March 25, 2007.

Introduction

Twenty one soil samples were received for mineralogical determinations via XRD using random and oriented mounts. This report summarizes results obtained.

Aim:

To determine the clay mineralogy of samples P101-P704, Lab ID 07C01-07C21 by X-ray Powder Diffraction (XRD).

Preparation of Samples:

The samples' colour (Munsell chart) and texture was noted and the white material (Lab ID 07C22) removed and tested with HCl. The remaining fraction was crushed to homogenize and the sample divided into two portions.

a) Random Mounts –
From one portion a representative teaspoonful of the sample was placed in a pre-weighed evaporating dish and weighed. The sample was dried at 110 °C overnight, allowed to cool and then re-weighed to calculate the % moisture. It was crushed and sieved with 200 mesh to generate particles < 75μm in diameter. The sample was then loaded into a Si zero background sample holder and the XRD recorded. XRD scans for the random mounts are named as "Lab IDA" eg. 07C01A.

b) Oriented Mounts –
From the second portion a representative teaspoonful was placed in a pre-weighed centrifuge tube and weighed. Tap water (50 mL) was added and the mixture shaken to effect suspension. Care was taken to ensure no clumps were visible at this stage. The presence/absence of floating material was noted. A portion of the suspension was removed with a dropper unto the center of a pre-cut glass slide (sample mount). The resulting slurry was allowed to dry at 110 °C and the XRD recorded. XRD scans for oriented mounts are named as "Lab ID" eg. 07C01.

Instrument and Scan Details:

X-ray diffraction patterns were collected on a Bruker D5005 diffractometer using Cu-Kα radiation at 40 kV and 35 mA. Samples 07C01A, 07C02A and 07C03A were scanned from 2 to 75 degrees 2θ with a step size of 0.01 ° and a step time of 3 s/step. All other scans were scanned from 2 to 67 degrees 2θ with a step size of 0.01 ° and a step time of 1.5 s/step. The DIFFRACplus suite of programs which includes XRD Commander for data collection and DIFFRACplus Eva V. 9.0 with DIFFRACplus Search/Match V. 9.0 for evaluation and qualitative identification were used.

Results and Discussion:

Table 1 shows the physical description, Munsell colour, % moisture and % floatables for all samples.

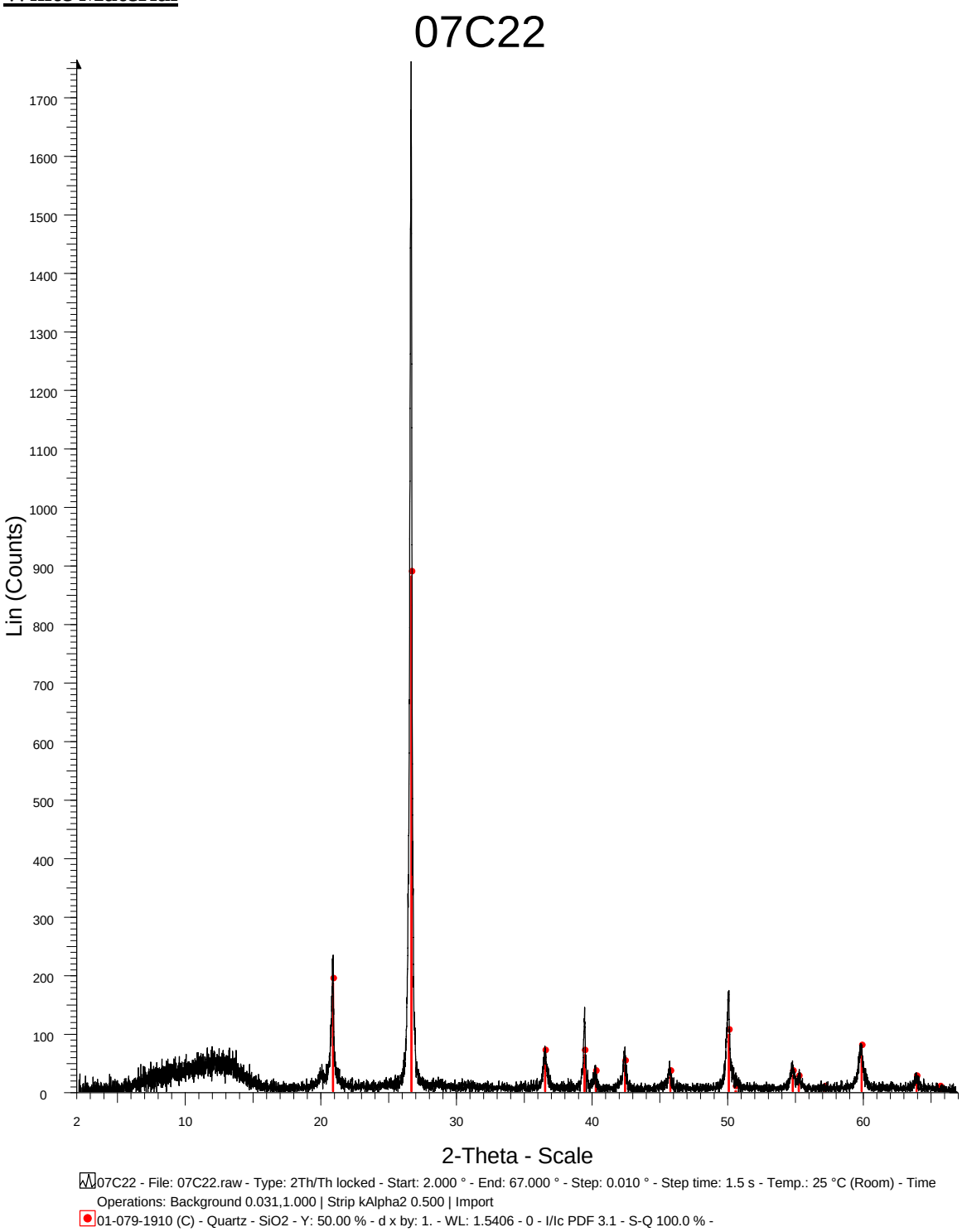
Table 1: Physical description, Munsell colour, % moisture and % floatables for samples 07C01 - 07C21

Sample	Lab ID	Description	Munsell Chart	% Moisture	% Floatables
P101	07C01	Yellow brown clay with hard white substances dispersed throughout	10YR 4/6 Dark yellow brown	30.87	Not detectable
P102	07C02	Yellow brown clay with hard white substances dispersed throughout	10YR 5/6 Yellowish brown	27.43	Not detectable
P103	07C03	Yellow brown clay with hard white substances dispersed throughout	10YR 5/6 Yellowish brown	29.02	Not detectable
P201	07C04	Dark brown clay with small black and small white particles throughout	10YR 3/6 Dark yellow brown	27.02	Not detectable
P202	07C07	Dark brown with small black particles throughout. Very few small white particles seen n sample	10YR 4/6 Dark yellow brown	37.76	Not detectable
P203	07C08	Yellow brown clay with soft white substances throughout	10YR 6/8 Brownish yellow	31.33	Not detectable
P301	07C05	Soft grey material coated brownish yellow. No hard white material observed.	1 for Grey 8/10Y Light greenish grey	31.70	Not detectable
P302	07C06	Yellow brown clay with hard white substances throughout	10YR 5/8 Yellowish brown	26.56	Not detectable
P303	07C09	Dark brown clay with very few white particles dispersed throughout	10YR 3/6 Dark yellowish brown	30.19	Not detectable
P401	07C10	Yellowish clay with few white particles	10YR 5/8 Yellowish brown	27.24	Not detectable
P402	07C11	Yellowish brown clay with few with	10YR 5/8 Yellowish	27.54	Not detectable

		particles	brown		
P403	07C12	Dark brown clay with few small black and small white particles throughout	10YR ¾ Dark yellow brown	30.43	Not detectable
P501	07C13	Pale brownish yellow clay with soft grey particles and a few white particles throughout	10YR 6/6 Yellowish brown	27.95	Not detectable
P502	07C14	Brownish yellow clay with hard white substances throughout	10YR 6/8 Brownish yellow	27.48	Not detectable
P503	07C15	Brownish yellow clay with hard white substances throughout	10YR 6/8 Brownish yellow	26.69	Not detectable
P601	07C16	Yellowish brown with hard white substances throughout	10YR 5/8 Yellowish brown	29.77	Not detectable
P602	07C17	Yellowish brown with hard white substances throughout	10YR 5/8 Yellowish brown	30.40	Not detectable
P701	07C18	Light yellowish clay with no white or black articles throughout	2.5Y 6/3 Light yellowish brown	27.49	Not detectable
P702	07C19	Yellow clay with no white or black particles throughout	2.5Y 6/8	34.97	Not detectable
P703	07C20	Grey clay coated with yellow particles. A few hard white substances could be seen throughout the sample	1 for Grey 7/10Y Light greenish grey	30.49	Not detectable
P704	07C21	Grey clay coated with pale yellow clay. No hard white material observed.	2.5Y 6/2 Light brownish grey	32.57	Not detectable

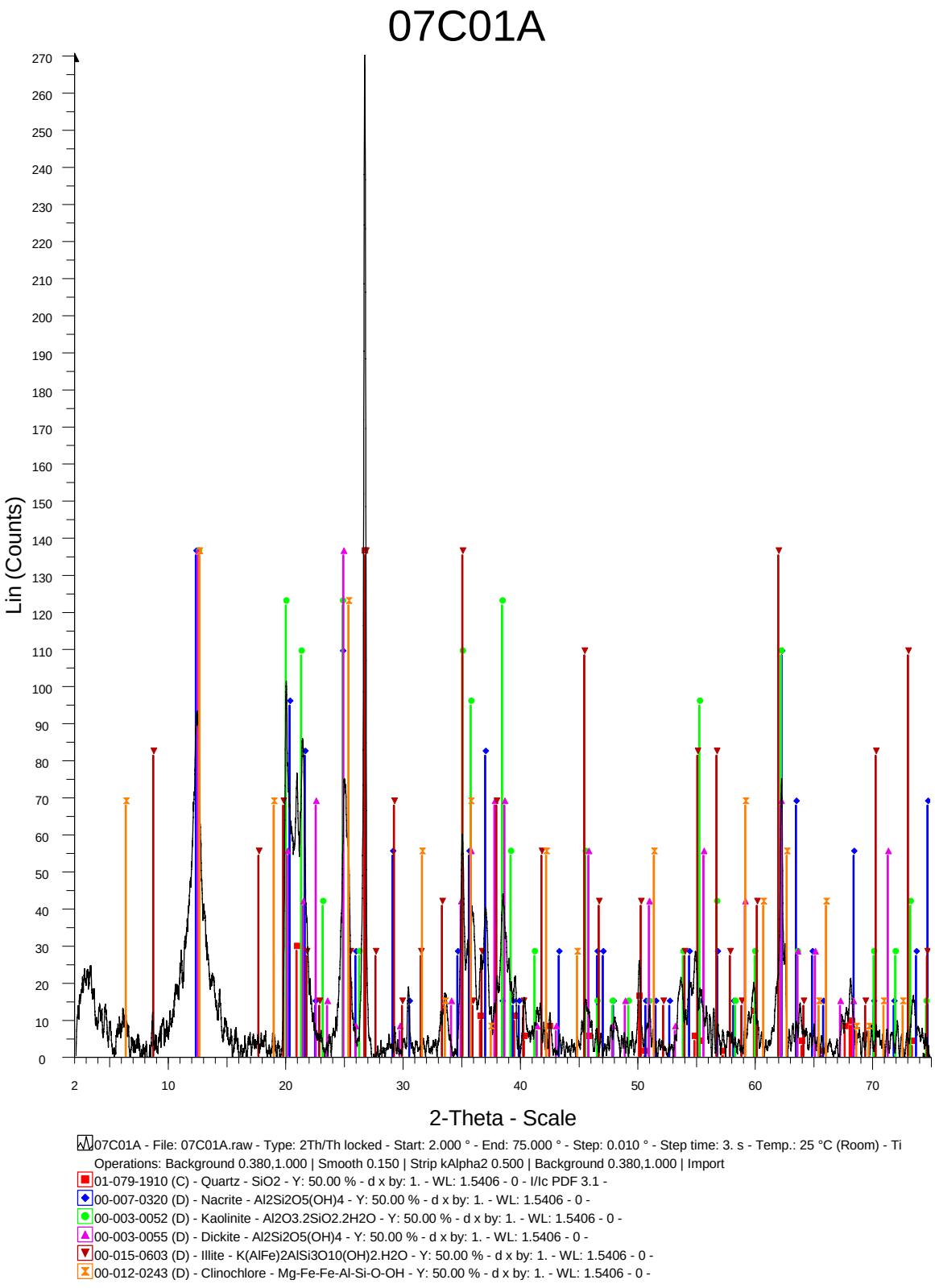
The hard white material observed in all but two samples 07C05 and 07C21 had no reaction with a 10% HCl solution. The XRD of this material, 07C22 is consistent with this and shows that the material is in fact SiO_2 (quartz).

White Material

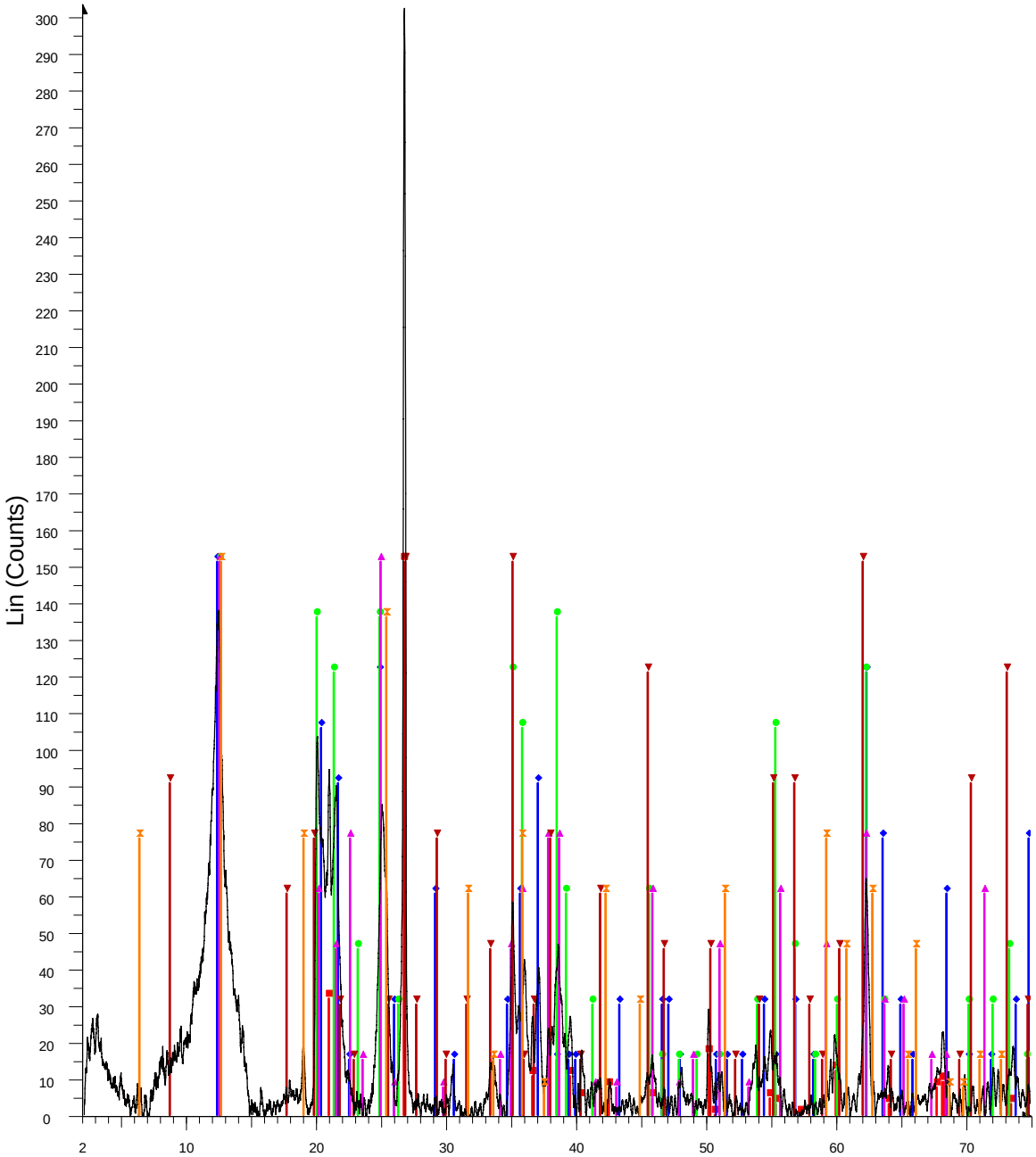


The diffraction patterns for both random **("Lab IDA")** and oriented mounts (**"Lab ID"**) are presented below and this is followed by a summary of the mineralogy of all samples 07C01 – 07C22 in **Table 2**.

