-930 (1980)

F: Olivine (5.4 %)*

Formula sum	Fe Mg O4 Si
Entry number	96-900-6886
Figure-of-Merit (FoM)	0.594240*
Total number of peaks	379
Peaks in range	76
Peaks matched	62
Intensity scale factor	0.26*
Space group	P b n m

Crystal system	orthorhombic
Unit cell	a= 4.8321 Å b= 10.4453 Å c= 6.1078 Å
I/Ic	1.08
Calc. density	3.711 g/cm³
Reference	Redfern S. A. T., Artioli G., Rinaldi R., Henderson C. M. B., Knight K. S., Wood B. J., "Octahedral cation ordering in olivine at high temperature. II: an in situneutron powder diffraction study on synthetic MgFeSiO4 (Fa50)Sample: T = 800 C", Physics and Chemistry of Minerals **27**, 630-637 (2000)

(*)2theta values have been shifted internally for the calculation of the amounts, the intensity scaling factors as well as the figure-of-merit (FoM), due to the active search-match option 'Automatic zero point adaption'.

Candidates

Name	*Formula*	*Entry No.*	*FoM*
Iron	Fe	96-901-2708	0.7304
Iron	Fe	96-901-2707	0.7304
Iron	Fe	96-901-6636	0.7246
Iron	Fe	96-901-6519	0.7150
Iron	Fe	96-901-5688	0.7150
Iron	Fe	96-901-2709	0.7030
Potassium	K	96-901-1984	0.7030
Iron	Fe	96-901-5705	0.7015
Iron	Fe	96-901-5106	0.7015
Potassium	K	96-901-1983	0.6998
Hercynite	Al Fe2 O4	96-901-2447	0.6794
Calcium magnesium catena-silicate (Diopside)	Ca Mg O6 Si2	96-101-1048	0.6700
Hematite	Fe O3	96-901-7519	0.6643
Calcium magnesium catena-silicate (Diopside)	Ca Mg O6 Si2	96-101-1058	0.6641
Diopside	Ca0.5 Cr0.5 Mg0.5 Na0.5 O6 Si2	96-900-5706	0.6637
Mg Al.8 Fe1.2 O4	Al0.8 Fe1.2 Mg O4	96-153-3911	0.6604
Magnetite	Fe3 O4	96-900-2322	0.6581
Ca.92 Fe.08 Al.14 Fe.33 Mg.53 Si2 O6	Al0.14 Ca0.92 Fe0.41 Mg0.53 O6 Si2	96-154-2055	0.6573
Diopside	Al0.19 Ca0.88 K0.12 Mg0.83 O6 Si1.98	96-900-4025	0.6566
Diopside	Al0.19 Ca0.88 K0.12 Mg0.83 O6 Si1.98	96-900-4024	0.6562
Diopside	Al0.19 Ca0.88 K0.12 Mg0.83 O6 Si1.98	96-900-4023	0.6562
Leucite	K0.9 O6 Si2	96-900-1799	0.6558
Diopside	Ca0.5 Cr0.5 Mg0.5 Na0.5 O6 Si2	96-900-5705	0.6550
Diopside	Ca0.5 Cr0.5 Mg0.5 Na0.5 O6 Si2	96-900-5707	0.6543
Diopside	Al0.029 Ca0.509 Cr0.223 Fe0.011 Mg0.488 Mn0.001 Na0.491 O6 Si1.99 Ti0.001V0.257	96-900-2723	0.6531
Diopside	Al0.209 Ca0.896 K0.072 Mg0.887 O6 Si1.936	96-900-5561	0.6521
Diopside	Al0.6 Ca Mg0.7 O6 Si1.7	96-900-5279	0.6521
Diopside	Al0.035 Ca0.51 Cr0.247 Fe0.007 Mg0.484 Mn0.001 Na0.49 O6 Si1.982 V0.244	96-900-2722	0.6516
Diopside	Al0.16 Ca0.96 Fe0.05 H0.06 Mg0.86 Na0.04 O6 Si1.9 Ti0.02	96-900-4602	0.6514
Ti O2	O2 Ti	96-153-7225	0.6507
Diopside	Al0.1 Ca0.78 Cr0.09 Fe0.05 Mg0.83 Na0.18 O6 Si1.97	96-900-1334	0.6500
Diopside	Al0.303 Ca0.705 Cr0.001 Fe0.24 Mg0.684 Mn0.004 Na0.176 O6 Si1.848 Ti0.039	96-900-5002	0.6499
Diopside	Ca0.8 Mg1.2 O6 Si2	96-900-4954	0.6499
Diopside	Al0.301 Ca0.708 Cr0.001 Fe0.235 Mg0.696 Mn0.002 Na0.173 O6 Si1.847 Ti0.037	96-900-5004	0.6498
Magnetite	Fe3 O4	96-901-6805	0.6491
Diopside	Al0.328 Ca0.687 Cr0.006 Fe0.233 Mg0.692 Mn0.006 Na0.158 O6 Si1.846 Ti0.044	96-900-5003	0.6487
Iron	Fe	96-901-5395	0.6486
Iron	Fe	96-901-5322	0.6486
Diopside	Ca0.94 Fe0.036 Mg0.964 Na0.06 O6 Si2	96-900-9602	0.6483
Diopside	Al0.6 Ca Mg0.7 O6 Si1.7	96-900-5280	0.6481
Diopside	Al0.6 Ca Mg0.7 O6 Si1.7	96-900-5278	0.6478
Diopside	Al0.32 Ca0.688 Cr0.002 Fe0.258 Mg0.656 Mn0.003 Na0.187 O6 Si1.846 Ti0.04	96-900-5005	0.6478
Diopside	Al0.121 Ca0.828 Cr0.023 Fe0.072 Mg0.89 Mn0.001 Na0.102 O6 Si1.962 Ti0.002	96-900-5236	0.6477
Hedenbergite	Ca Fe O6 Si2	96-900-1813	0.6473
Diopside	Al0.19 Ca0.71 Fe0.08 Mg0.83 Na0.2 O6 Si1.98 Ti0.01	96-900-1335	0.6465
Diopside	Al0.2 Ca0.691 Cr0.001 Fe0.202 Mg0.812 Mn0.006 Na0.159 O6 Si1.918 Ti0.011	96-900-5006	0.6460
Hedenbergite	Ca Fe O6 Si2	96-900-1814	0.6458
Diopside	Al0.29 Ca0.45 Mg0.91 O6 Si1.85	96-900-5183	0.6457
Periclase	Mg O	96-900-6756	0.6450
Periclase	Mg O	96-900-0498	0.6450
Diopside	Al0.109 Ca0.737 Cr0.04 Fe0.116 Mg1.052 Mn0.003 Na0.022 O6 Si1.934 Ti0.001	96-900-6150	0.6432
Diopside	Al0.42 Ca0.646 Fe0.271 Mg0.69 Mn0.003 Na0.143 O6 Si1.783 Ti0.044	96-900-4997	0.6427

and 610 others...

Search-Match

Settings

Reference database used	COD-Inorg 2023.06.06
Automatic zeropoint adaptation	Yes
Downgrade entries with low scaling factors	Yes

Minimum figure-of-merit (FoM)	0.60
2theta window for peak corr.	0.30 deg.
Minimum rel. int. for peak corr.	0
Parameter/influence 2theta	0.50
Parameter/influence intensities	0.50
Parameter multiple/single phase(s)	0.50

Selection Criteria

Elements:

Elements that may be present or not:	O, Mg, Al, Si, K, Ca, Ti, Fe
Elements that must NOT be present:	All elements not mentioned above

Peak List

No.	*2theta [°]*	*d [Å]*	*I/I0 (peak height)*	*Counts (peak area)*	*FWHM*	*Matched*
1	15.14	5.8472	52.25	2.67	0.2301	A
2	15.22	5.8167	20.39	1.48	0.3269	B
3	15.30	5.7865	6.69	0.28	0.1894	A
4	15.38	5.7565	27.73	0.82	0.1322	
5	15.52	5.7049	40.61	0.44	0.0489	
6	15.64	5.6614	5.57	0.08	0.0649	A
7	15.72	5.6328	41.55	0.03	0.0035	
8	15.82	5.5974	38.75	0.03	0.0035	A
9	16.00	5.5348	37.37	0.03	0.0035	A
10	16.08	5.5075	33.85	0.03	0.0035	
11	16.18	5.4737	19.67	0.02	0.0035	
12	16.28	5.4403	27.18	0.02	0.0035	
13	16.42	5.3942	12.17	0.01	0.0035	A
14	16.78	5.2793	27.97	0.02	0.0035	
15	17.14	5.1692	20.31	0.02	0.0035	F
16	17.40	5.0925	32.99	0.03	0.0035	A
17	17.58	5.0408	25.80	0.02	0.0035	A
18	17.78	4.9845	55.42	0.82	0.0667	A
19	17.84	4.9679	25.16	0.52	0.0923	A
20	18.12	4.8918	38.84	0.55	0.0635	A,D
21	18.32	4.8388	32.02	0.49	0.0688	
22	18.44	4.8076	35.41	0.84	0.1068	
23	18.50	4.7921	14.58	0.24	0.0731	C
24	18.82	4.7114	17.60	0.43	0.1086	A
25	18.98	4.6720	43.14	0.82	0.0858	A
26	19.12	4.6381	74.48	2.44	0.1470	
27	19.28	4.6000	93.48	8.32	0.4000	A
28	19.48	4.5532	74.47	7.29	0.4400	B,C
29	19.88	4.4625	74.73	2.04	0.1225	A
30	20.14	4.4055	120.29	5.61	0.2096	F
31	20.36	4.3584	98.76	4.40	0.2002	A
32	20.48	4.3331	101.08	1.80	0.0800	
33	20.60	4.3081	48.93	1.09	0.0999	A
34	21.06	4.2150	85.94	7.35	0.3847	A
35	21.22	4.1836	45.61	4.02	0.3965	B,C
36	21.50	4.1298	121.93	2.17	0.0800	A
37	21.64	4.1034	92.30	2.05	0.1000	A
38	21.94	4.0479	72.58	5.24	0.3245	A,E
39	22.14	4.0118	177.16	4.98	0.1264	A
40	22.58	3.9346	50.70	1.80	0.1600	A,F
41	22.76	3.9039	64.45	2.97	0.2073	A,B
42	23.00	3.8637	77.52	4.07	0.2361	A
43	23.26	3.8211	85.63	3.05	0.1600	A,B,F
44	23.76	3.7418	281.50	22.96	0.3668	A,B
45	23.90	3.7202	242.29	8.62	0.1600	
46	24.18	3.6778	5.62	0.10	0.0800	A
47	24.30	3.6599	158.01	33.74	0.9600	A
48	24.48	3.6334	160.28	21.39	0.6000	A
49	25.52	3.4876	105.78	2.63	0.1117	A,B
50	25.72	3.4609	122.33	5.28	0.1941	A
51	25.94	3.4321	355.98	14.67	0.1853	A,B,C
52	26.04	3.4191	13.55	0.40	0.1330	A
53	26.66	3.3410	158.52	3.31	0.0938	A
54	26.88	3.3142	447.05	12.98	0.1305	
55	27.14	3.2830	119.47	9.90	0.3725	A,B
56	27.38	3.2548	307.02	23.71	0.3472	A,B,C
57	27.56	3.2339	697.07	12.40	0.0800	A,B
58	27.74	3.2133	863.19	76.80	0.4000	A,B,E
59	27.92	3.1930	927.00	123.72	0.6000	A
60	29.50	3.0255	597.29	16.93	0.1274	A,C,F
61	29.72	3.0036	303.53	37.81	0.5600	A,C
62	29.96	2.9801	684.11	36.52	0.2400	A,B,D
63	30.38	2.9398	442.39	137.76	1.4000	A
[illegible]	[illegible]2	2.9267	451.38	152.61	1.5200	A,B,C
[illegible]	[illegible]0	2.8824	980.07	43.60	0.2000	A,B

66	31.26	2.8591	279.42	37.29	0.6000	A
67	31.36	2.8502	251.12	22.34	0.4000	A,F
68	32.34	2.7660	16.32	1.45	0.4000	A,B
69	33.22	2.6947	237.08	17.79	0.3374	A,C
70	33.50	2.6728	125.72	7.39	0.2642	A
71	35.32	2.5392	432.38	69.25	0.7200	A,B,D
72	35.58	2.5212	582.32	119.17	0.9200	A,B,C
73	35.84	2.5035	945.27	67.28	0.3200	A,F
74	36.88	2.4353	87.40	2.33	0.1199	A,B,C,D
75	37.30	2.4088	127.52	7.94	0.2800	A,B,C,F
76	37.84	2.3757	60.61	4.61	0.3418	A,B
77	38.64	2.3283	96.88	2.05	0.0952	A,F
78	39.18	2.2974	116.38	3.11	0.1200	A,B,F
79	39.32	2.2896	174.35	3.82	0.0985	A,B
80	39.56	2.2762	107.47	6.84	0.2860	A,B
81	39.66	2.2707	11.60	0.21	0.0800	A
82	39.82	2.2620	37.21	0.66	0.0800	A,C
83	39.98	2.2533	79.41	1.41	0.0800	A,B,C
84	40.44	2.2287	53.99	0.79	0.0657	A
85	40.84	2.2078	97.51	7.79	0.3591	A,B,E
86	40.92	2.2037	9.36	0.30	0.1431	A,C,F
87	41.24	2.1873	81.74	3.08	0.1697	A,F
88	41.38	2.1802	46.74	1.02	0.0976	A,B
89	41.88	2.1553	112.02	5.46	0.2189	A,B,F
90	42.12	2.1436	229.85	10.76	0.2104	A,B,E
91	42.22	2.1388	90.72	2.02	0.1002	A,B
92	42.44	2.1282	164.97	10.32	0.2812	A
93	42.54	2.1234	19.46	1.65	0.3811	A
94	42.64	2.1187	148.23	3.96	0.1200	A,C
95	43.00	2.1018	872.10	26.61	0.1372	A,B,C,D
96	43.12	2.0962	460.62	6.38	0.0623	A,C
97	43.28	2.0888	123.81	5.13	0.1862	A,B
98	43.58	2.0751	63.71	1.13	0.0800	A,F
99	44.04	2.0545	64.40	0.89	0.0619	A,B,F
100	44.34	2.0413	69.27	0.83	0.0538	A,B,C
101	44.54	2.0326	73.90	2.84	0.1725	B,E
102	44.68	2.0266	21.13	1.02	0.2161	A
103	44.90	2.0171	315.14	14.51	0.2069	A
104	45.00	2.0129	91.29	2.29	0.1130	A,C
105	45.14	2.0070	119.39	2.12	0.0800	A
106	46.32	1.9586	97.90	2.61	0.1200	A,B
107	47.14	1.9264	83.23	2.25	0.1217	A,D
108	47.42	1.9157	74.84	2.33	0.1401	A,B,F
109	48.00	1.8939	63.59	1.86	0.1313	A,B,C,E,F
110	48.40	1.8791	55.48	1.74	0.1413	A,F
111	48.82	1.8639	85.63	3.05	0.1600	A,B,C,F
112	49.42	1.8427	92.13	7.91	0.3862	A,B,F
113	49.58	1.8371	77.41	4.79	0.2783	A,B,F
114	49.70	1.8330	4.67	0.20	0.1880	A
115	49.72	1.8323	3.21	0.10	0.1402	A
116	49.82	1.8288	116.06	6.99	0.2706	A,F
117	50.10	1.8193	63.50	5.57	0.3947	A,B
118	50.60	1.8025	79.29	2.13	0.1209	A,B,C
119	50.78	1.7965	159.89	6.89	0.1938	A
120	50.86	1.7939	183.09	14.66	0.3600	A,B
121	50.96	1.7906	5.62	0.10	0.0800	A,B
122	50.96	1.7906	5.62	0.10	0.0800	
123	51.08	1.7867	5.62	0.10	0.0800	A,B,C
124	51.32	1.7789	100.17	18.72	0.8400	A,F
125	51.54	1.7718	109.04	9.70	0.4000	B,C,F
126	51.70	1.7667	5.62	0.10	0.0800	F
127	52.28	1.7484	890.11	23.49	0.1187	B,C,E
128	52.46	1.7429	537.49	11.33	0.0948	B,F
129	53.22	1.7197	119.62	2.04	0.0768	B,C,D
130	53.42	1.7138	81.96	3.26	0.1788	B
131	54.20	1.6909	124.37	8.85	0.3200	B
132	54.38	1.6858	53.95	1.09	0.0905	B,C
133	54.98	1.6688	144.58	9.86	0.3067	B,F
134	55.06	1.6665	12.81	0.79	0.2759	C,F
135	55.34	1.6588	65.80	1.17	0.0800	B,C,F
136	56.38	1.6306	101.91	4.53	0.2000	B,C,F
137	56.64	1.6238	157.14	9.05	0.2588	B,C,D,F
138	57.20	1.6092	155.50	6.92	0.2000	B,C,E
139	57.40	1.6040	85.15	4.93	0.2604	B,C,F
140	58.38	1.5794	75.41	1.55	0.0926	B,C,F
141	59.04	1.5633	68.31	0.68	0.0449	B
142	59.34	1.5561	1000.00	17.32	0.0779	B,F
143	59.52	1.5519	464.08	7.40	0.0717	B
144	59.84	1.5443	124.90	2.71	0.0974	B,C,F
145	60.28	1.5341	142.15	11.59	0.3664	B,E,F
146	60.42	1.5309	48.88	1.61	0.1483	F
147	60.72	1.5240	104.18	7.80	0.3365	F

148	61.60	1.5044	121.49	6.49	0.2400	B,C
149	62.08	1.4939	114.85	8.17	0.3200	B,C,D,F
150	62.78	1.4789	182.55	24.36	0.6000	B,C,E
151	63.52	1.4634	72.37	2.33	0.1450	B,C,F
152	64.08	1.4520	117.02	10.21	0.3921	B,C
153	64.22	1.4492	11.32	0.97	0.3836	B,C
154	64.38	1.4460	109.68	1.95	0.0800	B,F
155	65.66	1.4208	130.78	4.90	0.1683	B,D,F
156	65.88	1.4166	178.05	8.49	0.2144	B,C,F
157	66.52	1.4045	151.37	4.61	0.1370	B,C,D,E,F
158	67.34	1.3894	62.39	1.02	0.0733	B,F
159	67.64	1.3840	419.86	9.11	0.0976	B
160	67.82	1.3807	181.28	5.28	0.1311	C,F
161	68.54	1.3680	103.40	1.91	0.0831	B,F
162	69.64	1.3490	76.73	4.27	0.2502	B
163	69.86	1.3453	60.27	1.51	0.1126	C,F

Integrated Profile Areas

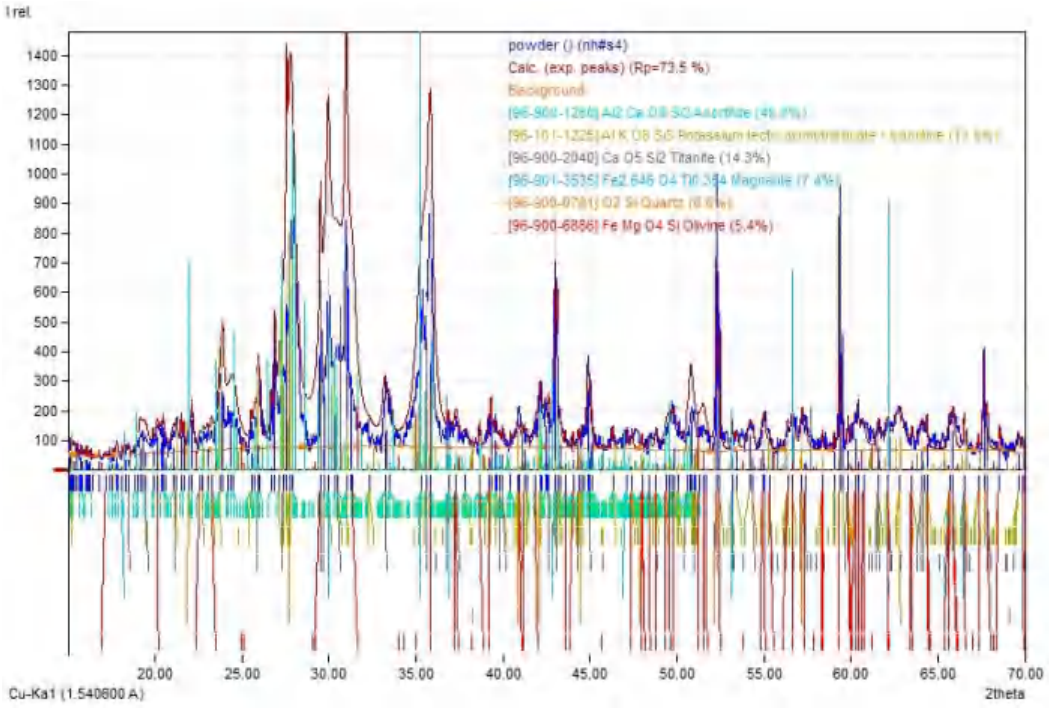
Based on calculated profile

Profile area	***Counts***	***Amount***
Overall diffraction profile	93732	100.00%
Background radiation	42424	45.26%
Diffraction peaks	51309	54.74%
Peak area belonging to selected phases	27409	29.24%
Peak area of phase A (Anorthite)	*11454*	*12.22%*
*Peak area of phase B (Potassium tecto-alumotrisilicate * Sanidine)*	*5386*	*5.75%*
Peak area of phase C (Titanite)	*3548*	*3.79%*
Peak area of phase D (Magnetite)	*3891*	*4.15%*
Peak area of phase E (Quartz)	*1432*	*1.53%*
Peak area of phase F (Olivine)	*1698*	*1.81%*
Unidentified peak area	23900	25.50%

Peak Residuals

Peak data	***Counts***	***Amount***
Overall peak intensity	1691	100.00%
Peak intensity belonging to selected phases	1609	95.17%
Unidentified peak intensity	82	4.83%

Diffraction Pattern Graphics



Match! Phase Analysis Report

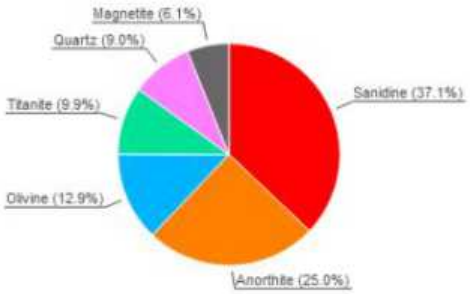
Sample: powder ()

Sample Data

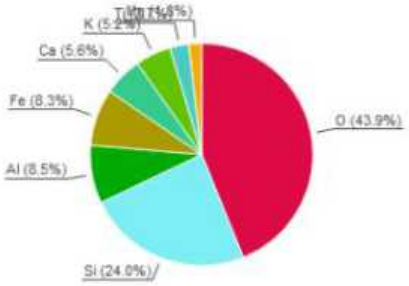
File name	nh#s5.RAW
File path	D:/DATA NUDEK/DATA XRD DAN XRF NUDIA HAJRYANA/XRD/nh#s5
Data collected	Nov 17, 2023 21:26:26
Data range	15.000° - 70.000°
Original data range	15.000° - 70.000°
Number of points	2751
Step size	0.020
Rietveld refinement converged	No
Alpha2 subtracted	No
Background subtr.	No
Data smoothed	No
Radiation	X-rays
Wavelength	1.540600 Å

Analysis Results

Phase composition (Weight %)



Elemental composition (Weight %)



Index	*Amount (%)*	*Name*	*Formula sum*
A	37.1	Sanidine	Al K O8 Si3
B	25.0	Anorthite	Al2 Ca O8 Si2
C	12.9	Olivine	Fe Mg O4 Si
D	9.9	Titanite	Ca O5 Si Ti
E	9.0	Quartz	O2 Si
F	6.1	Magnetite	Fe2.758 O4 Ti0.242
	19.2	*Unidentified peak area*	

Amounts calculated by RIR (Reference Intensity Ratio) method

Element	*Amount (weight %)*
O	*43.9%(*)*
Si	24.0%
Al	8.5%
Fe	8.3%
Ca	5.6%
K	5.2%
Ti	2.7%
Mg	1.8%
**LE (sum)*	*43.9%*

Details of identified phases

A: Sanidine (37.1 %)*

Formula sum	Al K O8 Si3
Entry number	96-901-6740
Figure-of-Merit (FoM)	0.820893*
Total number of peaks	293
Peaks in range	171
Peaks matched	158
Intensity scale factor	0.20*
Space group	C 1 2/m 1
Crystal system	monoclinic
Unit cell	a= 8.5440 Å b= 13.0100 Å c= 7.1940 Å β= 115.990 °
I/Ic	0.82
Calc. density	2.572 g/cm³

Reference	Deubener J., Sternitzke M., Mueller G., "Feldspars MAlSi3O8 (M=H,Li,Ag) synthesized by low-temperature ion exchange", American Mineralogist **76**, 1620-1627 (1991)

B: Anorthite (25.0 %)*

Formula sum	Al2 Ca O8 Si2
Entry number	96-900-0362
Figure-of-Merit (FoM)	0.742859*
Total number of peaks	499
Peaks in range	499
Peaks matched	401
Intensity scale factor	0.09*
Space group	P -1
Crystal system	triclinic (anorthic)
Unit cell	a= 8.1940 Å b= 12.8970 Å c= 14.1900 Å α= 92.980° β= 115.820 ° γ= 91.150 °
I/Ic	0.54
Calc. density	2.745 g/cm³
Reference	Foit F. F., Peacor D. R., "The anorthite crystal structure at 410 and 830 CT = 410 C", American Mineralogist **58**, 665-675 (1973)