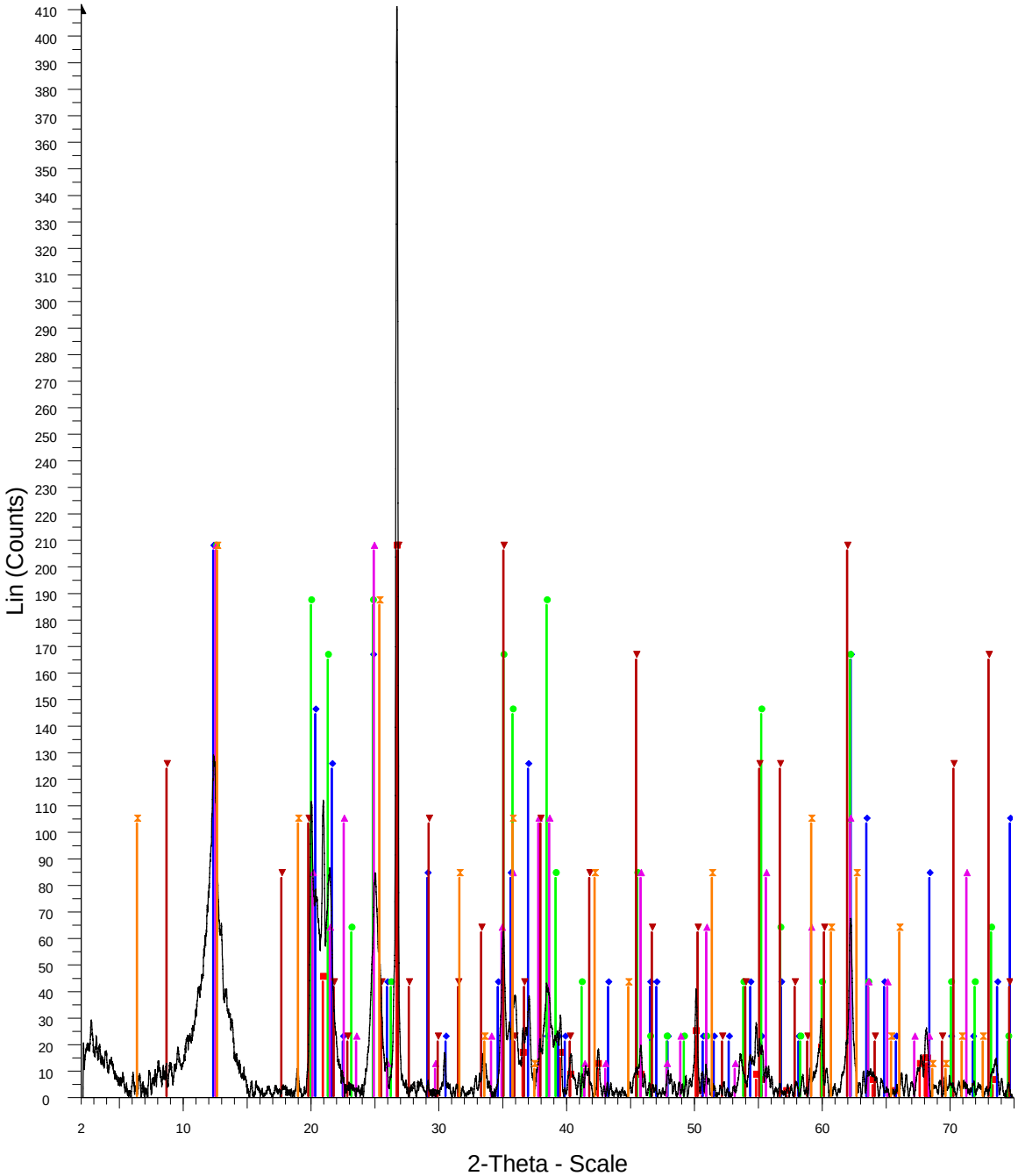
Random Mounts (bulk)



07C02A


Lin (Counts)
2-Theta - Scale
07C02B - File: 07C02A.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 75.000 ° - Step: 0.010 ° - Step time: 3. s - Temp.: 25 °C (Room) - Ti
Operations: Background 0.380,1.000 | Smooth 0.150 | Strip kAlpha2 0.500 | Background 0.380,1.000 | Import
01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-012-0243 (D) - Clinochlore - Mg-Fe-Fe-Al-Si-O-OH - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C03A



07C03A - File: 07C03A.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 75.000 ° - Step: 0.010 ° - Step time: 3. s - Temp.: 25 °C (Room) - Ti
Operations: Background 0.380,1.000 | Background 0.380,1.000 | Strip kAlpha2 0.500 | Smooth 0.150 | Import

01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

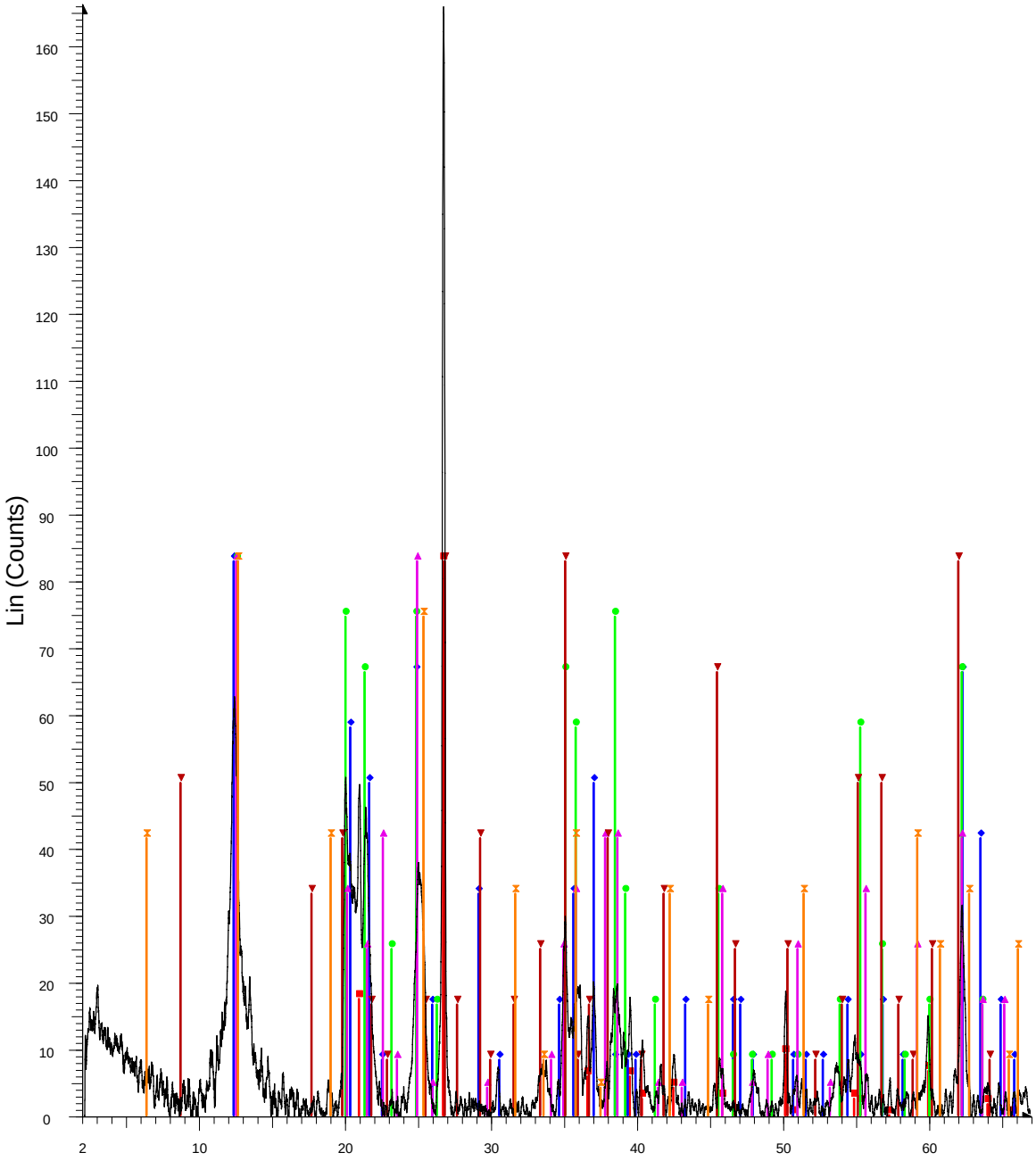
00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-012-0243 (D) - Clinochlore - Mg-Fe-Fe-Al-Si-O-OH - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C04A



07C201 - File: 07C04A.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Ti
Operations: Background 0.380,1.000 | Background 0.380,1.000 | Strip kAlpha2 0.500 | Smooth 0.150 | Import

01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

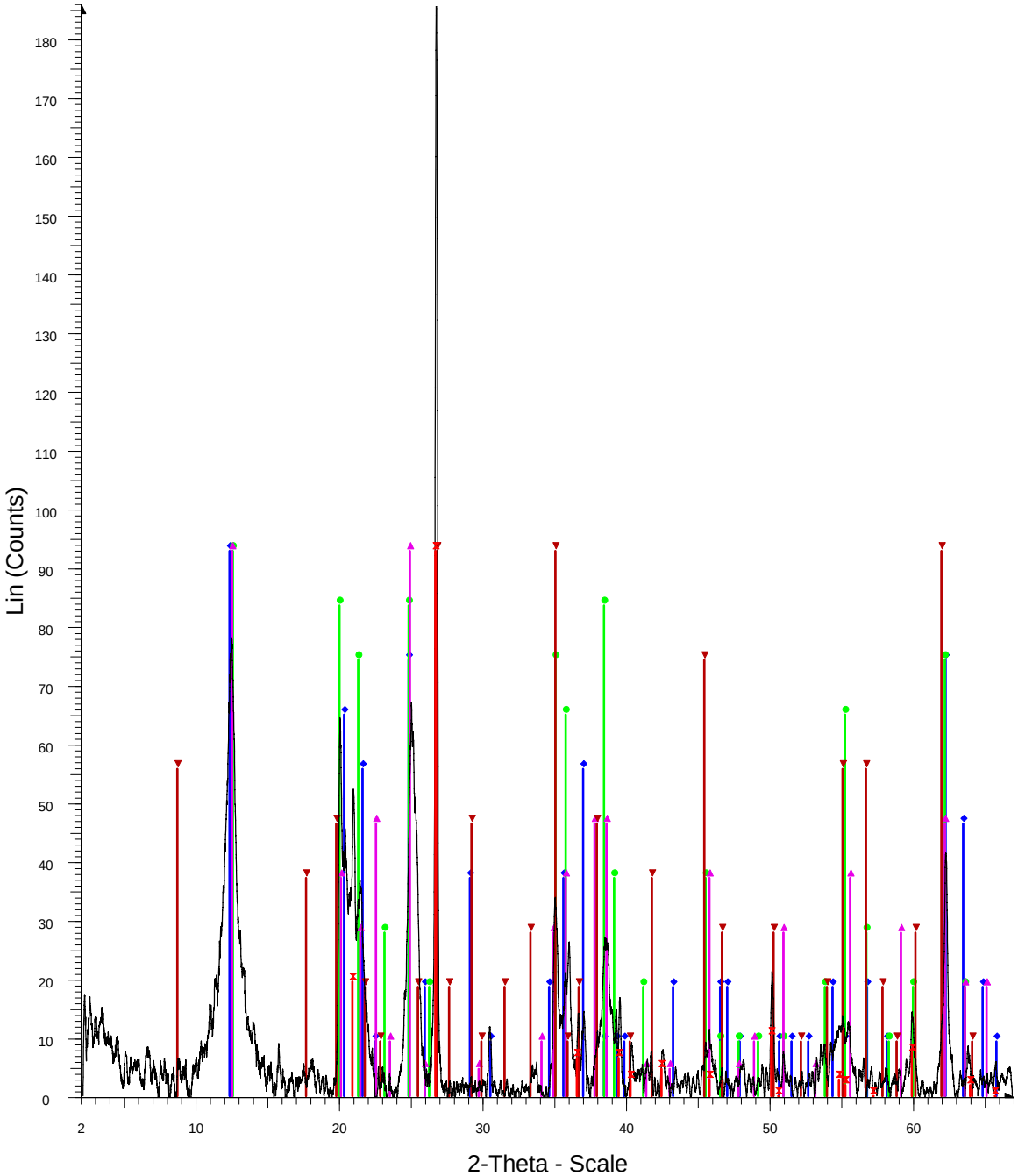
00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-012-0243 (D) - Clinochlore - Mg-Fe-Fe-Al-Si-O-OH - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C05A



07C301 - File: 07C05A.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Ti
Operations: Background 0.380,1.000 | Smooth 0.150 | Strip kAlpha2 0.500 | Background 0.380,1.000 | Import