C: Olivine (12.9 %)

Formula sum	Fe Mg O4 Si
Entry number	96-900-6893
Figure-of-Merit (FoM)	0.000000
Total number of peaks	387
Peaks in range	78
Peaks matched	70
Intensity scale factor	0.09
Space group	P b n m
Crystal system	orthorhombic
Unit cell	a= 4.8497 Å b= 10.5034 Å c= 6.1418 Å
I/Ic	1.02
Calc. density	3.657 g/cm³
Reference	Redfern S. A. T., Artioli G., Rinaldi R., Henderson C. M. B., Knight K. S., Wood B. J., "Octahedral cation ordering in olivine at high temperature. II: an in situneutron powder diffraction study on synthetic MgFeSiO4 (Fa50)Sample: T = 1250 C", Physics and Chemistry of Minerals **27**, 630-637 (2000)

D: Titanite (9.9 %)*

Formula sum	Ca O5 Si Ti
Entry number	96-900-2444
Figure-of-Merit (FoM)	0.798708*
Total number of peaks	499
Peaks in range	160
Peaks matched	146
Intensity scale factor	0.12*
Space group	P 1 21/a 1
Crystal system	monoclinic
Unit cell	a= 7.0186 Å b= 8.6983 Å c= 6.5272 Å β= 113.617 °
I/Ic	1.77
Calc. density	3.566 g/cm³
Reference	Kunz M., Arlt T., Stolz J., "In situ powder diffraction study of titanite (CaTiOSiO4) at high pressureand high temperatureSample", American Mineralogist **85**, 1465-1473 (2000)

E: Quartz (9.0 %)*

Formula sum	O2 Si
Entry number	96-900-0780
Figure-of-Merit (FoM)	0.717763*
Total number of peaks	66
Peaks in range	15
Peaks matched	14
Intensity scale factor	0.17*
Space group	P 32 2 1 S
Crystal system	trigonal (hexagonal axes)
Unit cell	a= 4.7220 Å c= 5.2670 Å
I/Ic	2.85
Calc. density	2.943 g/cm³
Reference	Levien L., Prewitt C. T., Weidner D. J., "Structure and elastic properties of quartz at pressureP = 55.8 kbar", American Mineralogist **65**, 920-930 (1980)

F: Magnetite (6.1 %)*

Formula sum	Fe2.758 O4 Ti0.242
Entry number	96-901-3534
Figure-of-Merit (FoM)	0.736410*
Total number of peaks	36
Peaks in range	11
Peaks matched	11
Intensity scale factor	0.23*
Space group	F d -3 m
Crystal system	cubic

Unit cell	a= 8.4250 Å
I/Ic	5.62
Calc. density	5.101 g/cm³
Reference	Bosi F., Halenius U., Skogby H., "Crystal chemistry of the magnetite-ulvospinel seriesNote: FeTi10Ac", American Mineralogist **94**, 181-189 (2009)

(*)2theta values have been shifted internally for the calculation of the amounts, the intensity scaling factors as well as the figure-of-merit (FoM), due to the active search-match option 'Automatic zero point adaption'.

Candidates

Name	*Formula*	*Entry No.*	*FoM*
Microcline	Al0.93 K O8 Si3.07	96-900-0190	0.8060
Orthoclase	Al K O8 Si3	96-901-7778	0.8048
Orthoclase	Al K O8 Si3	96-900-6347	0.8039
Sanidine-high	Al K O8 Si3	96-900-1104	0.8035
Sanidine	Al K O8 Si3	96-900-4245	0.8016
Orthoclase	Al K O8 Si3	96-900-6349	0.8009
Sanidine	Al K O8 Si3	96-901-7445	0.7996
Sanidine	Al K O8 Si3	96-900-8219	0.7989
Sanidine	Al K O8 Si3	96-901-7447	0.7987
Sanidine	Al K O8 Si3	96-901-7444	0.7984
Sanidine	Al K O8 Si3	96-901-7446	0.7984
Sanidine	Al K O8 Si3	96-900-0304	0.7976
Sanidine	Al K O8 Si3	96-900-4248	0.7964
Sanidine	Al K O8 Si3	96-900-8220	0.7963
Sanidine	Al K O8 Si3	96-900-4246	0.7958
Sanidine	Al K O8 Si3	96-901-7781	0.7956
K (Al Si3 O8)	Al K O8 Si3	96-152-1703	0.7955
Sanidine	Al K O8 Si3	96-900-4247	0.7952
Sanidine	Al K O8 Si3	96-901-6740	0.7951
Sanidine	Al K O8 Si3	96-900-9663	0.7948
Sanidine	Al K O8 Si3	96-901-7450	0.7946
Sanidine	Al K O8 Si3	96-901-7451	0.7946
Sanidine	Al K O8 Si3	96-901-7780	0.7943
Sanidine	Al K O8 Si3	96-901-7449	0.7942
Sanidine	Al K O8 Si3	96-901-7448	0.7939
Sanidine	Al K O8 Si3	96-901-7455	0.7916
Sanidine	Al K O8 Si3	96-901-7453	0.7915
Sanidine	Al K O8 Si3	96-901-7454	0.7915
Sanidine	Al K O8 Si3	96-901-7452	0.7914
K0.95 (Al Si3 O8)	Al K0.95 O8 Si3	96-152-1704	0.7892
Potassium tecto-alumotrisilicate * (Sanidine)	Al K O8 Si3	96-101-1225	0.7860
Svyatoslavite	Al Ca0.484 O4 Si	96-901-6704	0.7826
Orthoclase	Al K O8 Si3	96-900-6348	0.7822
	Ca2 O5 Si	96-901-1377	0.7818
Orthoclase	Al0.98 K O8 Si3.02	96-901-7289	0.7816
Orthoclase	Al K O8 Si3	96-900-0163	0.7805
Potassium tecto-alumotrisilicate (Sanidine)	Al K O8 Si3	96-101-1188	0.7788
	Fe2 O3	96-152-8613	0.7787
Orthoclase	Al K O8 Si3	96-901-7443	0.7774
K (Al Si3 O8)	Al K O8 Si3	96-231-0532	0.7744
Orthoclase	Al K O8 Si3	96-901-7779	0.7721
Orthoclase	Al1.02 K O8 Si2.98	96-900-0305	0.7699
Al2 (Si O4) O	Al2 O5 Si	96-231-0329	0.7698
K (Al Si3 O8)	Al K O8 Si3	96-152-7005	0.7678
Microcline	Al K O8 Si3	96-900-0702	0.7666
Orthoclase	Al K O8 Si3	96-900-0162	0.7653
Orthoclase	Al K O8 Si3	96-900-0312	0.7647
Potassium tecto-alumotrisilicate (Orthoclase)	Al K O8 Si3	96-101-1206	0.7627
Ferrosilite	Ca0.3 Fe1.7 O6 Si2	96-900-0450	0.7563
Sanidine	Al K O8 Si3	96-901-7799	0.7561
Sanidine	Al K O8 Si3	96-901-7291	0.7556
Hedenbergite	Ca Fe O6 Si2	96-900-1813	0.7516

and 747 others...

Search-Match

Settings

Reference database used	COD-Inorg 2023.06.06
Automatic zeropoint adaptation	Yes
Downgrade entries with low scaling factors	Yes
Minimum figure-of-merit (FoM)	0.60
2theta window for peak corr.	0.30 deg.
Minimum rel. int. for peak corr.	0
Parameter/influence 2theta	0.50
Parameter/influence intensities	0.50
Parameter multiple/single phase(s)	0.50

Selection Criteria

Elements:

Elements that may be present or not:	O, Al, Si, K, Ca, Ti, Fe
Elements that must NOT be present:	All elements not mentioned above

Criteria for entries added by user

Reference:

Entry number:

96-101-0498;96-154-4624;96-154-4625;96-154-4890;96-154-4891;96-900-0393;96-900-0394;96-900-0395;96-900-0397;96-900-0867;96-900-0868;96-900-1066;96-900-1067;96-900-1068;96-900-1069;96-900-1070;96-900-1097;96-900-1098;96-900-1099;96-900-1100;96-900-1101;96-900-1102;96-900-1103;96-900-1194;96-900-1195;96-900-1196;96-900-1197;96-900-1198;96-900-1199;96-900-1200;96-900-1201;96-900-1202;96-900-1203;96-900-1204;96-900-1205;96-900-1206;96-900-2512;96-900-2513;96-900-2514;96-900-2515;96-900-2516;96-900-2586;96-900-2587;96-900-2588;96-900-2589;96-900-2590;96-900-2591;96-900-2592;96-900-2593;96-900-2594;96-900-2595;96-900-2596;96-900-2597;96-900-2598;96-900-2599;96-900-2600;96-900-2601;96-900-2602;96-900-2603;96-900-2604;96-900-2605;96-900-2606;96-900-2607;96-900-2608;96-900-2609;96-900-2610;96-900-2611;96-900-2612;96-900-2613;96-900-2614;96-900-2615;96-900-2616;96-900-2617;96-900-2618;96-900-2619;96-900-2620;96-900-2621;96-900-2622;96-900-2623;96-900-2624;96-900-2625;96-900-2626;96-900-2627;96-900-2628;96-900-2629;96-900-2630;96-900-2631;96-900-2632;96-900-2633;96-900-2634;96-900-5857;96-900-5909;96-900-5910;96-900-5911;96-900-5912;96-900-5913;96-900-5914;96-900-5915;96-900-5916;96-900-5917;96-900-5918;96-900-5919;96-900-5920;96-900-5921;96-900-6391;96-900-6392;96-900-6393;96-900-6394;96-900-6395;96-900-6396;96-900-6397;96-900-6398;96-900-6399;96-900-6400;96-900-6401;96-900-6402;96-900-6403;96-900-6404;96-900-6876;96-900-6877;96-900-6878;96-900-6879;96-900-6880;96-900-6881;96-900-6882;96-900-6883;96-900-6884;96-900-6885;96-900-6886;96-900-6887;96-900-6888;96-900-6889;96-900-6890;96-900-6891;96-900-6892;96-900-6893;96-901-2682;96-901-4596;96-901-6130

Peak List

No.	2theta [°]	d [Å]	I/I0 (peak height)	Counts (peak area)	FWHM	Matched
1	15.08	5.8704	40.22	2.37	0.2270	A,B
2	15.14	5.8472	76.11	0.79	0.0400	
3	15.18	5.8319	34.01	0.28	0.0317	
4	15.22	5.8167	102.72	0.74	0.0279	
5	15.30	5.7865	74.57	1.42	0.0736	B
6	15.48	5.7196	69.96	0.58	0.0321	
7	15.56	5.6903	40.17	0.72	0.0691	B
8	16.22	5.4603	40.21	0.17	0.0158	B
9	16.56	5.3489	40.16	0.18	0.0176	
10	16.70	5.3044	105.02	0.48	0.0176	
11	16.94	5.2298	92.13	0.42	0.0176	C,D
12	17.42	5.0867	60.20	0.17	0.0108	B
13	18.14	4.8864	30.04	8.46	1.0850	B,D,F
14	18.44	4.8076	52.51	14.79	1.0850	
15	18.58	4.7717	89.95	0.43	0.0182	B,D
16	19.08	4.6477	59.03	0.28	0.0182	B
17	19.28	4.6000	125.07	3.47	0.1069	B
18	19.34	4.5858	95.88	1.00	0.0400	A
19	19.54	4.5394	74.53	1.51	0.0783	
20	19.76	4.4893	75.22	0.70	0.0360	B
21	20.22	4.3882	124.28	2.56	0.0792	B,C
22	20.40	4.3499	79.78	2.97	0.1432	B,D
23	20.80	4.2671	61.72	0.64	0.0400	B
24	20.94	4.2389	117.55	3.59	0.1178	B
25	21.00	4.2269	79.72	7.86	0.3797	
26	21.08	4.2111	114.19	3.65	0.1232	A
27	21.14	4.1993	76.88	2.30	0.1152	
28	21.26	4.1758	160.03	1.66	0.0400	
29	21.30	4.1681	29.07	1.24	0.1644	B
30	21.56	4.1184	66.40	0.86	0.0499	B
31	21.66	4.0996	53.45	0.87	0.0626	E
32	21.92	4.0516	65.57	1.20	0.0706	B
33	22.00	4.0370	81.59	2.58	0.1219	B
34	22.16	4.0082	100.62	4.00	0.1530	
35	22.26	3.9905	110.36	1.15	0.0400	B,C
36	22.42	3.9623	78.33	1.32	0.0651	B
37	22.56	3.9381	60.54	2.30	0.1465	A
38	22.68	3.9175	59.25	1.48	0.0960	B
39	22.76	3.9039	73.24	1.82	0.0960	
40	22.86	3.8871	108.61	0.50	0.0176	B
41	22.94	3.8737	76.68	1.38	0.0696	B
42	23.28	3.8179	124.93	7.15	0.2204	A,B
43	23.38	3.8018	18.76	0.80	0.1647	B,C
44	23.44	3.7922	230.50	38.70	0.6467	
45	23.50	3.7826	23.54	0.82	0.1341	B
46	23.58	3.7700	371.00	30.82	0.3200	A,B
47	23.76	3.7418	309.64	41.80	0.5200	

48	23.80	3.7356	261.89	29.92	0.4400	
49	23.90	3.7202	231.14	14.40	0.2400	
50	24.06	3.6958	159.49	14.91	0.3600	B
51	24.42	3.6422	143.48	34.14	0.9164	B
52	24.50	3.6304	186.25	11.61	0.2400	B
53	24.64	3.6101	2.30	0.10	0.1673	A,B,D
54	24.92	3.5702	136.42	6.90	0.1949	B,C
55	25.00	3.5590	111.55	19.69	0.6800	A,B,C
56	25.48	3.4930	133.72	9.54	0.2748	B,D
57	25.56	3.4822	240.20	4.99	0.0800	
58	25.62	3.4742	47.76	4.75	0.3829	B,D
59	25.70	3.4636	253.02	23.65	0.3600	A,B
60	25.80	3.4504	200.95	22.96	0.4400	B,D
61	25.86	3.4425	204.18	16.96	0.3200	B
62	26.06	3.4166	86.95	2.06	0.0913	B,D
63	26.36	3.3783	55.91	3.48	0.2397	B
64	26.50	3.3608	127.03	6.28	0.1903	
65	26.58	3.3509	63.65	4.42	0.2673	
66	26.76	3.3287	292.68	42.55	0.5600	
67	26.96	3.3045	0.57	0.10	0.6800	A,B
68	27.30	3.2641	672.69	153.70	0.8800	A,B
69	27.50	3.2408	210.36	27.28	0.4994	A
70	27.66	3.2224	1000.00	186.94	0.7200	B,D,E
71	27.78	3.2088	841.47	122.35	0.5600	B,D
72	29.68	3.0076	381.25	19.80	0.2000	B,D
73	29.80	2.9957	434.14	36.95	0.3278	A,B
74	29.88	2.9879	8.62	0.34	0.1503	B,D
75	29.90	2.9859	367.88	13.60	0.1424	B,F
76	30.12	2.9646	413.51	39.37	0.3667	B
77	30.34	2.9436	380.60	150.20	1.5200	A,B
78	30.76	2.9044	366.67	95.20	1.0000	A,B
79	32.32	2.7677	146.44	8.66	0.2278	A,B
80	33.20	2.6963	91.43	1.45	0.0611	B,D
81	33.40	2.6806	79.18	4.43	0.2154	B,D
82	34.54	2.5947	243.45	68.18	1.0786	A,B,D
83	34.82	2.5745	395.61	45.20	0.4400	A,B,C,D
84	35.34	2.5378	355.79	84.40	0.9136	A,B,F
85	35.58	2.5212	307.22	14.50	0.1818	B
86	35.64	2.5171	20.54	1.67	0.3129	B,C
87	35.76	2.5089	199.45	9.25	0.1786	A,B
88	36.20	2.4794	168.65	13.29	0.3034	A,B,D
89	37.14	2.4188	153.73	24.34	0.6097	A,B,C,F
90	37.42	2.4013	115.52	4.80	0.1600	B
91	37.76	2.3805	76.71	28.04	1.4079	A,B,D
92	38.30	2.3482	98.46	35.99	1.4079	B,C,D,E
93	39.70	2.2685	133.74	5.13	0.1476	A,B,D
94	40.88	2.2057	101.35	10.53	0.4002	A,B,C,E
95	41.60	2.1692	171.13	33.53	0.7547	A,B,D
96	41.82	2.1583	136.19	10.44	0.2953	A,B,C,D,E
97	42.06	2.1465	70.55	7.46	0.4075	B,D
98	42.52	2.1244	149.23	9.30	0.2400	A,B
99	42.78	2.1121	96.11	12.23	0.4900	A,B,D
100	42.90	2.1064	27.14	6.50	0.9221	A,B,F
101	43.12	2.0962	112.16	9.03	0.3103	B,C,D
102	43.82	2.0643	76.37	17.39	0.8771	A,B,C,D
103	44.28	2.0439	111.44	2.07	0.0714	A,B,D,E
104	44.72	2.0248	92.30	13.26	0.5531	B,D
105	45.22	2.0036	108.39	12.52	0.4450	A,B,C,D
106	45.92	1.9747	64.86	14.44	0.8572	A,B,D
107	46.36	1.9570	112.82	4.45	0.1518	A,B
108	47.08	1.9287	101.67	2.39	0.0905	A,B,C,D,F
109	47.32	1.9195	135.42	2.44	0.0693	A,B,D
110	47.54	1.9111	78.39	8.41	0.4134	A,B,C
111	47.80	1.9013	70.35	0.73	0.0400	B,C,D,E
112	48.56	1.8733	48.91	0.51	0.0400	A,B,C,D
113	48.76	1.8661	75.44	11.40	0.5818	B
114	49.14	1.8526	67.01	12.63	0.7257	A,B,C,D
115	49.56	1.8378	122.22	12.69	0.4000	A,B,C,D
116	50.00	1.8227	139.89	1.45	0.0400	A,B,D
117	50.58	1.8031	183.23	45.05	0.9468	A,B,D
118	50.64	1.8011	216.45	13.49	0.2400	A,B,D
119	50.82	1.7952	293.59	17.37	0.2278	A,B
120	51.04	1.7880	203.32	8.45	0.1600	A,B,C
121	51.40	1.7763	0.60	0.10	0.6400	C
122	51.70	1.7667	92.89	2.89	0.1200	A,D,E
123	52.42	1.7441	111.37	20.41	0.7058	A,C
124	52.56	1.7398	2.50	0.13	0.2052	
125	52.68	1.7361	68.56	6.14	0.3449	A,D
126	53.34	1.7162	81.61	4.29	0.2025	A,C,D,F
127	53.98	1.6973	78.06	2.80	0.1384	A,D
128	54.48	1.6829	102.21	1.24	0.0468	C,D

129	54.84	1.6727	110.65	1.00	0.0348	A,C,D
130	55.04	1.6671	47.84	0.43	0.0348	A
131	55.22	1.6621	57.32	0.60	0.0400	D
132	55.32	1.6593	38.66	1.59	0.1582	C
133	55.66	1.6500	46.53	2.31	0.1912	A
134	55.86	1.6446	50.39	4.27	0.3264	A,C
135	55.98	1.6413	85.12	4.23	0.1913	A,D
136	56.38	1.6306	92.74	12.52	0.5199	A,C
137	56.52	1.6269	139.71	5.17	0.1426	A,D
138	56.70	1.6222	79.38	4.42	0.2143	A,F
139	56.86	1.6180	1.24	0.21	0.6400	A,E
140	57.12	1.6112	100.96	6.50	0.2481	C,D,E
141	57.38	1.6046	107.22	4.69	0.1685	A,D
142	57.52	1.6010	50.76	3.33	0.2530	A,C,D
143	57.80	1.5939	97.40	3.80	0.1501	A,C,D
144	58.26	1.5824	63.13	1.08	0.0660	C,D
145	58.42	1.5784	67.05	2.21	0.1269	A,D
146	58.62	1.5735	45.65	2.50	0.2113	A,D
147	58.82	1.5687	42.13	17.74	1.6214	A
148	59.10	1.5619	81.90	1.74	0.0819	C,D
149	59.34	1.5561	52.31	0.54	0.0400	A,D
150	59.58	1.5505	54.91	1.20	0.0842	D
151	59.74	1.5467	81.82	3.41	0.1605	C,E
152	60.02	1.5401	140.17	9.03	0.2481	C
153	60.12	1.5378	58.55	44.16	2.9049	C
154	60.30	1.5337	72.28	3.80	0.2025	C,D
155	60.42	1.5309	110.44	45.88	1.6000	A,C,D
156	60.72	1.5240	136.63	12.77	0.3600	A,C,D
157	61.44	1.5079	118.76	6.17	0.2000	A,D
158	61.54	1.5057	104.86	18.51	0.6800	A,D
159	61.92	1.4974	197.29	4.75	0.0927	A,C,D
160	62.30	1.4891	113.99	50.69	1.7127	D,F
161	62.60	1.4827	44.61	4.76	0.4111	D,E
162	62.76	1.4793	133.45	22.17	0.6400	A,C,D
163	63.30	1.4680	92.44	5.23	0.2179	C,D
164	63.46	1.4647	108.59	3.73	0.1323	A,D
165	63.84	1.4569	107.77	4.85	0.1734	A
166	63.92	1.4552	107.01	20.01	0.7200	A,D
167	64.16	1.4504	94.18	12.72	0.5200	A,C,D
168	64.70	1.4396	102.04	2.63	0.0993	A
169	65.12	1.4313	95.05	0.99	0.0400	A,C,D
170	65.62	1.4216	164.07	14.28	0.3352	A,C,D,F
171	65.98	1.4147	139.04	10.16	0.2814	A,C,D
172	66.28	1.4090	73.97	33.48	1.7433	A,C,D,E
173	66.34	1.4079	111.92	2.38	0.0820	A
174	66.52	1.4045	129.18	15.85	0.4724	A,C,D,F
175	66.92	1.3971	75.06	0.68	0.0348	A,C,D
176	67.42	1.3880	64.00	4.57	0.2752	A,D
177	67.72	1.3825	92.36	1.77	0.0736	A,C,D
178	67.98	1.3779	83.11	2.89	0.1338	A,C,D
179	68.38	1.3708	57.26	3.41	0.2297	A,D
180	68.96	1.3607	24.47	6.05	0.9525	A,D,E
181	69.26	1.3555	38.51	9.52	0.9525	D
182	69.44	1.3524	60.58	0.88	0.0558	C,D
183	69.70	1.3480	26.60	0.74	0.1069	A,D
184	69.96	1.3436	43.94	1.22	0.1069	C,D

Integrated Profile Areas

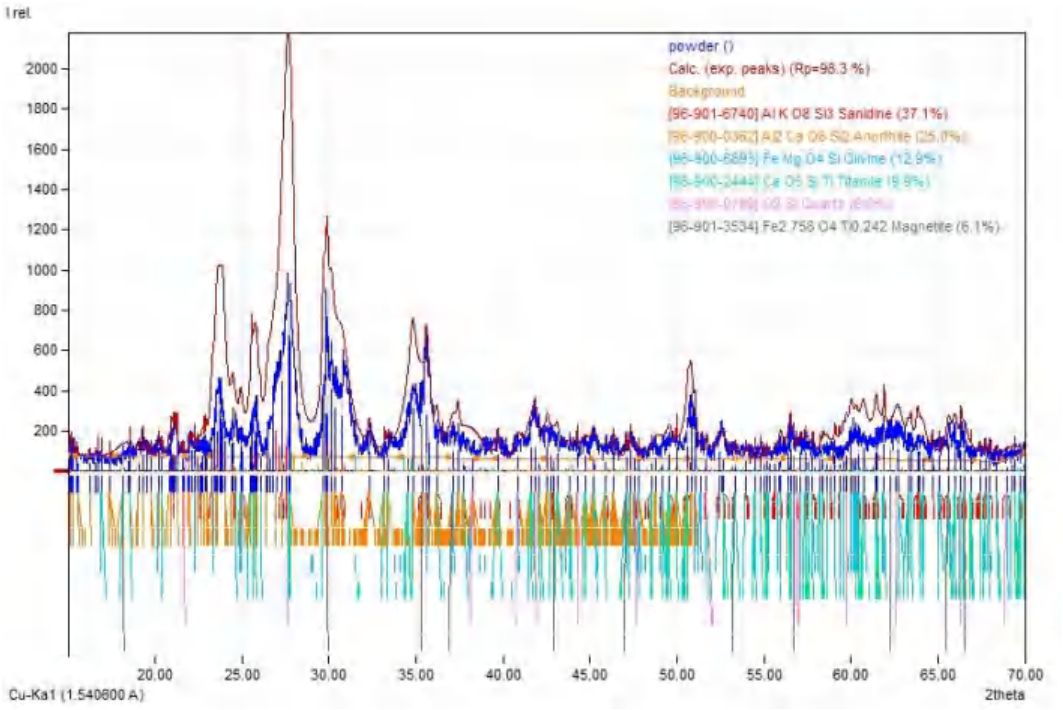
Based on calculated profile

Profile area	***Counts***	***Amount***
Overall diffraction profile	102396	100.00%
Background radiation	39738	38.81%
Diffraction peaks	62658	61.19%
Peak area belonging to selected phases	43030	42.02%
Peak area of phase A (Sanidine)	*16847*	*16.45%*
Peak area of phase B (Anorthite)	*7875*	*7.69%*
Peak area of phase C (Olivine)	*5594*	*5.46%*
Peak area of phase D (Titanite)	*5234*	*5.11%*
Peak area of phase E (Quartz)	*2682*	*2.62%*
Peak area of phase F (Magnetite)	*4798*	*4.69%*
Unidentified peak area	19628	19.17%