01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

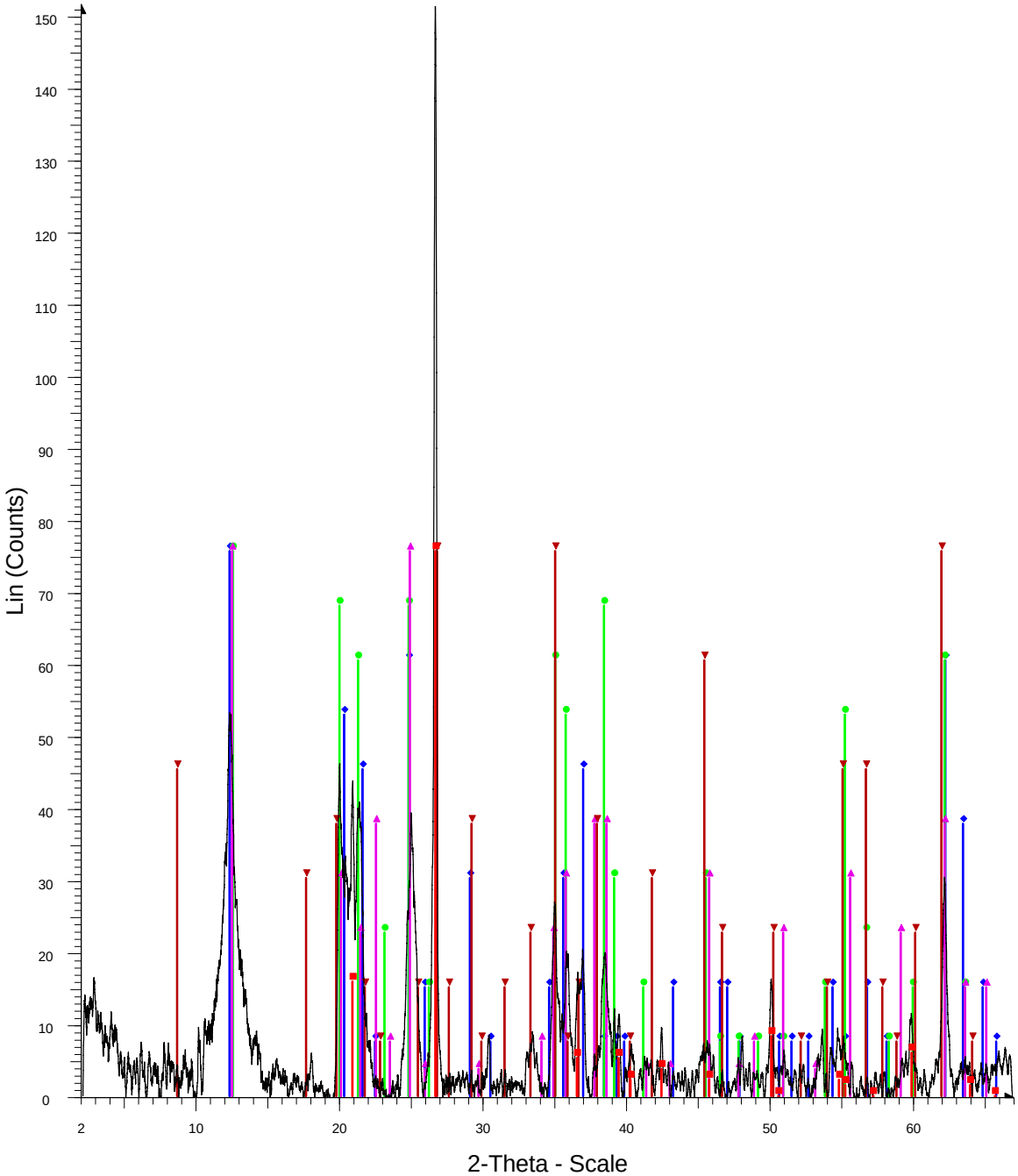
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C06A



07C302 - File: 07C06A.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Ti
Operations: Background 0.380,1.000 | Smooth 0.150 | Strip kAlpha2 0.500 | Background 0.380,1.000 | Import

01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

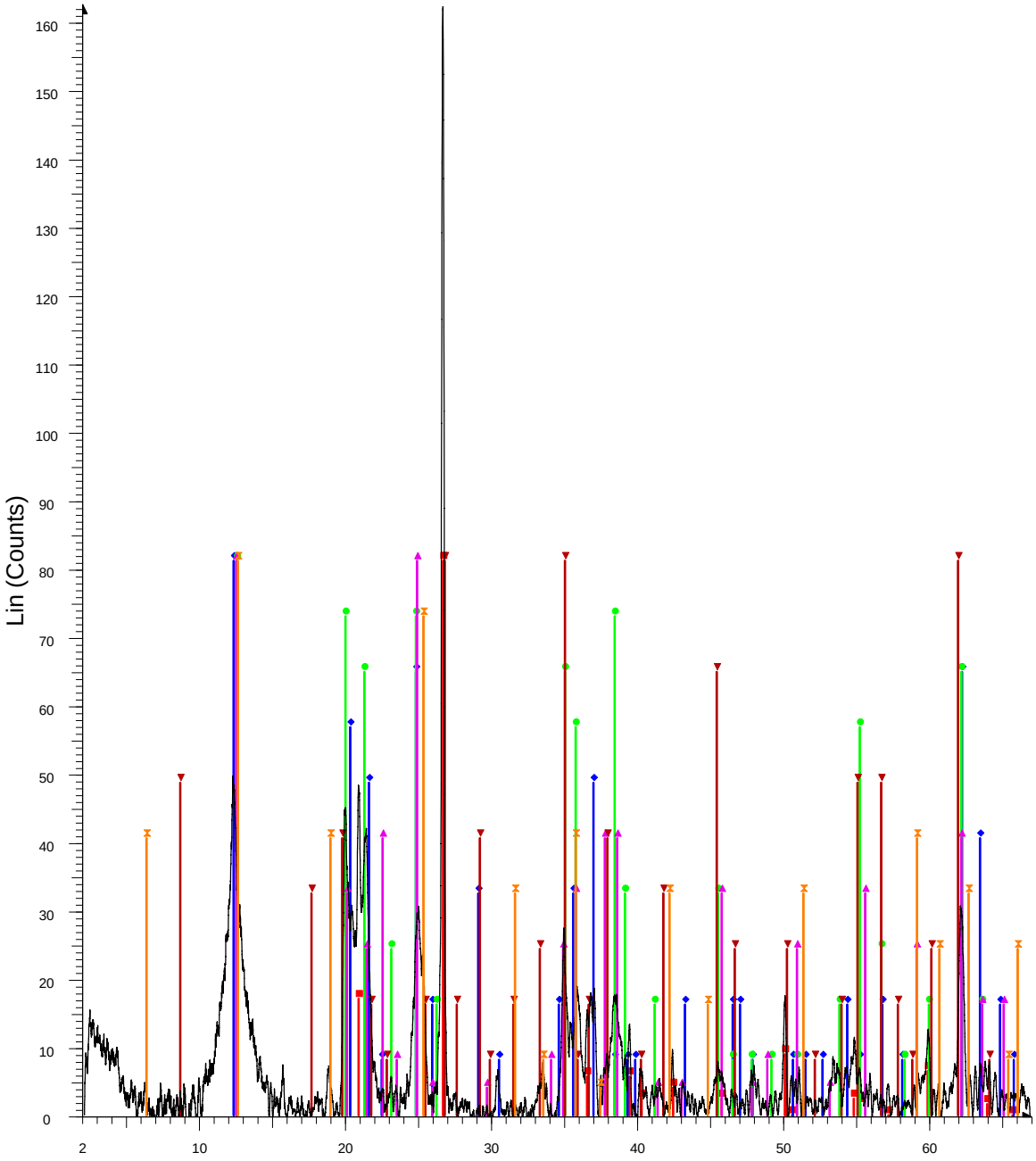
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C07A



07C07 - File: 07C07A.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Ti
Operations: Background 0.380,1.000 | Smooth 0.150 | Strip kAlpha2 0.500 | Background 0.380,1.000 | Import

01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

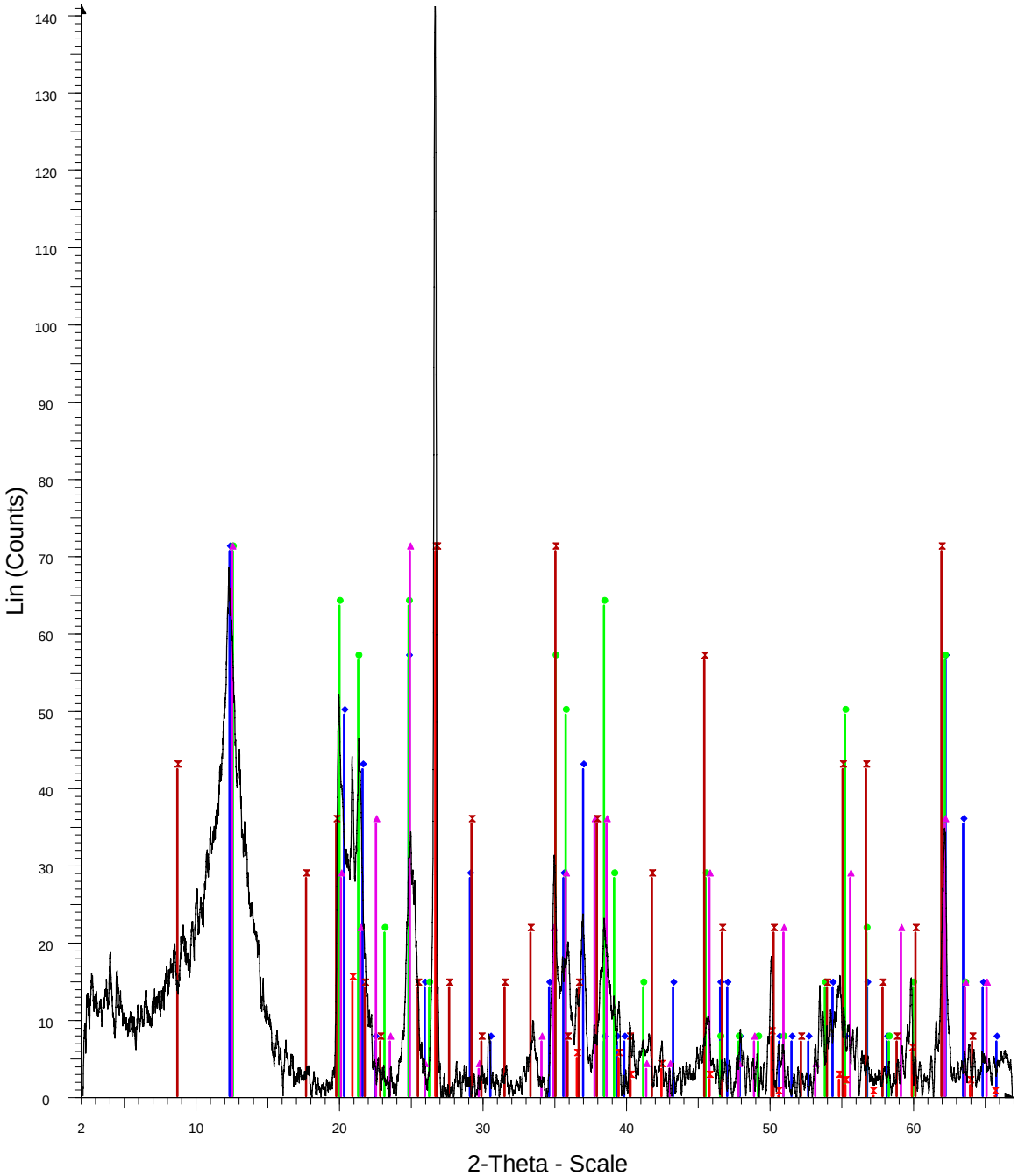
00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-012-0243 (D) - Clinochlore - Mg-Fe-Fe-Al-Si-O-OH - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C08A



07C08A - File: 07C08A.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Ti
Operations: Background 0.120,1.000 | Smooth 0.150 | Strip kAlpha2 0.500 | Background 0.257,1.000 | Import

00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

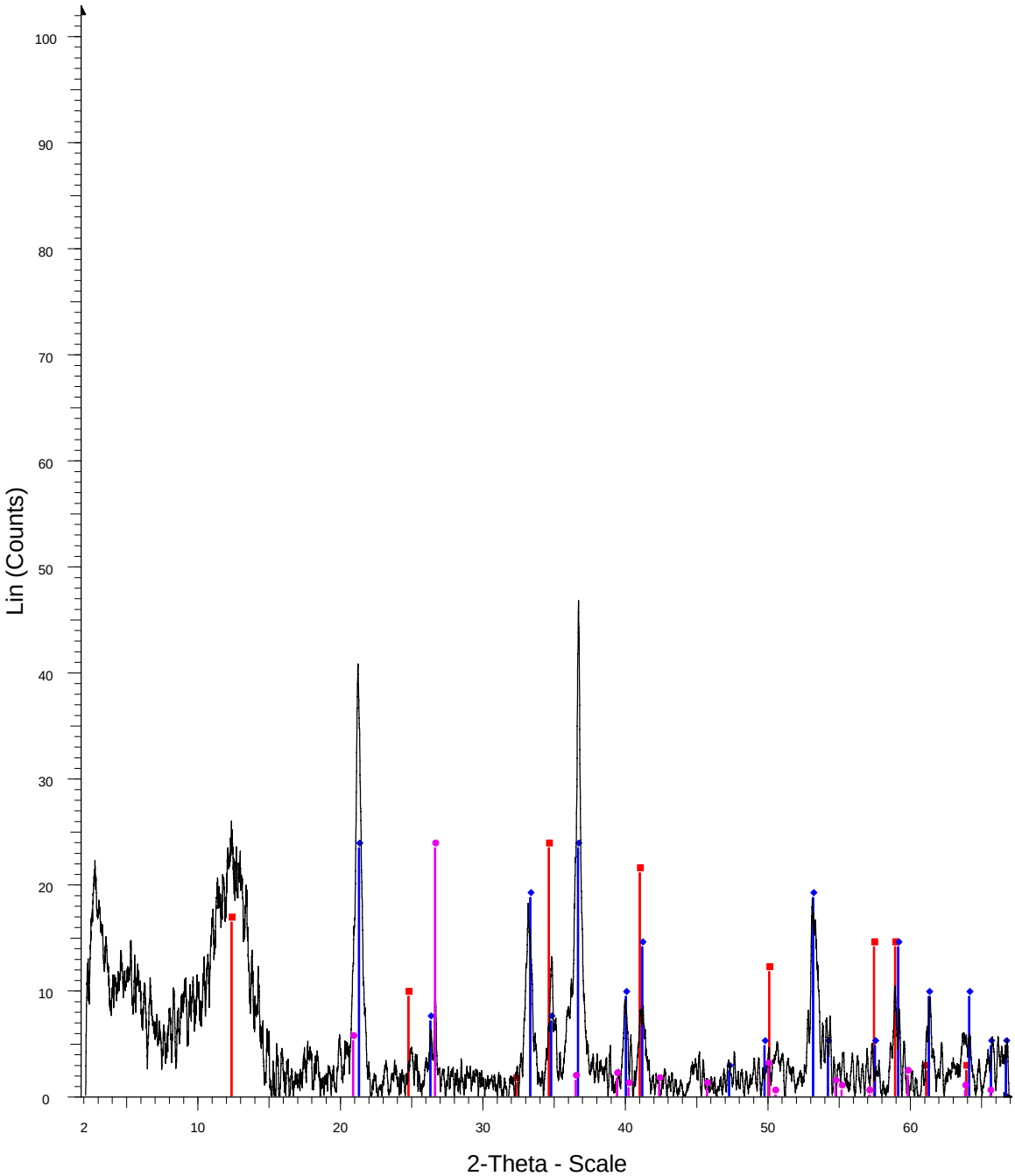
00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C09A



07C09A - File: 07C09A.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Ti

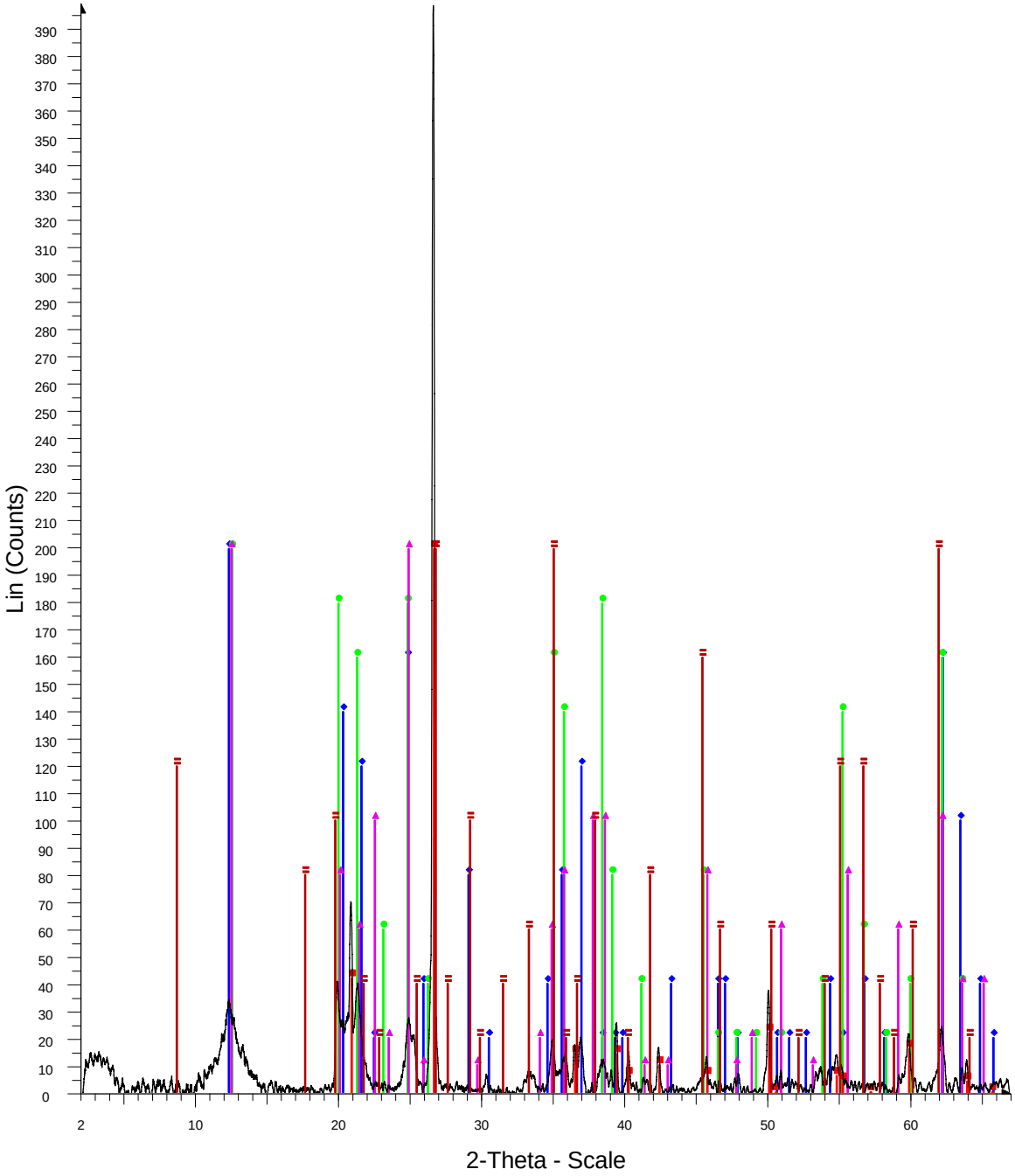
Operations: Background 0.380,1.000 | Smooth 0.150 | Strip kAlpha2 0.500 | Background 0.380,1.000 | Import

00-011-0265 (D) - Greenalite-1T - Fe3Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-002-0273 (D) - Goethite - Fe2O3.H2O.xH2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

01-083-0539 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

07C10A



07C10A - File: 07C10A.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Ti

Operations: Background 0.257,1.000 | Smooth 0.150 | Strip kAlpha2 0.500 | Background 0.257,1.000 | Background 0.257,1.000 | Import

00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

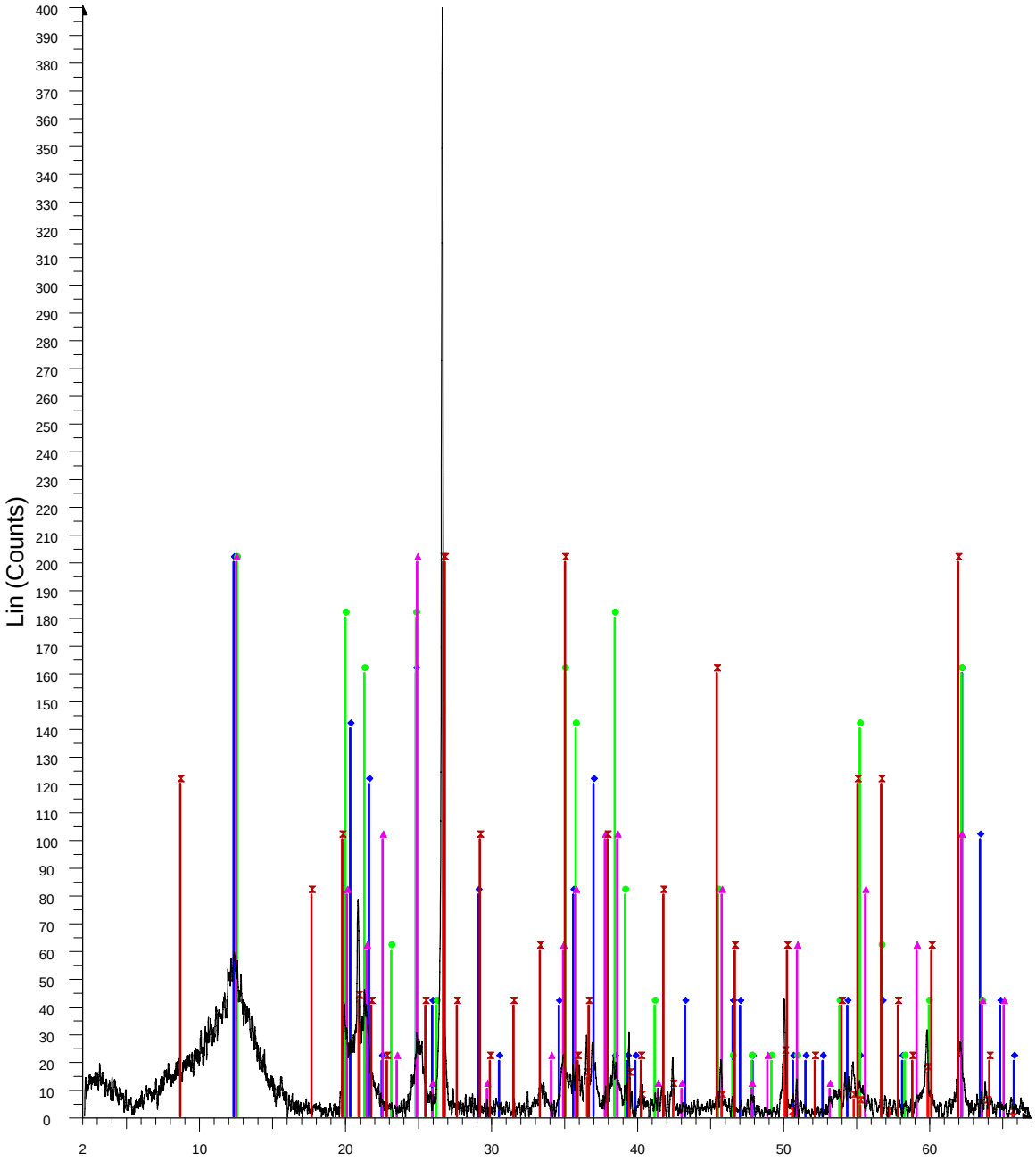
00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

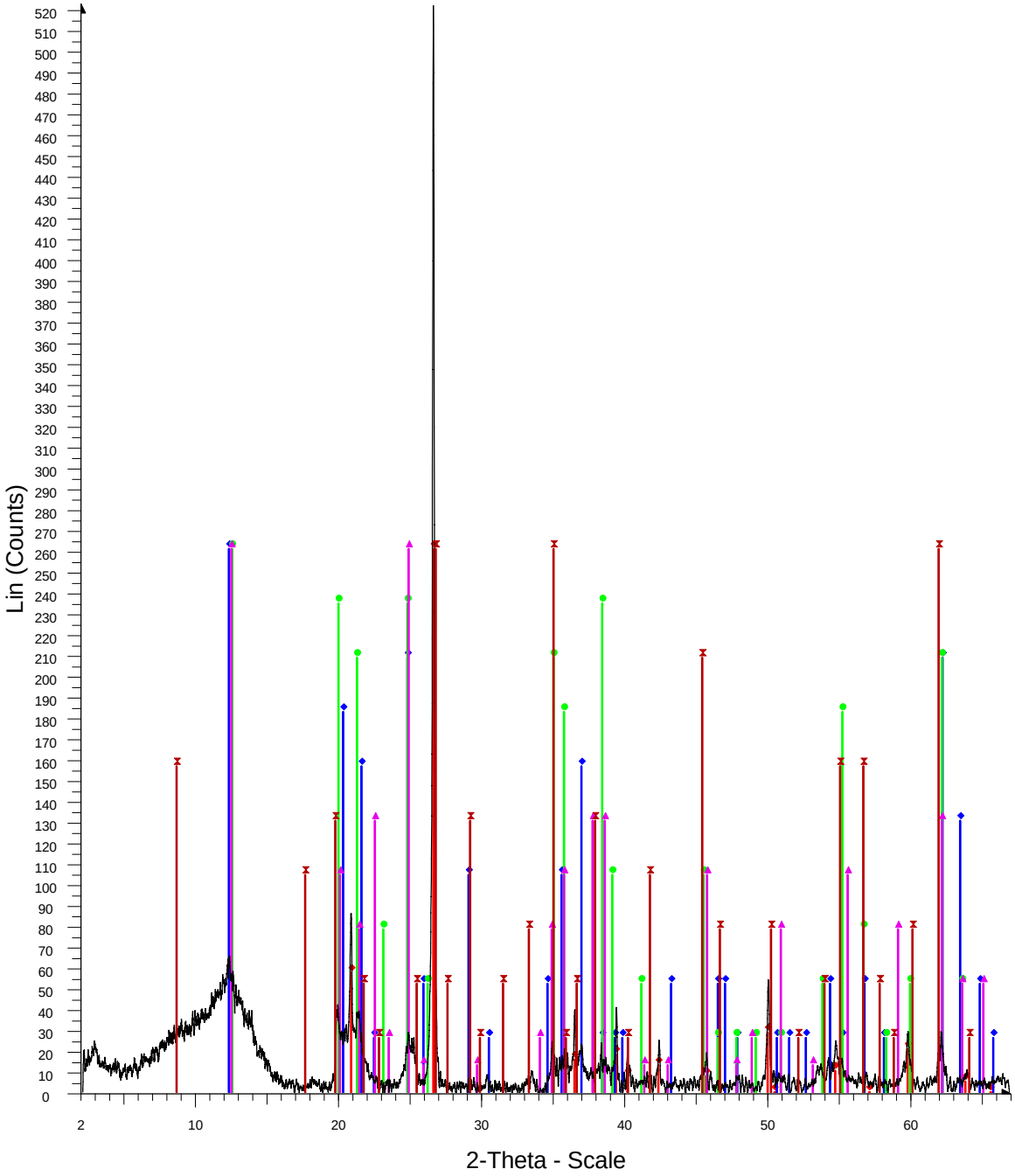
01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C11A


Lin (Counts)
2-Theta - Scale
07C11A - File: 07C11A.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Ti
Operations: Background 0.145,1.000 | Smooth 0.076 | Strip kAlpha2 0.500 | Background 0.145,1.000 | Import
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -
00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C12A



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Operations: Background 0.098,1.000 | Smooth 0.076 | Strip kAlpha2 0.500 | Background 0.098,1.000 | Import

01-083-0539 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

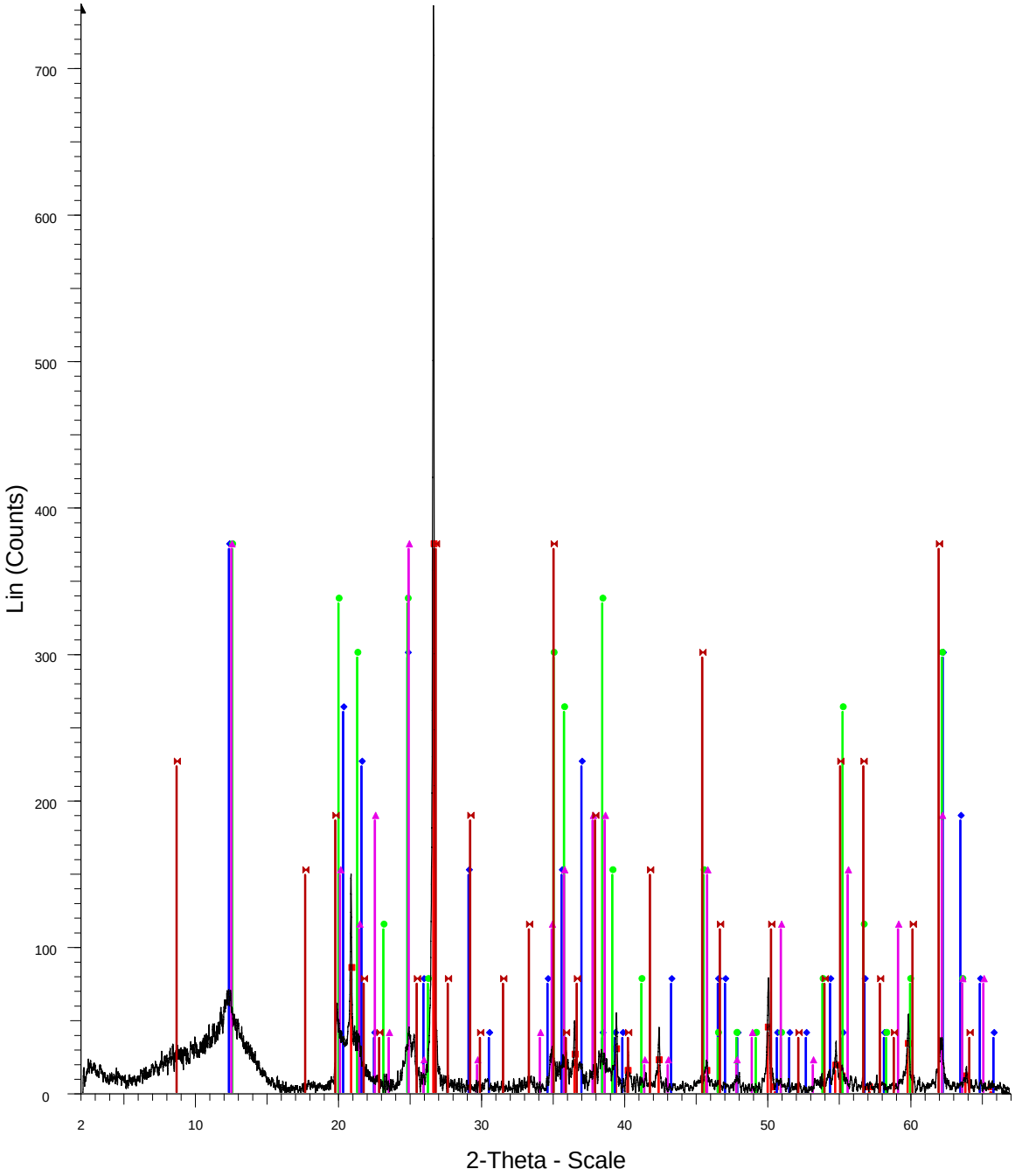
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C13A