Peak Residuals

Peak data	***Counts***	***Amount***
Overall peak intensity	2478	100.00%
Peak intensity belonging to selected phases	682	27.54%
Unidentified peak intensity	1796	72.46%

Diffraction Pattern Graphics



Match! Phase Analysis Report

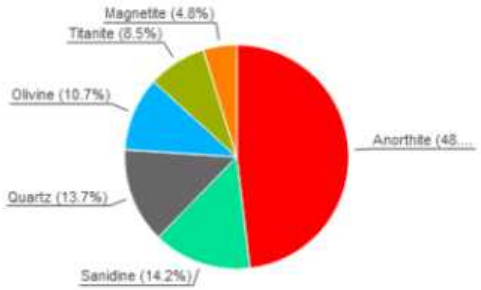
Sample: powder ()

Sample Data

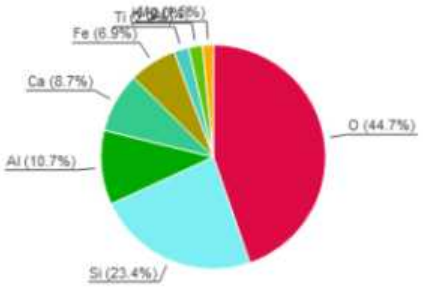
File name	nh#s6.RAW
File path	D:/DATA NUDEK/DATA XRD DAN XRF NUDIA HAJRYANA/XRD/nh#s6
Data collected	Nov 17, 2023 21:26:26
Data range	15.000° - 70.000°
Original data range	15.000° - 70.000°
Number of points	2751
Step size	0.020
Rietveld refinement converged	No
Alpha2 subtracted	No
Background subtr.	No
Data smoothed	No
Radiation	X-rays
Wavelength	1.540600 Å

Analysis Results

Phase composition (Weight %)



Elemental composition (Weight %)



Index	*Amount (%)*	*Name*	*Formula sum*
A	48.1	Anorthite	Al2 Ca O8 Si2
B	14.2	Sanidine	Al K O8 Si3
C	13.7	Quartz	O2 Si
D	10.7	Olivine	Fe Mg O4 Si
E	8.5	Titanite	Ca O5 Si Ti
F	4.8	Magnetite	Fe2.902 O4 Ti0.098
	27.3	*Unidentified peak area*	

Amounts calculated by RIR (Reference Intensity Ratio) method

Element	*Amount (weight %)*
O	*44.7%(*)*
Si	23.4%
Al	10.7%
Ca	8.7%
Fe	6.9%
Ti	2.2%
K	2.0%
Mg	1.5%
**LE (sum)*	*44.7%*

Details of identified phases

A: Anorthite (48.1 %)*

Formula sum	Al2 Ca O8 Si2
Entry number	96-900-0362
Figure-of-Merit (FoM)	0.890314*
Total number of peaks	499
Peaks in range	499
Peaks matched	472
Intensity scale factor	0.35*
Space group	P -1
Crystal system	triclinic (anorthic)
Unit cell	a= 8.1940 Å b= 12.8970 Å c= 14.1900 Å α= 92.980° β= 115.820 ° γ= 91.150 °
I/Ic	0.54
Calc. density	2.745 g/cm³

Reference	Foit F. F., Peacor D. R., "The anorthite crystal structure at 410 and 830 CT = 410 C", American Mineralogist **58**, 665-675 (1973)

B: Sanidine (14.2 %)*

Formula sum	Al K O8 Si3
Entry number	96-900-8219
Figure-of-Merit (FoM)	0.820549*
Total number of peaks	293
Peaks in range	171
Peaks matched	163
Intensity scale factor	0.14*
Space group	C 1 2/m 1
Crystal system	monoclinic
Unit cell	a= 8.5490 Å b= 13.0280 Å c= 7.1880 Å β= 116.020 °
I/Ic	0.73
Calc. density	2.570 g/cm³
Reference	Weitz G., "Die struktur des saninins bei verschiedenen ordnungsgradenNote: before heating", Zeitschrift fur Kristallographie **136**, 418-426 (1972)

C: Quartz (13.7 %)*

Formula sum	O2 Si
Entry number	96-901-2603
Figure-of-Merit (FoM)	0.787374*
Total number of peaks	64
Peaks in range	15
Peaks matched	15
Intensity scale factor	0.52*
Space group	P 31 2 1
Crystal system	trigonal (hexagonal axes)
Unit cell	a= 4.7050 Å c= 5.2500 Å
I/Ic	2.80
Calc. density	2.974 g/cm³
Reference	Hazen R. M., Finger L. W., Hemley R. J., Mao H. K., "High-pressure crystal chemistry and amorphization of alpha-quartzSample: P = 5.1 GPa", Solid State Communications **72**, 507-511 (1989)

D: Olivine (10.7 %)*

Formula sum	Fe Mg O4 Si
Entry number	96-900-6878
Figure-of-Merit (FoM)	0.746075*
Total number of peaks	378
Peaks in range	75
Peaks matched	74
Intensity scale factor	0.17*
Space group	P b n m
Crystal system	orthorhombic
Unit cell	a= 4.8106 Å b= 10.3863 Å c= 6.0682 Å
I/Ic	1.19
Calc. density	3.773 g/cm³
Reference	Redfern S. A. T., Artioli G., Rinaldi R., Henderson C. M. B., Knight K. S., Wood B. J., "Octahedral cation ordering in olivine at high temperature. II: an in situneutron powder diffraction study on synthetic MgFeSiO4 (Fa50)Sample: T = 300 C", Physics and Chemistry of Minerals **27**, 630-637 (2000)

E: Titanite (8.5 %)*

Formula sum	Ca O5 Si Ti
Entry number	96-900-2436
Figure-of-Merit (FoM)	0.786735*
Total number of peaks	499
Peaks in range	163
Peaks matched	158
Intensity scale factor	0.17*
Space group	P 1 21/a 1
Crystal system	monoclinic
Unit cell	a= 7.0572 Å b= 8.7108 Å c= 6.5534 Å β= 113.786 °
I/Ic	1.47
Calc. density	3.532 g/cm³
Reference	Kunz M., Arlt T., Stolz J., "In situ powder diffraction study of titanite (CaTiOSiO4) at high pressureand high temperatureSample", American Mineralogist **85**, 1465-1473 (2000)

F: Magnetite (4.8 %)*

Formula sum	Fe2.902 O4 Ti0.098
Entry number	96-901-3532
Figure-of-Merit (FoM)	0.792903*
Total number of peaks	36
Peaks in range	11
Peaks matched	11
Intensity scale factor	0.38*
Space group	F d -3 m

Crystal system	cubic
Unit cell	a= 8.4095 Å
I/Ic	5.82
Calc. density	5.154 g/cm³
Reference	Bosi F., Halenius U., Skogby H., "Crystal chemistry of the magnetite-ulvospinel seriesNote: FeTi50B", American Mineralogist **94**, 181-189 (2009)

(*)2theta values have been shifted internally for the calculation of the amounts, the intensity scaling factors as well as the figure-of-merit (FoM), due to the active search-match option 'Automatic zero point adaption'.

Candidates

Name	*Formula*	*Entry No.*	*FoM*
	Fe2 O3	96-152-8613	0.8248
Clinoenstatite	Ca0.15 Mg1.85 O6 Si2	96-900-2711	0.7965
Hedenbergite	Ca Fe O6 Si2	96-900-1816	0.7947
Pyroxene-ideal	Mg O3 Si	96-900-3429	0.7944
Hedenbergite	Ca Fe O6 Si2	96-900-1817	0.7912
Pyroxferroite	Ca0.94 Fe6.06 O21 Si7	96-901-2890	0.7896
Ferrosilite	Ca0.3 Fe1.7 O6 Si2	96-900-0450	0.7894
Ca7.65(Al2.2Mg0.84Fe0.96)(Al6.53Fe1.43)Si12O56 (Fe-pumpellyite)	Al8.73 Ca7.65 Fe2.39 Mg0.83 O56 Si12.37	96-154-4726	0.7889
Pigeonite	Ca0.15 Mg1.85 O6 Si2	96-900-3111	0.7879
Diopside	Ca Mg O6 Si2	96-100-0011	0.7874
Maghemite	Fe1.966 O2.962	96-901-7521	0.7854
Pigeonite	Ca0.15 Mg1.85 O6 Si2	96-900-3110	0.7828
Augite	Ca Fe0.25 Mg0.74 O6 Si2	96-900-9665	0.7821
Diopside	Al0.19 Ca0.88 K0.12 Mg0.83 O6 Si1.98	96-900-4027	0.7820
Enstatite	Ca0.052 Mg1.948 O6 Si2	96-900-1179	0.7812
Clinoenstatite	Ca0.15 Mg1.85 O6 Si2	96-900-2717	0.7811
Diopside	Al0.19 Ca0.88 K0.12 Mg0.83 O6 Si1.98	96-900-4026	0.7799
Hedenbergite	Ca Fe O6 Si2	96-900-1814	0.7773
Ferrosilite	Ca0.032 Fe0.65 Mg1.318 O6 Si2	96-900-0359	0.7771
Diopside	Al0.078 Ca Fe0.052 Mg0.948 O6 Si1.922	96-900-4317	0.7768
(Ca.79 Fe.21) Si O3 (Ferrobustamite)	Ca0.79 Fe0.21 O3 Si	96-810-3624	0.7767
Diopside	Ca Mg O6 Si2	96-900-0801	0.7767
Pigeonite	Ca0.15 Mg1.85 O6 Si2	96-900-5630	0.7763
Diopside	Al0.078 Ca Fe0.002 Mg0.998 O6 Si1.922	96-900-4321	0.7762
Diopside	Al0.078 Ca Fe0.018 Mg0.982 O6 Si1.922	96-900-4316	0.7761
Ferrosilite	Ca0.4 Fe1.6 O6 Si2	96-900-0449	0.7760
Diopside	Al0.068 Ca Fe0.008 Mg0.992 O6 Si1.932	96-900-4312	0.7760
Diopside	Al0.078 Ca Fe0.03 Mg0.97 O6 Si1.922	96-900-4315	0.7757
Diopside	Al0.078 Ca Fe0.01 Mg0.99 O6 Si1.922	96-900-4319	0.7756
Enstatite	Ca0.043 Fe0.807 Mg1.15 O6 Si2	96-900-1700	0.7755
Enstatite	Ca0.07 Mg1.93 O6 Si2	96-900-5590	0.7755
(Li0.55 Na0.45) Mn4 (Si5 O14 (O H))	O15 Si5	96-210-6716	0.7754
Magnetite	Fe3 O4	96-901-6804	0.7751
(Fe0.1 Mg0.9) (Ca0.1 Fe0.5 Mg0.4) (Si2 O6)	Ca0.1 Fe0.6 Mg1.3 O6 Si2	96-152-9618	0.7747
Diopside	Al0.078 Ca Fe0.024 Mg0.976 O6 Si1.922	96-900-4318	0.7747
Ferrosilite	Ca0.5 Fe1.5 O6 Si2	96-901-6926	0.7742
Hedenbergite	Ca0.5 Fe1.5 O6 Si2	96-901-6927	0.7742
Diopside	Al0.078 Ca Fe0.008 Mg0.992 O6 Si1.922	96-900-4320	0.7740
Diopside	Ca Mg O6 Si2	96-100-0012	0.7738
Diopside	Al0.078 Ca Fe0.008 Mg0.992 O6 Si1.922	96-900-4313	0.7738
Diopside	Al0.078 Ca Fe0.016 Mg0.984 O6 Si1.922	96-900-4314	0.7738
Magnetite	Fe3 O4	96-900-6248	0.7735
Magnesioferrite	Fe2 Mg O4	96-900-3775	0.7726
Magnesioferrite	Fe2 Mg O4	96-900-3781	0.7723
Enstatite	Al0.14 Ca0.012 Fe0.24 Mg1.66 O6 Si1.94	96-900-6440	0.7722
Maghemite	Fe2 O3	96-900-6317	0.7721
(Fe1.568 Mg.027) (Si O4)	Fe1.568 Mg0.027 O4 Si	96-153-9366	0.7717
Diopside	Ca Mg O6 Si2	96-100-0008	0.7716
Pigeonite	Al0.02 Ca0.121 Fe1.008 Mg0.871 O6 Si1.98	96-901-3707	0.7713
Laihunite	Fe4.74 O12 Si3	96-900-1036	0.7711
Diopside	Al0.078 Ca Fe0.038 Mg0.962 O6 Si1.922	96-900-4322	0.7709
Diopside	Ca Mg O6 Si2	96-100-0009	0.7708
and 1584 others...			