07C13A - File: 07C13A.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Ti
Operations: Background 0.098,1.000 | Smooth 0.064 | Strip kAlpha2 0.500 | Background 0.098,1.000 | Import

01-083-0539 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

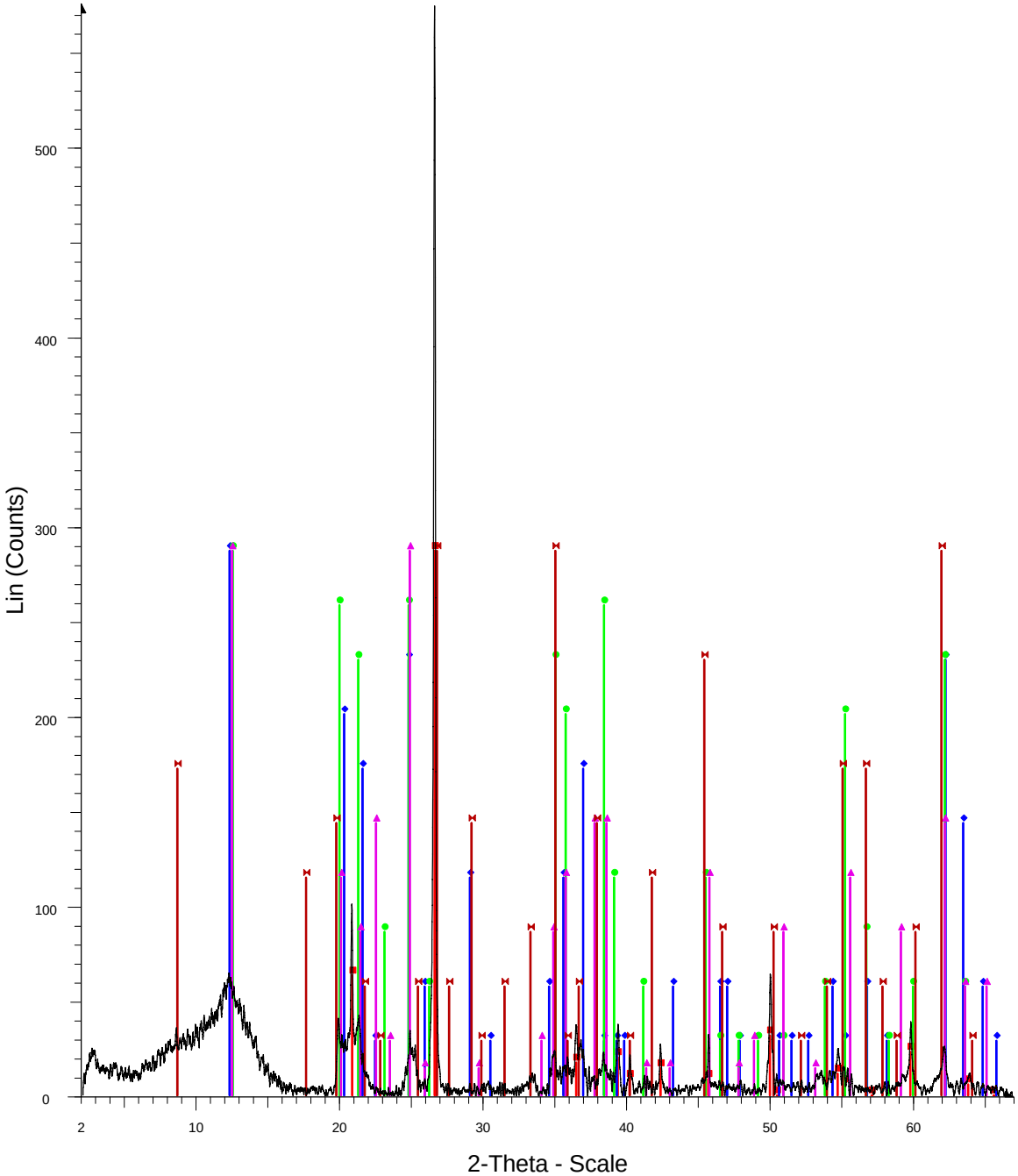
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C14A



07C14A - File: 07C14A.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Ti

Operations: Background 0.098,1.000 | Smooth 0.095 | Strip kAlpha2 0.500 | Background 0.098,1.000 | Import

01-083-0539 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

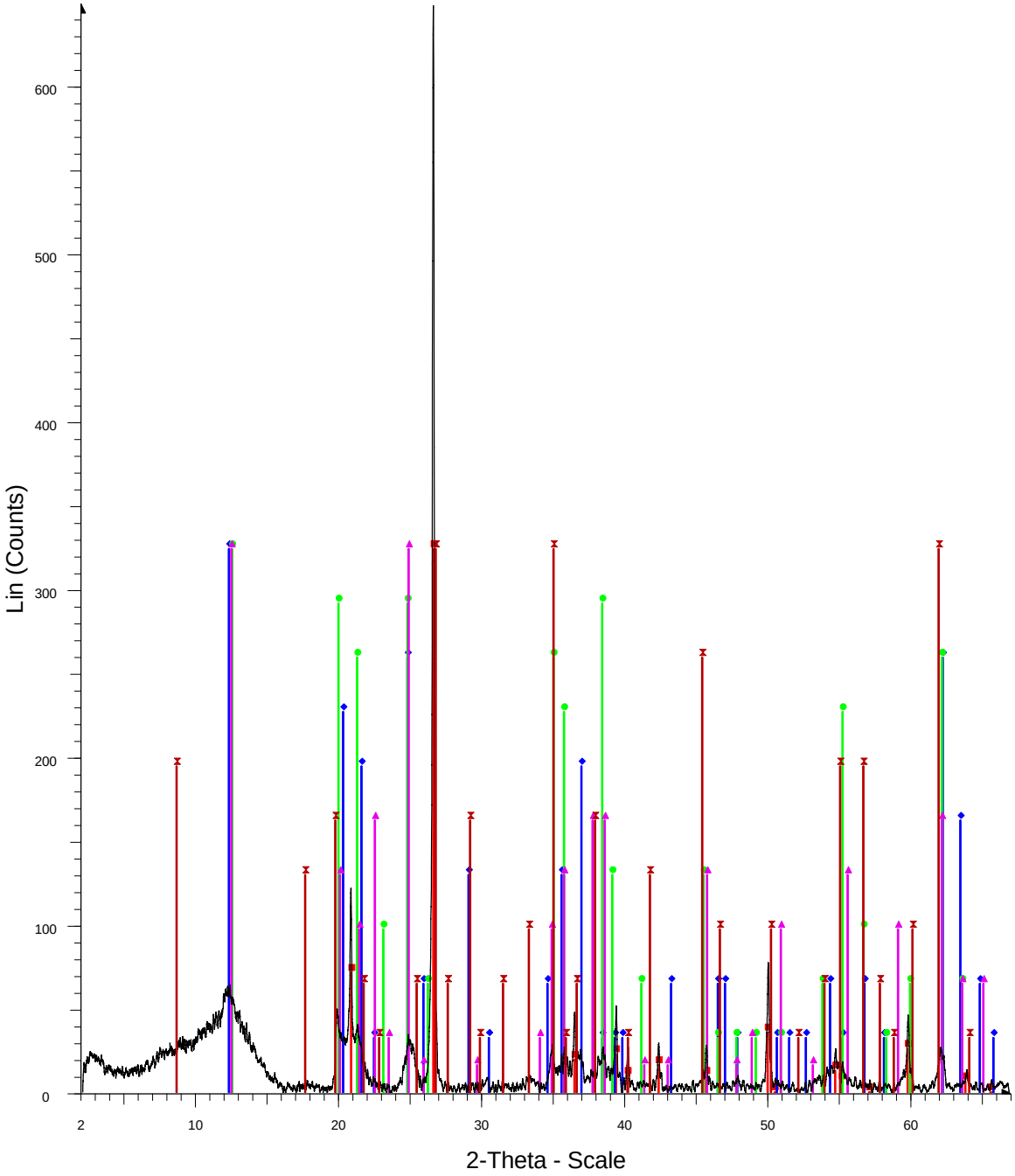
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C15A



07C15A - File: 07C15A.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Ti
Operations: Background 0.098,1.000 | Smooth 0.089 | Strip kAlpha2 0.500 | Background 0.098,1.000 | Import

01-083-0539 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

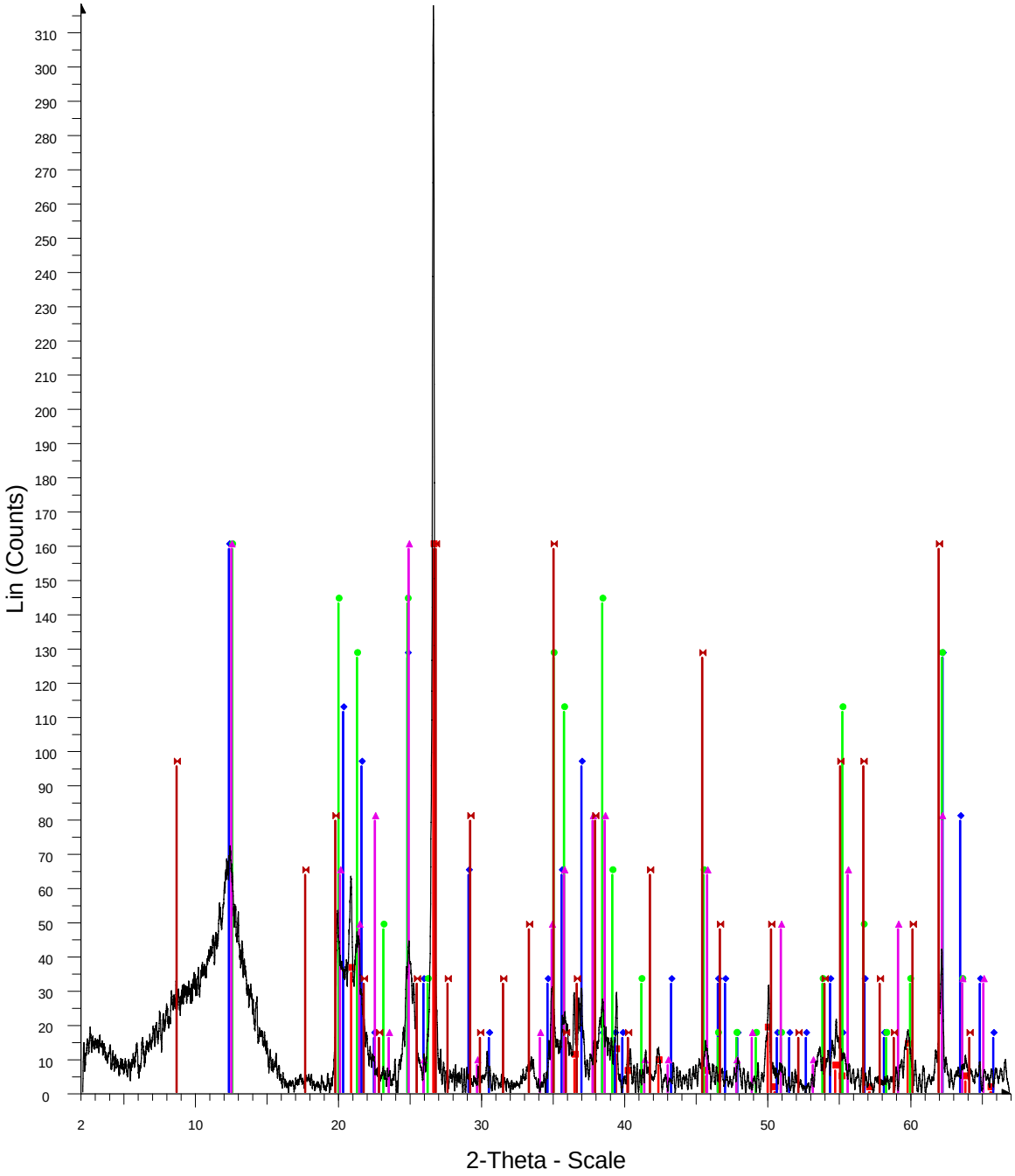
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C16A



07C16A - File: 07C16A.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Ti

Operations: Background 0.098,1.000 | Smooth 0.089 | Strip kAlpha2 0.500 | Background 0.098,1.000 | Import

01-083-0539 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

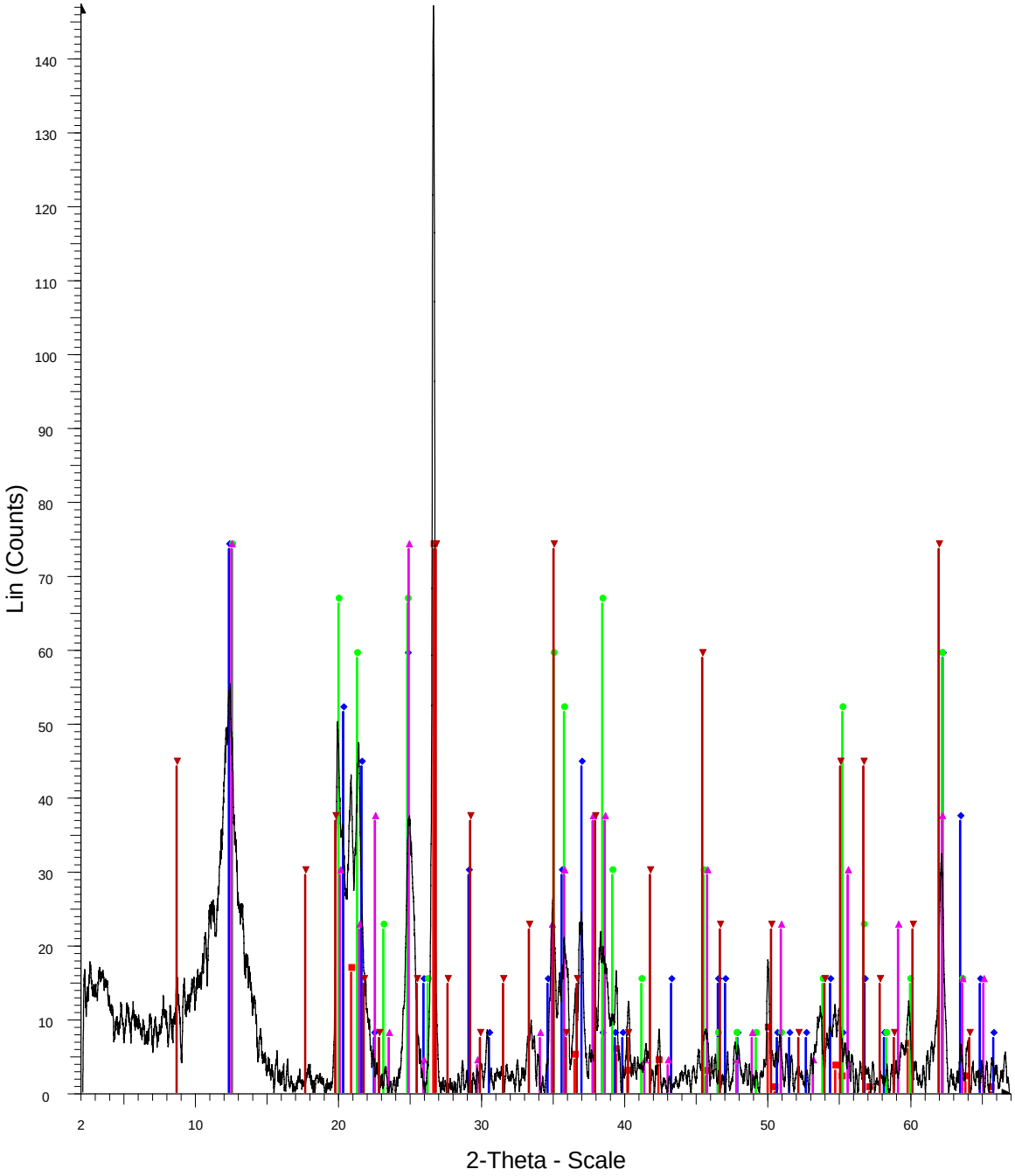
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C17A



07C17A - File: 07C17A.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Ti
Operations: Background 0.174,1.000 | Smooth 0.150 | Strip kAlpha2 0.500 | Background 0.380,1.000 | Import

01-083-0539 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

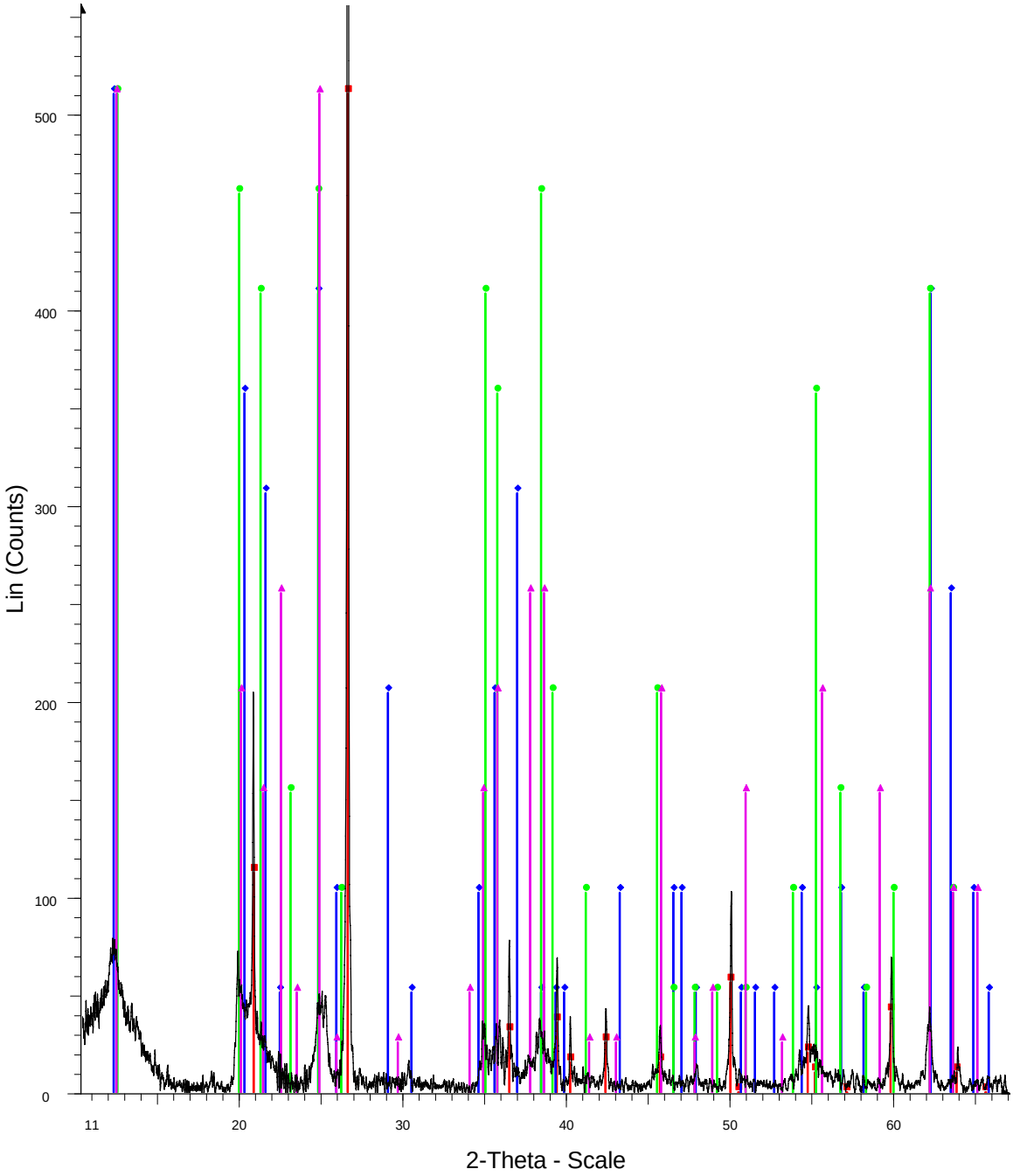
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C18A



07C18A - File: 07C18A.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Ti
Operations: Background 0.081,1.000 | Smooth 0.064 | Strip kAlpha2 0.500 | Background 0.081,1.000 | Import

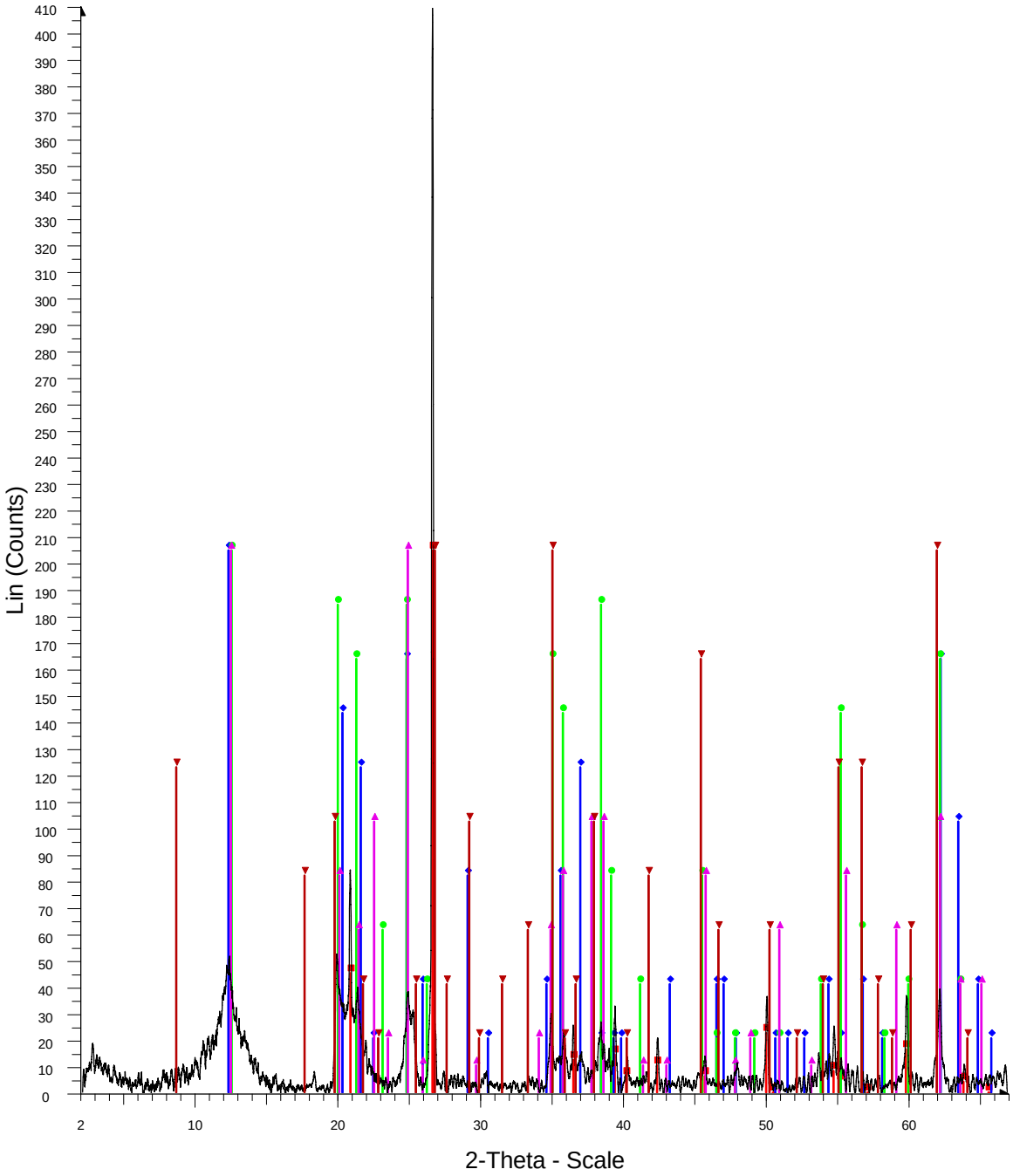
01-083-0539 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C19A



07C19A - File: 07C19A.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Ti

Operations: Background 0.257,1.000 | Smooth 0.107 | Strip kAlpha2 0.500 | Background 0.257,1.000 | Import

01-083-0539 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

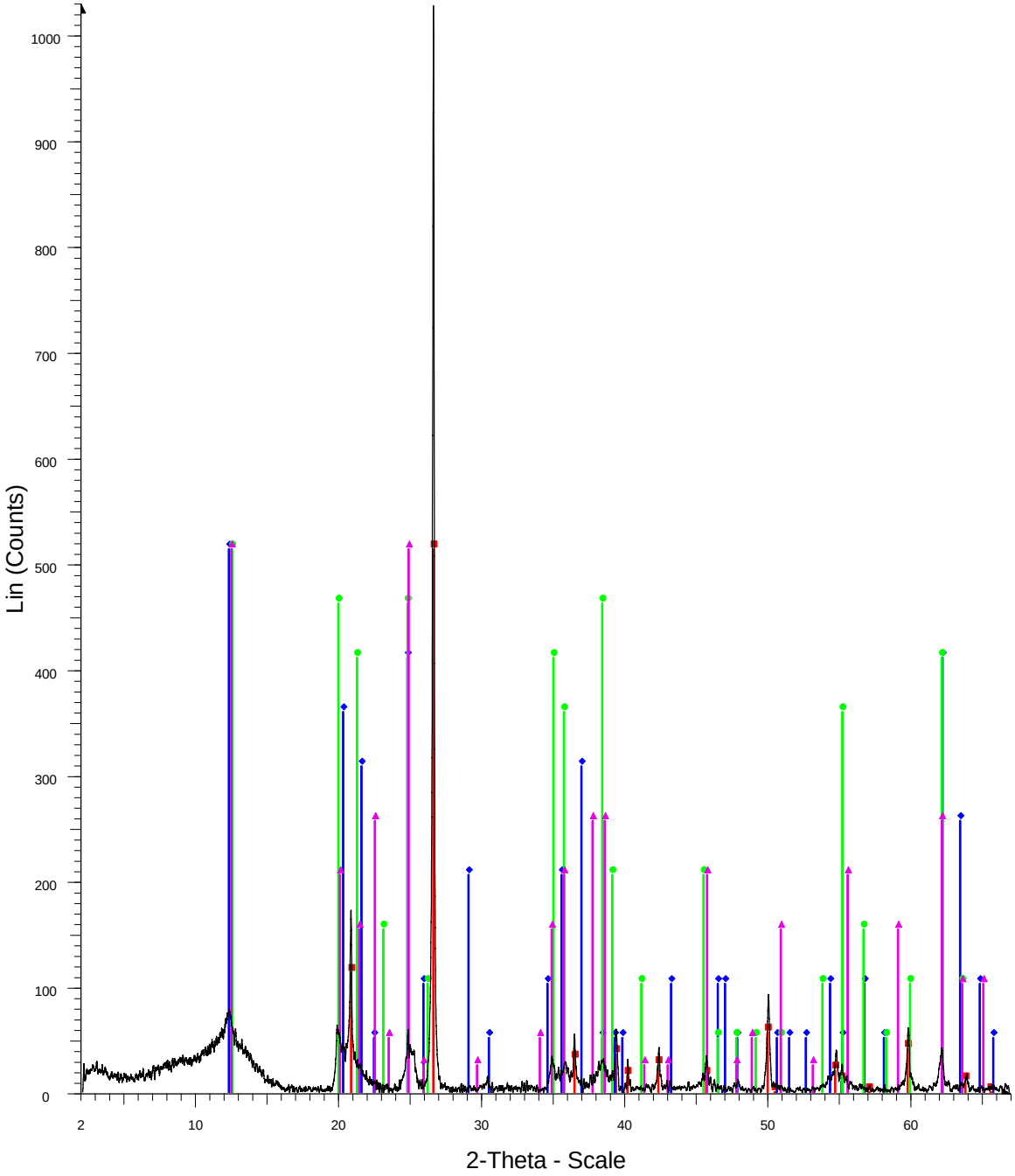
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C20A



07C20A - File: 07C20A.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Ti
Operations: Background 0.081,1.000 | Smooth 0.070 | Strip kAlpha2 0.500 | Background 0.081,1.000 | Import