Search-Match

Settings

Reference database used	COD-Inorg 2023.06.06
Automatic zeropoint adaptation	Yes
Downgrade entries with low scaling factors	Yes
Minimum figure-of-merit (FoM)	0.60
2theta window for peak corr.	0.30 deg.
Minimum rel. int. for peak corr.	0
Parameter/influence 2theta	0.50
Parameter/influence intensities	0.50
Parameter multiple/single phase(s)	0.50

Selection Criteria

Elements:

Elements that may be present or not:	O, Mg, Al, Si, K, Ca, Ti, Fe, Y
Elements that must NOT be present:	All elements not mentioned above

Criteria for entries added by user

Reference:

Entry number:

96-101-1188;96-101-1225;96-153-5049;96-153-5052;96-900-0304;96-900-0683;96-900-1104;96-900-4245;96-900-4246;96-900-4247;96-900-4248;96-900-5077;96-900-5242;96-900-5265;96-900-5266;96-900-8219;96-900-8220;96-900-9663;96-901-0842;96-901-6740;96-901-6743;96-901-7214;96-901-7222;96-901-7223;96-901-7291;96-901-7397;96-901-7398;96-901-7399;96-901-7420;96-901-7444;96-901-7445;96-901-7446;96-901-7447;96-901-7448;96-901-7449;96-901-7450;96-901-7451;96-901-7452;96-901-7453;96-901-7454;96-901-7455;96-901-7780;96-901-7781;96-901-7799;96-901-7815;96-901-7816;96-901-7817;96-901-7832;96-101-1033;96-101-1085;96-153-9748;96-722-8111;96-900-0927;96-900-0928;96-900-0929;96-900-0930;96-900-0931;96-900-0932;96-900-0933;96-900-0934;96-900-0935;96-900-2317;96-900-2318;96-900-2319;96-900-2320;96-900-2321;96-900-2322;96-900-2323;96-900-2324;96-900-2325;96-900-2326;96-900-2327;96-900-2328;96-900-2329;96-900-2330;96-900-2331;96-900-2332;96-900-2333;96-900-2674;96-900-2675;96-900-4088;96-900-4156;96-900-4157;96-900-5813;96-900-5814;96-900-5815;96-900-5816;96-900-5817;96-900-5837;96-900-5838;96-900-5839;96-900-5840;96-900-5841;96-900-5842;96-900-5843;96-900-6185;96-900-6190;96-900-6195;96-900-6200;96-900-6243;96-900-6248;96-900-6253;96-900-6266;96-900-6921;96-900-6922;96-900-6923;96-900-7645;96-900-7707;96-900-7708;96-900-9769;96-900-9770;96-901-0940;96-901-0941;96-901-0942;96-901-3530;96-901-3531;96-901-3532;96-901-3533;96-901-3534;96-901-3535;96-901-3536;96-901-6802;96-901-6803;96-901-6804;96-901-6805;96-901-6806;96-901-6807;96-901-6808;96-901-6809;96-901-6810;96-901-6811;96-901-6812;96-901-6813;96-901-6814;96-901-6815;96-901-6816;96-901-6817;96-901-6818;96-901-7087;96-901-7088;96-101-0498;96-154-4624;96-154-4625;96-154-4890;96-154-4891;96-900-0393;96-900-0394;96-900-0395;96-900-0397;96-900-0867;96-900-0868;96-900-1066;96-900-1067;96-900-1068;96-900-1069;96-900-1070;96-900-1097;96-900-1098;96-900-1099;96-900-1100;96-900-1101;96-900-1102;96-900-1103;96-900-1194;96-900-1195;96-900-1196;96-900-1197;96-900-1198;96-900-1199;96-900-1200;96-900-1201;96-900-1202;96-900-1203;96-900-1204;96-900-1205;96-900-1206;96-900-2512;96-900-2513;96-900-2514;96-900-2515;96-900-2516;96-900-2586;96-900-2587;96-900-2588;96-900-2589;96-900-2590;96-900-2591;96-900-2592;96-900-2593;96-900-2594;96-900-2595;96-900-2596;96-900-2597;96-900-2598;96-900-2599;96-900-2600;96-900-2601;96-900-2602;96-900-2603;96-900-2604;96-900-2605;96-900-2606;96-900-2607;96-900-2608;96-900-2609;96-900-2610;96-900-2611;96-900-2612;96-900-2613;96-900-2614;96-900-2615;96-900-2616;96-900-2617;96-900-2618;96-900-2619;96-900-2620;96-900-2621;96-900-2622;96-900-2623;96-900-2624;96-900-2625;96-900-2626;96-900-2627;96-900-2628;96-900-2629;96-900-2630;96-900-2631;96-900-2632;96-900-2633;96-900-2634;96-900-5857;96-900-5909;96-900-5910;96-900-5911;96-900-5912;96-900-5913;96-900-5914;96-900-5915;96-900-5916;96-900-5917;96-900-5918;96-900-5919;96-900-5920;96-900-5921;96-900-6391;96-900-6392;96-900-6393;96-900-6394;96-900-6395;96-900-6396;96-900-6397;96-900-6398;96-900-6399;96-900-6400;96-900-6401;96-900-6402;96-900-6403;96-900-6404;96-900-6876;96-900-6877;96-900-6878;96-900-6879;96-900-6880;96-900-6881;96-900-6882;96-900-6883;96-900-6884;96-900-6885;96-900-6886;96-900-6887;96-900-6888;96-900-6889;96-900-6890;96-900-6891;96-900-6892;96-900-6893;96-901-2682;96-901-4596;96-901-6130

Peak List

No.	*2theta [°]*	*d [Å]*	*I/I0 (peak height)*	*Counts (peak area)*	*FWHM*	*Matched*
1	18.28	4.8493	2.91	0.13	0.1053	A,F
2	18.50	4.7921	14.19	0.32	0.0553	
3	18.58	4.7717	20.45	0.48	0.0574	
4	18.66	4.7514	3.62	0.10	0.0670	A,E
5	18.84	4.7064	20.31	0.56	0.0670	A
6	19.18	4.6237	55.81	2.47	0.1073	
7	19.32	4.5906	68.65	1.51	0.0533	A,B
8	19.44	4.5625	26.88	1.48	0.1339	
9	19.52	4.5440	32.97	1.29	0.0948	
10	19.62	4.5210	51.36	3.91	0.1849	
11	19.72	4.4983	4.62	0.10	0.0526	A
12	20.12	4.4098	52.61	1.37	0.0631	A
13	20.22	4.3882	63.95	1.08	0.0411	A
14	20.34	4.3626	54.63	2.30	0.1023	D,E
15	20.56	4.3164	59.92	0.46	0.0187	A
16	21.04	4.2190	84.28	2.64	0.0762	A,B
17	21.12	4.2032	52.04	1.93	0.0901	
18	21.34	4.1604	30.37	1.13	0.0901	
19	21.42	4.1450	19.93	3.23	0.3935	A
20	21.50	4.1298	7.91	0.17	0.0532	A
21	21.74	4.0847	52.84	1.58	0.0728	C
22	21.86	4.0626	60.21	2.70	0.1088	
23	21.94	4.0479	45.26	3.34	0.1795	A
24	22.00	4.0370	63.23	1.14	0.0439	A
25	22.12	4.0154	110.22	1.82	0.0400	A
26	22.18	4.0047	21.12	2.73	0.3138	
27	22.28	3.9869	48.66	4.50	0.2248	A
28	22.54	3.9415	26.06	2.41	0.2248	A,B,D
29	22.98	3.8670	59.47	4.05	0.1654	A
30	23.08	3.8505	23.23	3.63	0.3791	A,B

31	23.46	3.7890	69.72	18.37	0.6400	A
32	23.56	3.7731	117.84	17.47	0.3600	A,B,D
33	23.64	3.7605	148.30	4.88	0.0800	
34	23.82	3.7325	144.18	19.00	0.3200	
35	23.94	3.7141	112.22	16.63	0.3600	A
36	24.30	3.6599	88.49	19.35	0.5312	A
37	24.44	3.6392	181.47	5.98	0.0800	A
38	24.60	3.6159	100.17	18.15	0.4400	A,B,E
39	24.74	3.5958	86.34	5.69	0.1600	A
40	25.26	3.5229	45.87	0.65	0.0346	A,B,D,E
41	25.64	3.4716	94.58	1.59	0.0409	A,B,E
42	25.78	3.4530	107.29	4.90	0.1109	A,E
43	25.90	3.4373	66.74	4.95	0.1800	A
44	26.08	3.4140	84.48	2.78	0.0800	A,E
45	26.46	3.3658	65.22	2.46	0.0916	A
46	26.50	3.3608	23.26	3.41	0.3563	
47	26.66	3.3410	57.31	4.53	0.1921	
48	26.84	3.3190	54.86	2.71	0.1200	
49	26.92	3.3093	89.94	12.39	0.3346	A,B
50	26.96	3.3045	2.02	0.10	0.1200	
51	27.12	3.2854	133.90	33.08	0.6000	B
52	27.30	3.2641	40.46	1.47	0.0883	A
53	27.32	3.2618	145.87	60.06	1.0000	B
54	27.56	3.2339	294.15	48.44	0.4000	A,B,E
55	27.70	3.2179	333.50	82.06	0.5977	A,C
56	27.92	3.1930	570.26	75.13	0.3200	A
57	28.00	3.1841	502.99	57.99	0.2800	A
58	28.12	3.1708	345.09	17.05	0.1200	A
59	28.36	3.1445	169.57	13.96	0.2000	A
60	28.84	3.0932	51.21	2.60	0.1234	A
61	29.02	3.0744	52.60	0.61	0.0282	A
62	29.14	3.0621	53.96	0.44	0.0196	A,D,E
63	29.56	3.0195	181.51	15.75	0.2108	A,D,E
64	29.74	3.0016	46.32	7.37	0.3866	A,E
65	29.88	2.9879	0.76	0.10	0.3200	A,B
66	30.00	2.9762	173.62	22.31	0.3120	A,F
67	30.18	2.9589	175.76	104.20	1.4400	A
68	30.34	2.9436	195.12	93.19	1.1600	A
69	30.62	2.9173	211.86	52.34	0.6000	A,B
70	30.76	2.9044	212.25	17.48	0.2000	A,B
71	30.94	2.8879	143.39	11.81	0.2000	A,B
72	31.28	2.8573	107.60	5.32	0.1200	A,E
73	31.64	2.8256	81.00	4.64	0.1390	A,D,E
74	32.06	2.7895	51.21	1.08	0.0512	A,B
75	32.12	2.7844	45.35	1.33	0.0711	A,B
76	32.42	2.7594	56.53	0.58	0.0251	A,B
77	33.14	2.7010	56.62	4.66	0.2000	A,E
78	33.22	2.6947	44.17	7.34	0.4036	A
79	33.26	2.6916	39.39	0.82	0.0506	A
80	33.42	2.6790	81.44	5.64	0.1682	A
81	33.60	2.6651	87.79	2.89	0.0800	A
82	33.78	2.6513	68.74	5.06	0.1788	A,E
83	34.34	2.6093	77.52	7.09	0.2222	A,B,D,E
84	34.70	2.5831	125.18	20.99	0.4073	A,E
85	34.82	2.5745	222.61	7.33	0.0800	A,B
86	35.14	2.5518	179.86	5.95	0.0804	A,B,D
87	35.40	2.5336	182.00	26.98	0.3600	A,F
88	35.50	2.5267	108.79	6.72	0.1500	A
89	35.56	2.5226	172.38	8.56	0.1206	
90	35.74	2.5103	685.29	45.22	0.1603	A,B
91	35.80	2.5062	14.52	2.83	0.4737	A
92	36.00	2.4927	1000.00	61.80	0.1501	A,D
93	36.10	2.4861	366.61	7.45	0.0494	A,B
94	36.56	2.4558	54.88	1.68	0.0744	A,B,E
95	37.02	2.4264	67.84	12.58	0.4503	A,F
96	37.10	2.4213	14.70	0.18	0.0299	A,B
97	37.24	2.4125	88.33	2.91	0.0800	A
98	37.40	2.4026	64.27	10.46	0.3954	A,D
99	37.68	2.3854	82.19	2.71	0.0800	A,D
100	37.76	2.3805	85.04	1.40	0.0400	A,B,E
101	38.18	2.3553	70.40	0.75	0.0259	A,C,E
102	38.28	2.3494	44.28	0.58	0.0320	A,D
103	38.84	2.3168	33.82	0.35	0.0251	A,B
104	39.20	2.2963	72.09	2.74	0.0924	A,B,D,E
105	39.56	2.2762	83.74	12.50	0.3626	A,D,E
106	39.92	2.2565	64.75	1.06	0.0397	A,B
107	40.32	2.2351	26.54	2.41	0.2210	A,E
108	40.46	2.2277	42.62	0.57	0.0324	A,B
109	40.70	2.2151	46.71	4.57	0.2376	A
110	40.86	2.2068	43.74	5.28	0.2932	A,B,C
111	40.92	2.2037	78.34	1.29	0.0400	A,B