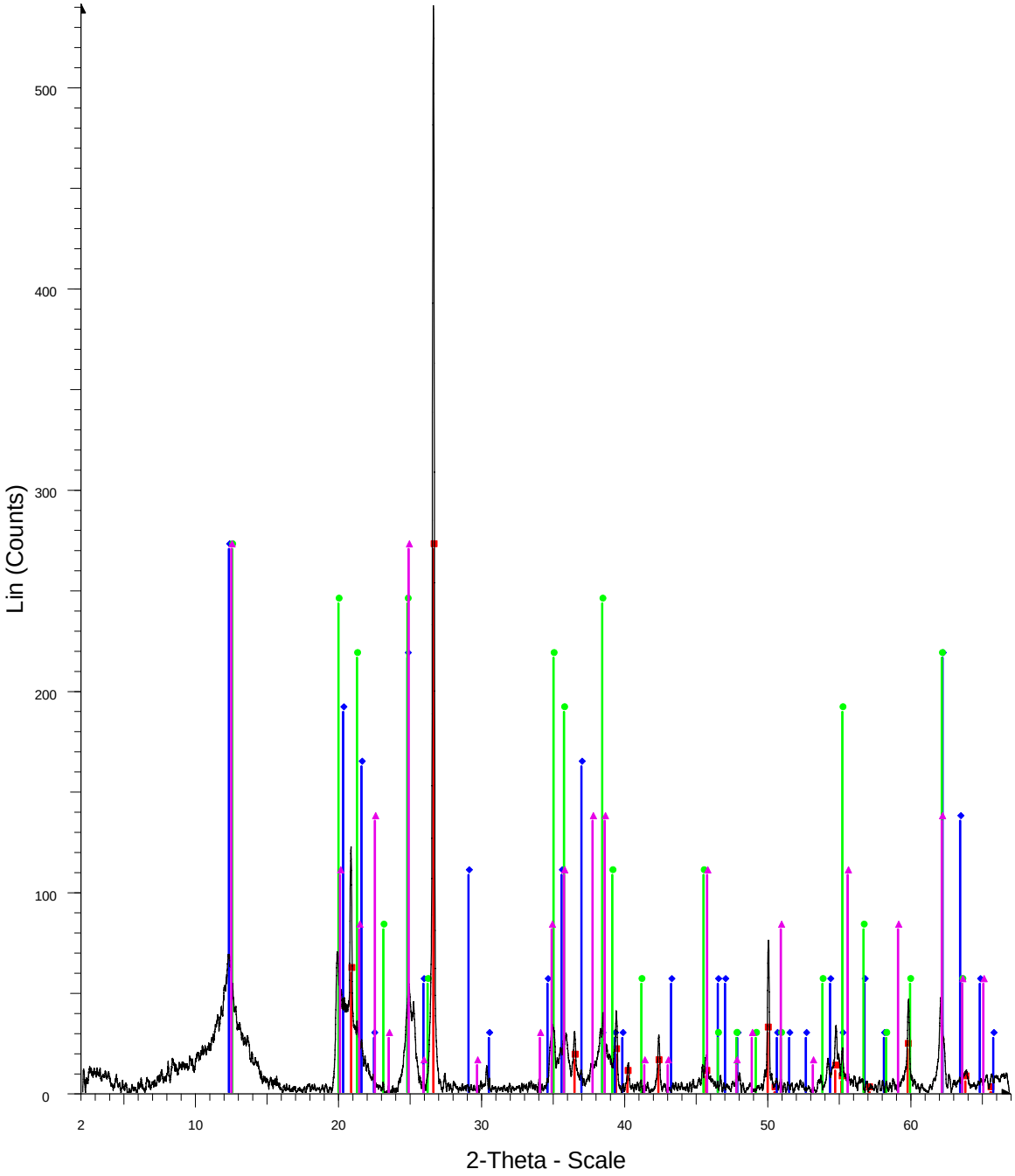
01-083-0539 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C21A



07C21A - File: 07C21A.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Ti
Operations: Background 0.174,1.000 | Smooth 0.113 | Strip kAlpha2 0.500 | Background 0.174,1.000 | Import

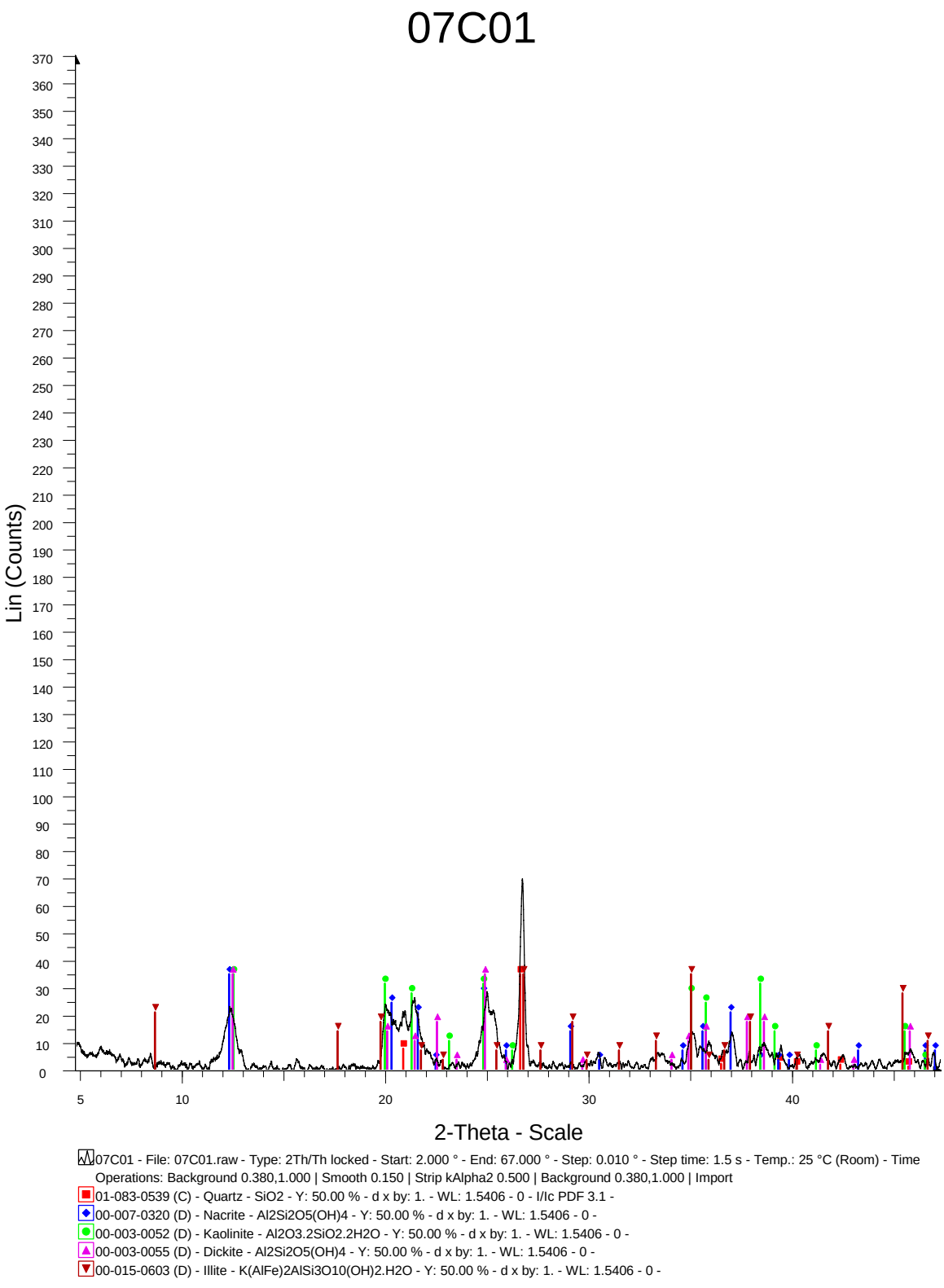
01-083-0539 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

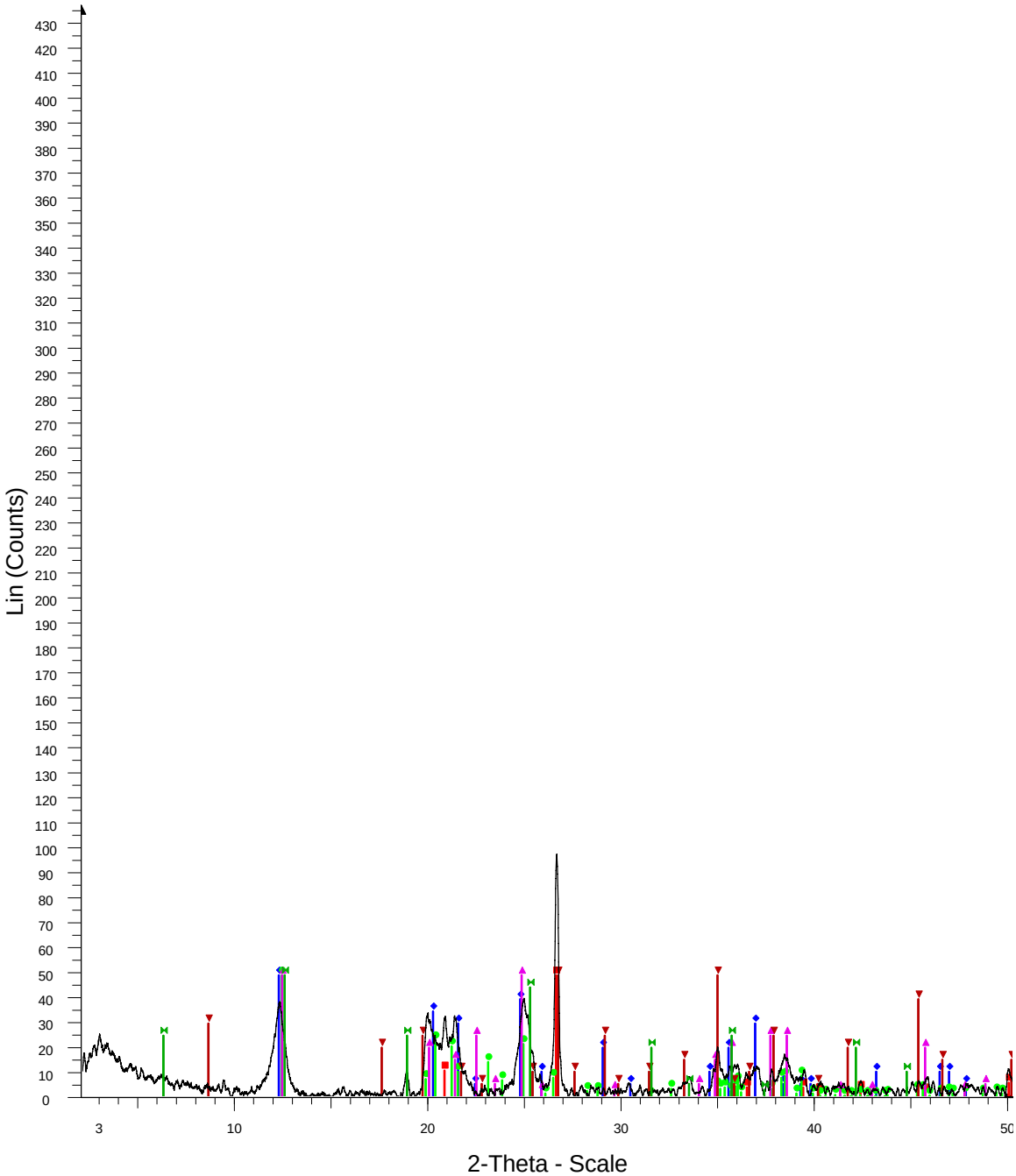
00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

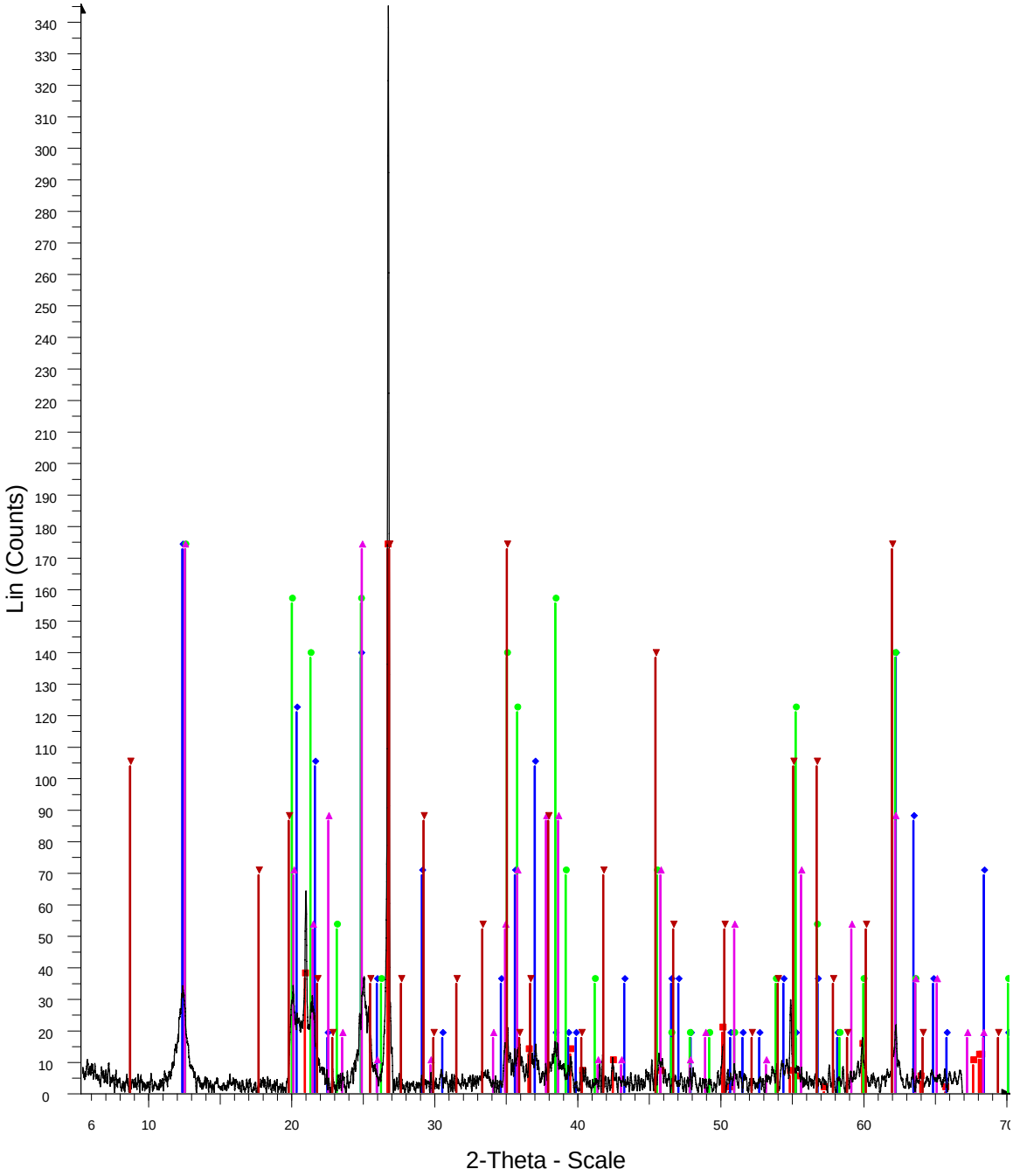
Oriented Mounts (Suspension)



07C02


Lin (Counts)
2-Theta - Scale
07C02 - File: 07C02.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Time
Operations: Background 0.257,1.000 | Smooth 0.150 | Strip kAlpha2 0.500 | Background 0.257,1.000 | Import
01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
01-083-0971 (C) - Kaolinite - from Keokuk, Iowa, USA - Al2(Si2O5)(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 1. -
00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-012-0243 (D) - Clinochlore - Mg-Fe-Fe-Al-Si-O-OH - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C03



07C03 - File: 07C03.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Time Operations: Background 0.120,1.000 | Smooth 0.089 | Strip kAlpha2 0.500 | Background 0.120,1.000 | Import