112	41.04	2.1975	46.12	4.72	0.2488	
113	41.16	2.1914	54.35	1.26	0.0565	A,D,E
114	41.74	2.1623	47.22	5.76	0.2960	A,B,E
115	41.98	2.1504	72.45	7.64	0.2561	A,B,E
116	42.12	2.1436	96.35	2.11	0.0531	A,C,D,E
117	42.40	2.1301	106.74	3.52	0.0800	A
118	42.48	2.1263	307.60	12.32	0.0973	B,E
119	42.52	2.1244	94.08	6.89	0.1780	A
120	42.64	2.1187	167.35	10.09	0.1465	A
121	42.92	2.1055	102.27	3.37	0.0800	A,B,E
122	43.04	2.0999	497.24	21.70	0.1060	A,F
123	43.10	2.0971	67.74	5.28	0.1893	
124	43.16	2.0943	155.40	2.53	0.0395	A,E
125	43.44	2.0815	102.32	2.22	0.0528	A,E
126	43.60	2.0742	66.39	1.13	0.0413	A,B
127	43.78	2.0661	60.37	0.89	0.0359	A,B,E
128	43.96	2.0581	37.72	1.67	0.1077	A,B,D,E
129	44.48	2.0352	353.64	13.05	0.0896	A,B,C,E
130	44.58	2.0309	133.00	4.18	0.0763	A,E
131	44.98	2.0137	57.67	3.80	0.1600	A
132	45.08	2.0095	18.34	1.77	0.2347	A,B
133	45.28	2.0011	55.03	1.60	0.0705	A,B,E
134	45.46	1.9936	53.35	3.82	0.1738	A
135	45.60	1.9878	48.40	0.81	0.0408	A
136	45.84	1.9779	56.22	1.05	0.0453	A,D,E
137	46.06	1.9690	72.89	1.36	0.0453	A,B,D
138	46.44	1.9538	49.97	0.34	0.0166	A,B
139	46.50	1.9514	56.62	0.80	0.0343	A,E
140	46.96	1.9333	56.27	0.69	0.0297	A
141	47.04	1.9302	55.70	0.79	0.0345	A,B,E,F
142	47.18	1.9248	74.37	2.21	0.0722	A
143	47.32	1.9195	55.60	2.46	0.1073	A,B,E
144	47.84	1.8998	62.46	1.06	0.0411	A,B,C,D
145	47.94	1.8961	45.02	0.16	0.0087	A,B
146	48.42	1.8784	56.87	1.79	0.0766	A,B,D,E
147	48.68	1.8690	87.60	5.59	0.1549	A
148	48.88	1.8618	110.83	1.24	0.0271	A,D
149	49.00	1.8575	61.69	1.45	0.0572	A,B,D,E
150	49.18	1.8511	56.10	1.20	0.0519	A,B,E
151	49.38	1.8441	68.39	3.44	0.1223	A,B
152	49.58	1.8371	81.14	4.88	0.1462	A,B,D,E
153	49.86	1.8275	93.26	13.09	0.3409	A,B
154	49.90	1.8261	2.12	0.10	0.1144	A,B,D,E
155	50.28	1.8132	58.10	1.82	0.0762	A,B,D,E
156	50.54	1.8045	57.10	2.72	0.1157	A,B,E
157	50.86	1.7939	95.35	1.87	0.0477	A,B
158	50.94	1.7912	91.39	1.43	0.0380	A,B
159	51.10	1.7860	89.29	1.91	0.0519	A
160	51.36	1.7776	92.01	0.99	0.0262	
161	51.54	1.7718	107.04	1.66	0.0376	B,D,E
162	51.74	1.7654	43.28	1.06	0.0596	B,D,E
163	52.30	1.7478	54.01	2.31	0.1038	B,C,D,E
164	52.44	1.7435	72.68	1.82	0.0609	B,E
165	52.54	1.7404	52.60	1.78	0.0824	B,E
166	52.80	1.7324	52.97	1.17	0.0536	B,D,E
167	53.26	1.7185	67.50	1.02	0.0368	B,F
168	53.44	1.7132	49.30	3.86	0.1902	E
169	53.60	1.7084	35.79	6.24	0.4235	E
170	53.78	1.7032	62.19	2.05	0.0800	
171	53.96	1.6979	56.71	4.93	0.2113	B
172	54.10	1.6938	71.52	2.36	0.0800	B,D
173	54.32	1.6875	52.20	4.35	0.2023	E
174	54.54	1.6812	47.95	1.58	0.0800	E
175	54.60	1.6795	35.06	0.37	0.0258	
176	54.90	1.6710	65.34	0.76	0.0282	B,E
177	54.98	1.6688	86.03	1.16	0.0327	E
178	55.16	1.6638	54.49	4.55	0.2028	B,D,E
179	55.30	1.6599	64.04	1.41	0.0536	
180	55.44	1.6560	63.29	0.97	0.0372	B,D
181	55.64	1.6505	71.07	1.14	0.0391	B,E
182	55.94	1.6424	58.74	1.27	0.0525	B,D
183	56.06	1.6392	48.43	0.84	0.0421	B
184	56.32	1.6322	40.94	4.48	0.2659	E
185	56.46	1.6285	48.07	0.79	0.0400	B,D,E
186	56.62	1.6243	89.01	3.81	0.1041	B
187	56.88	1.6175	73.98	1.22	0.0400	E,F
188	56.92	1.6164	52.34	0.40	0.0185	B,D,E
189	57.12	1.6112	75.98	7.12	0.2275	C,E
190	57.38	1.6046	78.11	6.06	0.1885	E
191	57.48	1.6020	119.02	1.96	0.0400	B,E
192	57.60	1.5989	75.48	3.78	0.1216	D,E

193	57.92	1.5909	59.30	1.31	0.0536	B
194	58.14	1.5854	43.93	1.13	0.0627	D,E
195	58.52	1.5760	43.55	1.35	0.0753	B,D,E
196	58.80	1.5691	43.57	0.53	0.0296	D
197	58.92	1.5662	37.28	0.45	0.0296	B
198	59.00	1.5643	49.71	0.66	0.0322	E
199	59.16	1.5605	43.23	0.57	0.0318	B,E
200	59.52	1.5519	37.07	0.60	0.0393	B
201	59.60	1.5500	45.25	0.78	0.0418	D
202	59.74	1.5467	51.97	0.88	0.0410	
203	59.86	1.5439	47.11	2.90	0.1497	
204	60.06	1.5392	68.56	4.54	0.1607	C,E
205	60.16	1.5369	45.56	5.32	0.2838	E
206	60.28	1.5341	62.18	5.65	0.2206	D,E
207	60.42	1.5309	79.35	4.38	0.1342	B,D,E
208	60.52	1.5286	81.45	1.34	0.0400	B,D
209	60.82	1.5218	82.12	1.54	0.0456	B,D,E
210	60.90	1.5200	55.61	0.89	0.0387	B
211	61.12	1.5150	51.41	5.40	0.2553	B,D,E
212	61.28	1.5115	62.68	0.93	0.0362	B,E
213	61.62	1.5039	78.80	13.45	0.4145	B,D,E
214	61.84	1.4991	115.11	2.10	0.0444	B,E
215	62.00	1.4956	79.70	4.82	0.1469	B,E
216	62.14	1.4926	78.33	6.01	0.1864	
217	62.40	1.4870	89.89	26.65	0.7200	D,F
218	62.56	1.4836	101.28	1.67	0.0400	D,E
219	62.70	1.4806	100.07	1.65	0.0400	E
220	62.86	1.4772	119.62	13.79	0.2800	B,C,E
221	63.12	1.4717	128.28	23.24	0.4400	B,E
222	63.94	1.4548	51.92	8.13	0.3806	B,D,E
223	64.08	1.4520	79.89	2.63	0.0800	E
224	64.14	1.4508	76.21	5.02	0.1600	
225	64.24	1.4488	67.04	1.10	0.0400	B
226	64.34	1.4468	36.46	2.64	0.1757	B
227	65.02	1.4333	38.15	1.90	0.1209	B,D,E
228	65.14	1.4309	26.84	2.36	0.2137	
229	65.20	1.4297	22.05	0.65	0.0720	B,E
230	65.38	1.4262	43.13	1.17	0.0657	B
231	65.54	1.4231	63.40	1.04	0.0400	B,E
232	65.66	1.4208	98.00	6.49	0.1609	E,F
233	65.76	1.4189	26.70	0.49	0.0443	B,D,E
234	65.96	1.4151	269.89	17.58	0.1582	B,D,E
235	66.14	1.4117	176.49	4.45	0.0613	B,D,E
236	66.58	1.4034	40.71	4.26	0.2539	B,C,D,E
237	66.72	1.4008	46.31	0.79	0.0416	F
238	66.78	1.3997	40.07	0.22	0.0131	E
239	67.04	1.3949	31.59	0.99	0.0764	B,D
240	67.28	1.3905	12.78	0.40	0.0764	B,E
241	67.40	1.3883	37.91	2.17	0.1388	B,D
242	67.56	1.3854	37.70	1.57	0.1009	B
243	67.84	1.3804	62.22	1.89	0.0738	B,D,E
244	67.88	1.3797	14.16	0.17	0.0291	
245	68.06	1.3765	41.63	0.69	0.0400	B
246	68.14	1.3750	29.56	1.67	0.1374	E
247	68.32	1.3718	47.56	3.51	0.1792	B,E
248	68.44	1.3697	68.11	1.46	0.0522	B,D
249	68.62	1.3666	25.83	1.52	0.1428	B,D
250	68.72	1.3648	36.42	0.26	0.0175	D,E
251	69.00	1.3600	46.28	0.52	0.0274	B,E
252	69.16	1.3572	20.84	0.23	0.0274	B,C
253	69.36	1.3538	30.00	0.49	0.0400	E
254	69.62	1.3494	48.37	1.28	0.0641	E
255	69.68	1.3484	42.61	0.63	0.0360	E
256	69.80	1.3463	60.15	0.71	0.0287	B
257	69.86	1.3453	33.64	0.40	0.0287	
258	69.92	1.3443	6.07	0.10	0.0400	

Integrated Profile Areas

Based on calculated profile

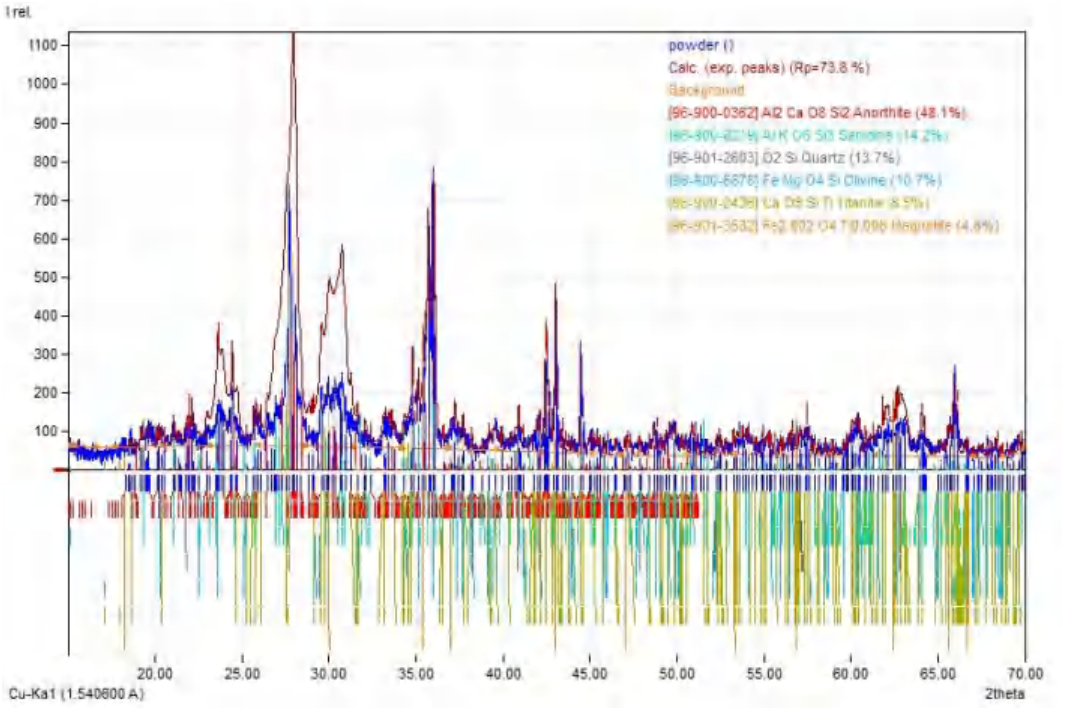
Profile area	*Counts*	*Amount*
Overall diffraction profile	106278	100.00%
Background radiation	53707	50.53%
Diffraction peaks	52571	49.47%
Peak area belonging to selected phases	23509	22.12%
Peak area of phase A (Anorthite)	*9294*	*8.75%*
Peak area of phase B (Sanidine)	*3896*	*3.67%*
Peak area of phase C (Quartz)	*2547*	*2.40%*
Peak area of phase D (Olivine)	*2799*	*2.63%*
Peak area of phase E (Titanite)	*2594*	*2.44%*

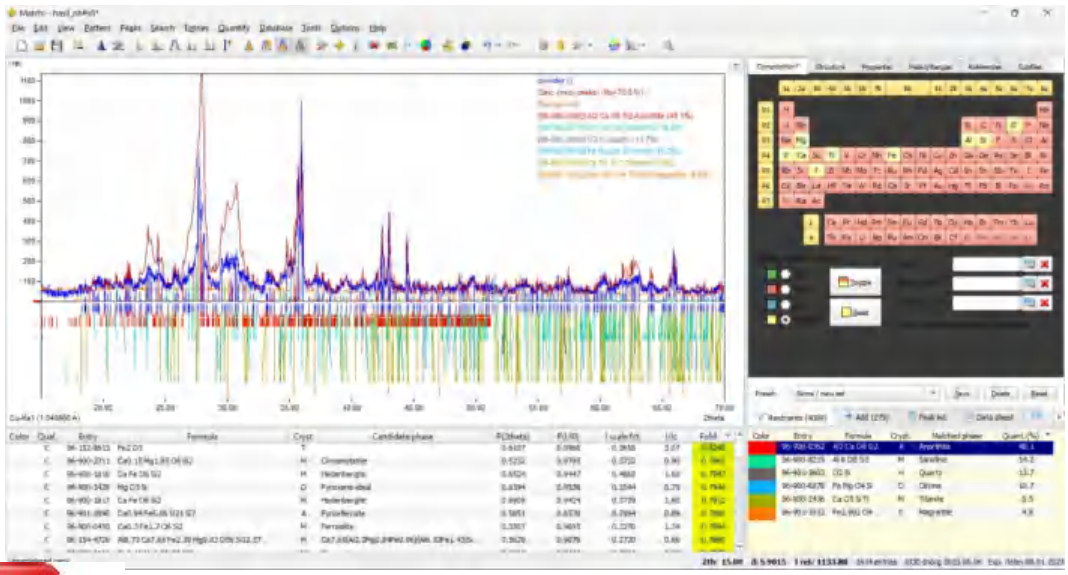
Peak area of phase F (Magnetite)	*2378*	*2.24%*
Unidentified peak area	29062	27.35%

Peak Residuals

Peak data	***Counts***	***Amount***
Overall peak intensity	1713	100.00%
Peak intensity belonging to selected phases	1538	89.74%
Unidentified peak intensity	176	10.26%

Diffraction Pattern Graphics





HASIL XRF

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SAMPLE ANALYSIS REPORT                                  THERMO FISHER SCIENTIFIC
ARL QUANT'X EDXRF ANALYZER                          UNIQUANT(TM) STANDARDLESS METHOD
_____________________________________________________________________________

C:\UQed\USER\Quant'X\Job\JOB.772     2023-09-01
nh#s1

Quant'X Rh end window 50kV
C:\UQed\USER\Quant'X\Appl\AnySampleAir.kap 2008-06-13
Calculated as :  Elements      Matrix (Shape & ImpFc) :  1|Teflon
X-ray path    =     Air        Film type      = No supporting film
Case number   =  0  All known
Eff.Diam.     = 13.0 mm        Eff.Area       = 132.7 mm2
KnownConc     =  0    %
Rest          =  0    %                      Viewed Mass    = 1000.00 mg
Dil/Sample    =  0                           Sample Height = 5.00 mm

          El     m/m%     StdErr
          --     -------- -------
          Si      41.15    0.50
          Fe      28.40    0.32
          Ca      14.95    0.33
          K        7.56    0.27
          Al       4.33    0.94

          Ti       1.41    0.16
          Sr      0.727    0.036
          Mn      0.703    0.070
          Px      0.427    0.085
          Ba      0.094    0.032

          Rb      0.060    0.017
          Nb     0.0503   0.0040
          Mo     0.0371   0.0030
          Zn     0.030    0.014
          In     0.0181   0.0009

          Sn     0.0145   0.0015
          Ru     0.0140   0.0031
          Sb     0.0100   0.0024
          Rh     0.0073   0.0030
```

Ln 17, Col 61 2,679 characters 100% Windows (CRLF) UTF-8

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SAMPLE ANALYSIS REPORT                                  THERMO FISHER SCIENTIFIC
ARL QUANT'X EDXRF ANALYZER                          UNIQUANT(TM) STANDARDLESS METHOD
_____________________________________________________________________________

C:\UQed\USER\Quant'X\Job\JOB.773     2023-09-01
nh#s2

Quant'X Rh end window 50kV
C:\UQed\USER\Quant'X\Appl\AnySampleAir.kap 2008-06-13
Calculated as :  Elements      Matrix (Shape & ImpFc) :  1|Teflon
X-ray path    =     Air        Film type      = No supporting film
Case number   =  0  All known
Eff.Diam.     = 13.0 mm        Eff.Area       = 132.7 mm2
KnownConc     =  0    %
Rest          =  0    %                      Viewed Mass    = 1000.00 mg
Dil/Sample    =  0                           Sample Height = 5.00 mm

          El     m/m%     StdErr
          --     -------- -------
          Si      43.27    0.51
          Fe      27.40    0.30
          Ca      15.74    0.24
          Al       6.42    0.90
          K        3.72    0.22

          Ti       1.39    0.17
          Sr      0.658    0.033
          Mn      0.621    0.063
          Px      0.477    0.083
          Ba      0.117    0.042

          Nb     0.0621   0.0048
          Mo     0.0434   0.0050
          In     0.0241   0.0013
          Sn     0.0198   0.0023
          Ru     0.0176   0.0037

          Rh     0.0112   0.0036
          Sb     0.0107   0.0037

KnownConc= 0                 REST= 0                 D/S= 0
```

Ln 1, Col 1 2,517 characters 100% Windows (CRLF) UTF-8

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SAMPLE ANALYSIS REPORT                              THERMO FISHER SCIENTIFIC
ARL QUANT'X EDXRF ANALYZER                      UNIQUANT(TM) STANDARDLESS METHOD
_____________________________________________________________________________

C:\UQed\USER\Quant'X\Job\JOB.774     2023-09-01
nh#s3

Quant'X Rh end window 50kV
C:\UQed\USER\Quant'X\Appl\AnySampleAir.kap 2008-06-13
Calculated as :  Elements      Matrix (Shape & ImpFc) :  1|Teflon
X-ray path    =     Air       Film type     = No supporting film
Case number   =  0  All known
Eff.Diam.     = 13.0 mm       Eff.Area      = 132.7 mm2
KnownConc     =  0    %
Rest          =  0    %                     Viewed Mass    = 1000.00 mg
Dil/Sample    =  0                          Sample Height = 5.00 mm

          El     m/m%     StdErr
          --     -------- -------
          Si      44.22    0.50
          Fe      22.58    0.24
          K       15.93    0.18
          Ca       8.98    0.25
          Al       4.39    0.89

          Ti       1.33    0.16
          Sr       0.791   0.040
          Mn       0.723   0.059
          Px       0.633   0.086
          Ba       0.211   0.039

          Rb       0.101   0.017
          Nb       0.0426  0.0070
          Mo       0.0281  0.0070
          In       0.0191  0.0011
          Sn       0.0170  0.0020

          Sb       0.0118  0.0031

KnownConc= 0                    REST= 0                  D/S= 0
Sum Conc's before normalisation to 100% :   44.4 %
```

Ln 1, Col 1 2,436 characters 100% Windows (CRLF) UTF-8

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SAMPLE ANALYSIS REPORT                              THERMO FISHER SCIENTIFIC
ARL QUANT'X EDXRF ANALYZER                      UNIQUANT(TM) STANDARDLESS METHOD
_____________________________________________________________________________

C:\UQed\USER\Quant'X\Job\JOB.775     2023-09-05
nh#s4

Quant'X Rh end window 50kV
C:\UQed\USER\Quant'X\Appl\AnySampleAir.kap 2008-06-13
Calculated as :  Elements      Matrix (Shape & ImpFc) :  1|Teflon
X-ray path    =     Air       Film type     = No supporting film
Case number   =  0  All known
Eff.Diam.     = 13.0 mm       Eff.Area      = 132.7 mm2
KnownConc     =  0    %
Rest          =  0    %                     Viewed Mass    = 1000.00 mg
Dil/Sample    =  0                          Sample Height = 5.00 mm

          El     m/m%     StdErr
          --     -------- -------
          Si      38.33    1.18
          Fe      25.82    0.79
          Ca      18.14    0.55
          Mg       5.53    2.51
          Al       4.84    0.89

          K        3.83    0.23
          Ti       1.55    0.16
          Mn       0.742   0.066
          Sr       0.540   0.029
          Px       0.360   0.079

          Ba       0.115   0.037
          Nb       0.0533  0.0044
          Mo       0.0389  0.0045
          In       0.0206  0.0011
          Sn       0.0160  0.0020

          Ru       0.0157  0.0035
          Sb       0.0111  0.0032
          Rh       0.0103  0.0034
```

Ln 9, Col 68 2,598 characters 100% Windows (CRLF) UTF-8

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SAMPLE ANALYSIS REPORT                                  THERMO FISHER SCIENTIFIC
ARL QUANT'X EDXRF ANALYZER                          UNIQUANT(TM) STANDARDLESS METHOD
_____________________________________________________________________________

C:\UQed\USER\Quant'X\Job\JOB.776    2023-09-05
nh#s5

Quant'X Rh end window 50kV
C:\UQed\USER\Quant'X\Appl\AnySampleAir.kap 2008-06-13
Calculated as :  Elements     Matrix (Shape & ImpFc) :  1|Teflon
X-ray path    =     Air       Film type     = No supporting film
Case number   =  0  All known
Eff.Diam.     = 13.0 mm       Eff.Area      = 132.7 mm2
KnownConc     =  0    %
Rest          =  0    %                     Viewed Mass   = 1000.00 mg
Dil/Sample    =  0                          Sample Height = 5.00 mm

         El     m/m%     StdErr
         --     -------- -------
         Si      40.17    0.46
         Fe      26.38    0.27
         Ca      13.18    0.20
         K       12.30    0.16
         Al       4.26    0.87

         Ti       1.56    0.16
         Mn      0.734    0.059
         Sr      0.688    0.034
         Px      0.382    0.076
         Ba      0.128    0.036

         Rb      0.068    0.017
         Nb     0.0465   0.0043
         Mo     0.0367   0.0031
         Sn     0.0160   0.0019
         In     0.0150   0.0010

         Ru     0.0125   0.0032
         Sb     0.0088   0.0029
         Rh     0.0070   0.0031
```

Ln 1, Col 1 2,588 characters 100% Windows (CRLF) UTF-8

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SAMPLE ANALYSIS REPORT                                  THERMO FISHER SCIENTIFIC
ARL QUANT'X EDXRF ANALYZER                          UNIQUANT(TM) STANDARDLESS METHOD
_____________________________________________________________________________

C:\UQed\USER\Quant'X\Job\JOB.777    2023-09-05
nh#s6

Quant'X Rh end window 50kV
C:\UQed\USER\Quant'X\Appl\AnySampleAir.kap 2008-06-13
Calculated as :  Elements     Matrix (Shape & ImpFc) :  1|Teflon
X-ray path    =     Air       Film type     = No supporting film
Case number   =  0  All known
Eff.Diam.     = 13.0 mm       Eff.Area      = 132.7 mm2
KnownConc     =  0    %
Rest          =  0    %                     Viewed Mass   = 1000.00 mg
Dil/Sample    =  0                          Sample Height = 5.00 mm

         El     m/m%     StdErr
         --     -------- -------
         Si      36.66    1.13
         Fe      27.49    0.83
         Ca      17.14    0.52
         Mg       5.32    2.50
         K        5.15    0.24

         Al       4.33    0.90
         Ti       1.93    0.16
         Mn      0.797   0.064
         Sr      0.573   0.030
         Px      0.287   0.079

         Ba      0.111   0.031
         Rb      0.077   0.017
         Nb     0.0449   0.0041
         Mo     0.0295   0.0043
         In     0.0152   0.0000

         Sn     0.0142   0.0017
         Ru     0.0132   0.0030
         Sb     0.0094   0.0026
         Rh     0.0078   0.0029
```

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