01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

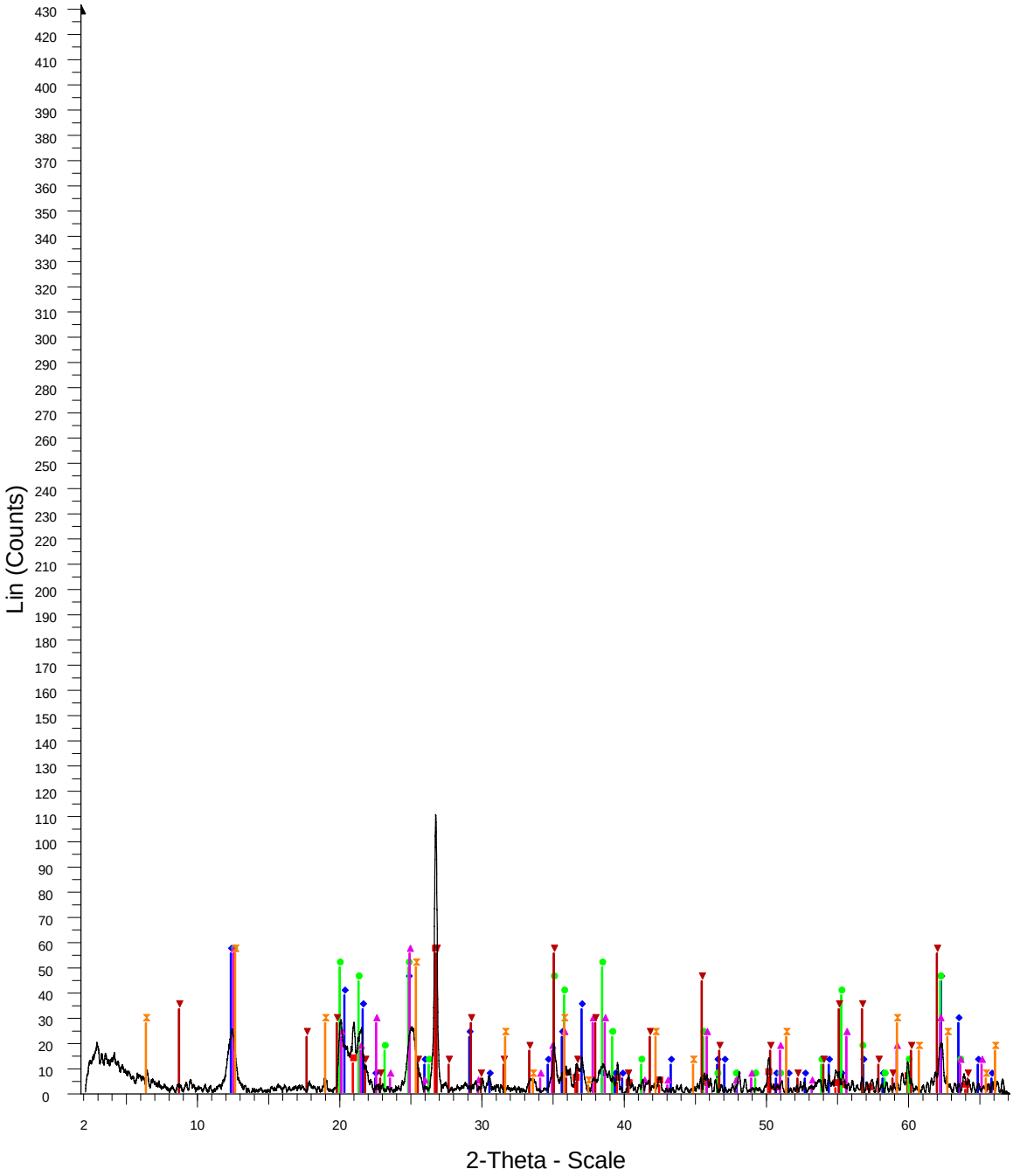
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

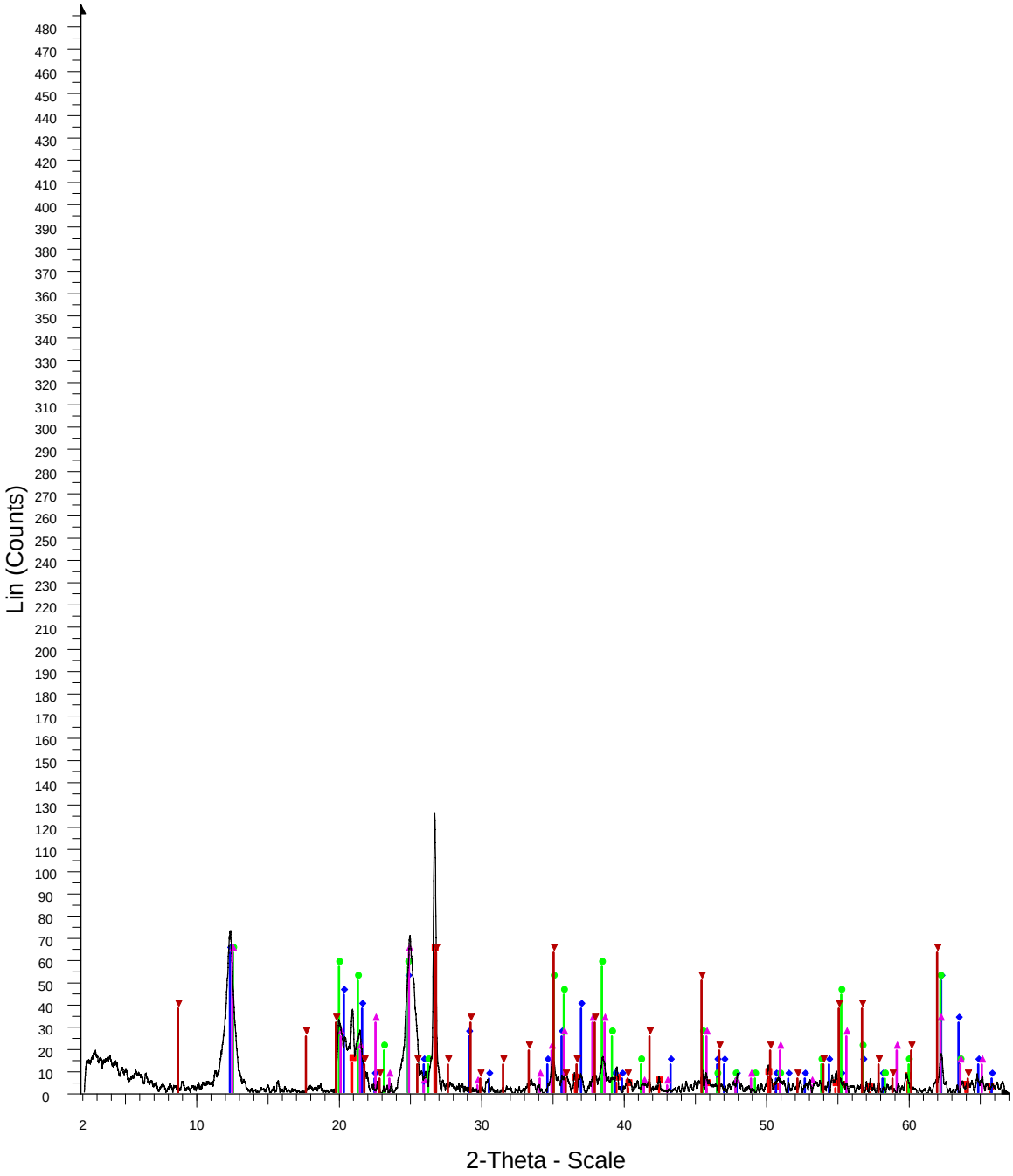
00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

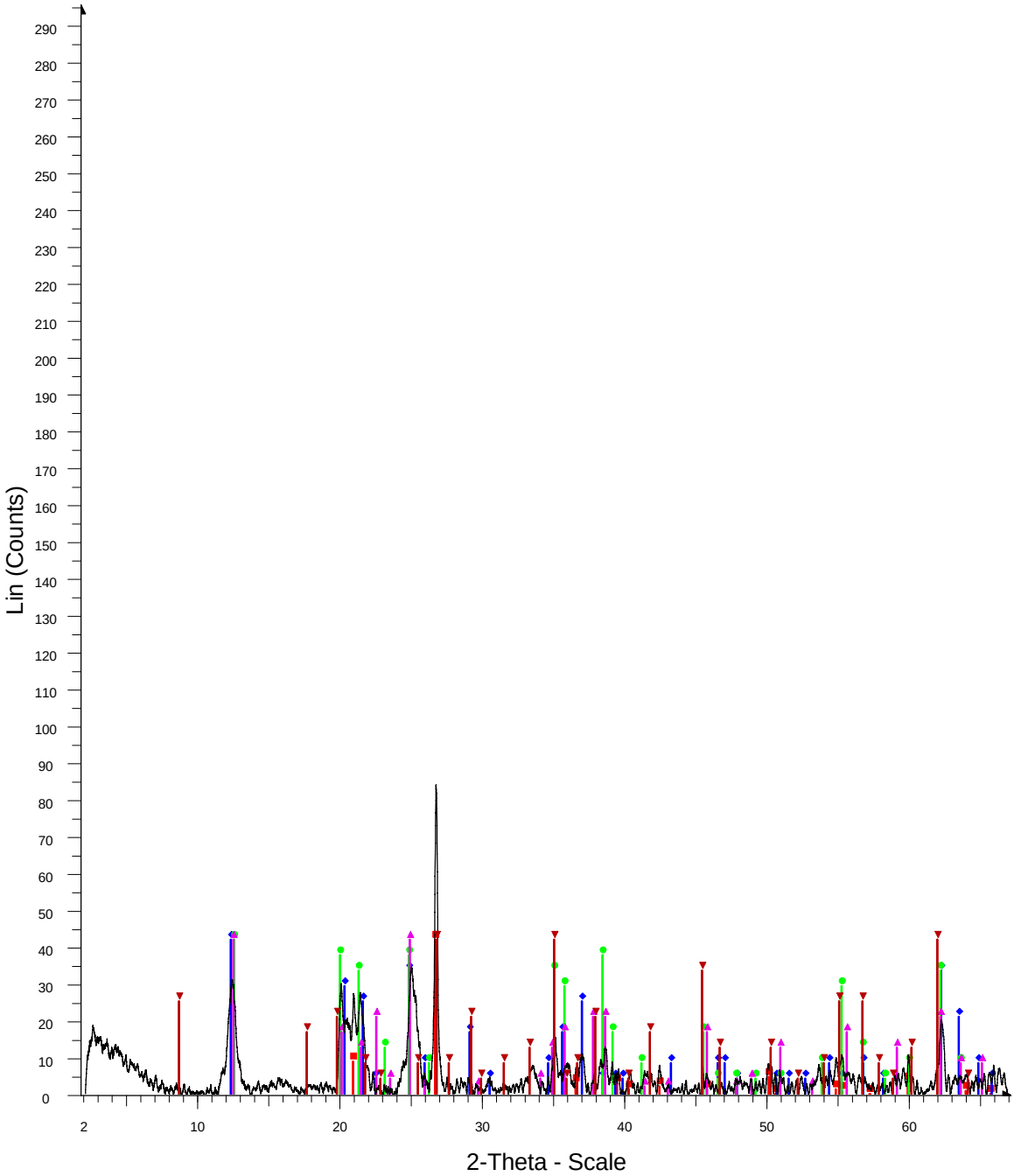
07C04


Lin (Counts)
2-Theta - Scale
07C04 - File: 07C04.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Time
Operations: Background 0.380,1.000 | Smooth 0.150 | Strip kAlpha2 0.500 | Background 0.380,1.000 | Import
01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-012-0243 (D) - Clinochlore - Mg-Fe-Fe-Al-Si-O-OH - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C05


Lin (Counts)
2-Theta - Scale
07C05 - File: 07C05.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Time
Operations: Background 0.380,1.000 | Smooth 0.150 | Strip kAlpha2 0.500 | Background 0.380,1.000 | Import
01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C06



07C06 - File: 07C06.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Time Operations: Background 0.380,1.000 | Smooth 0.150 | Strip kAlpha2 0.500 | Background 0.380,1.000 | Import

01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

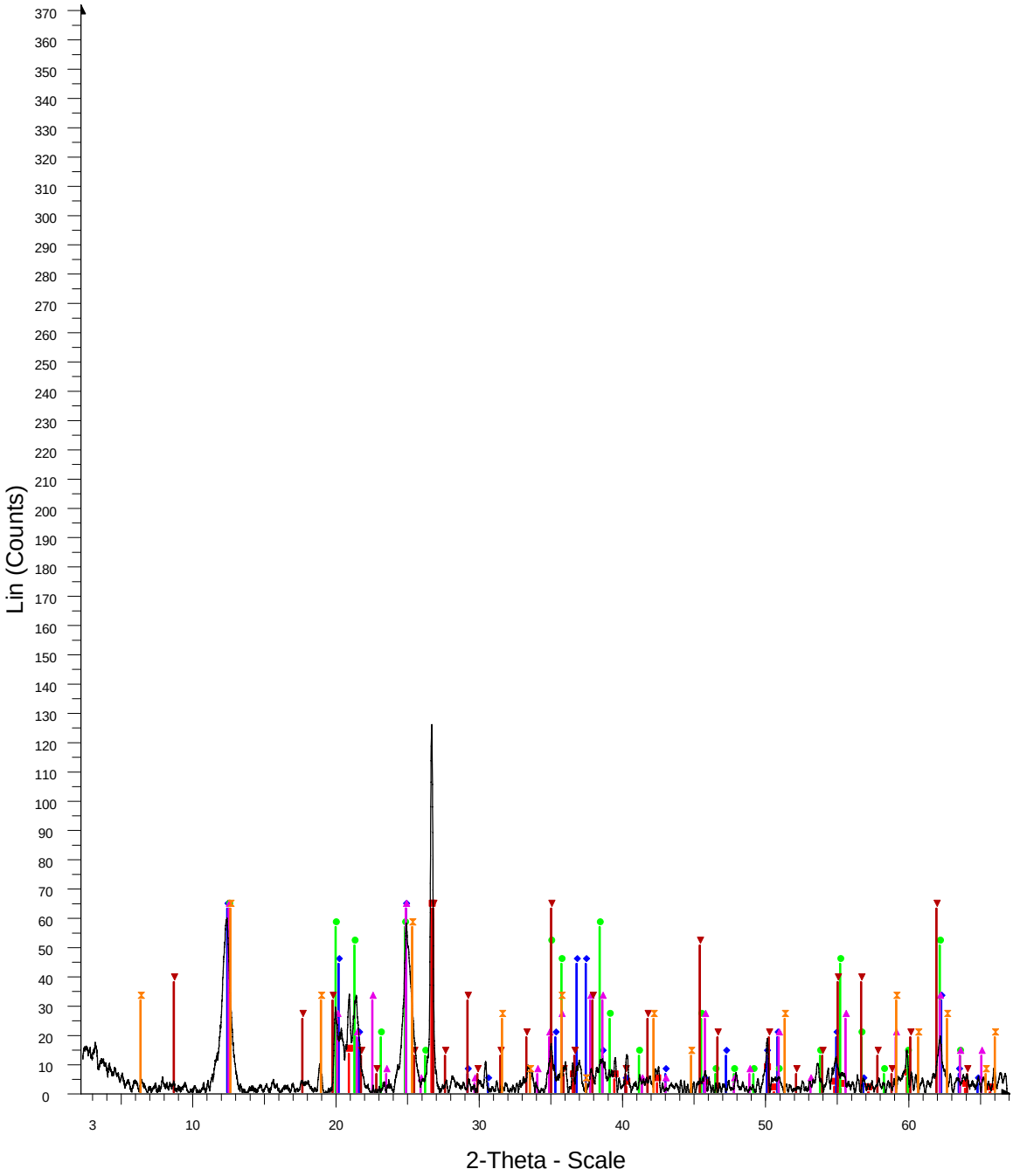
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

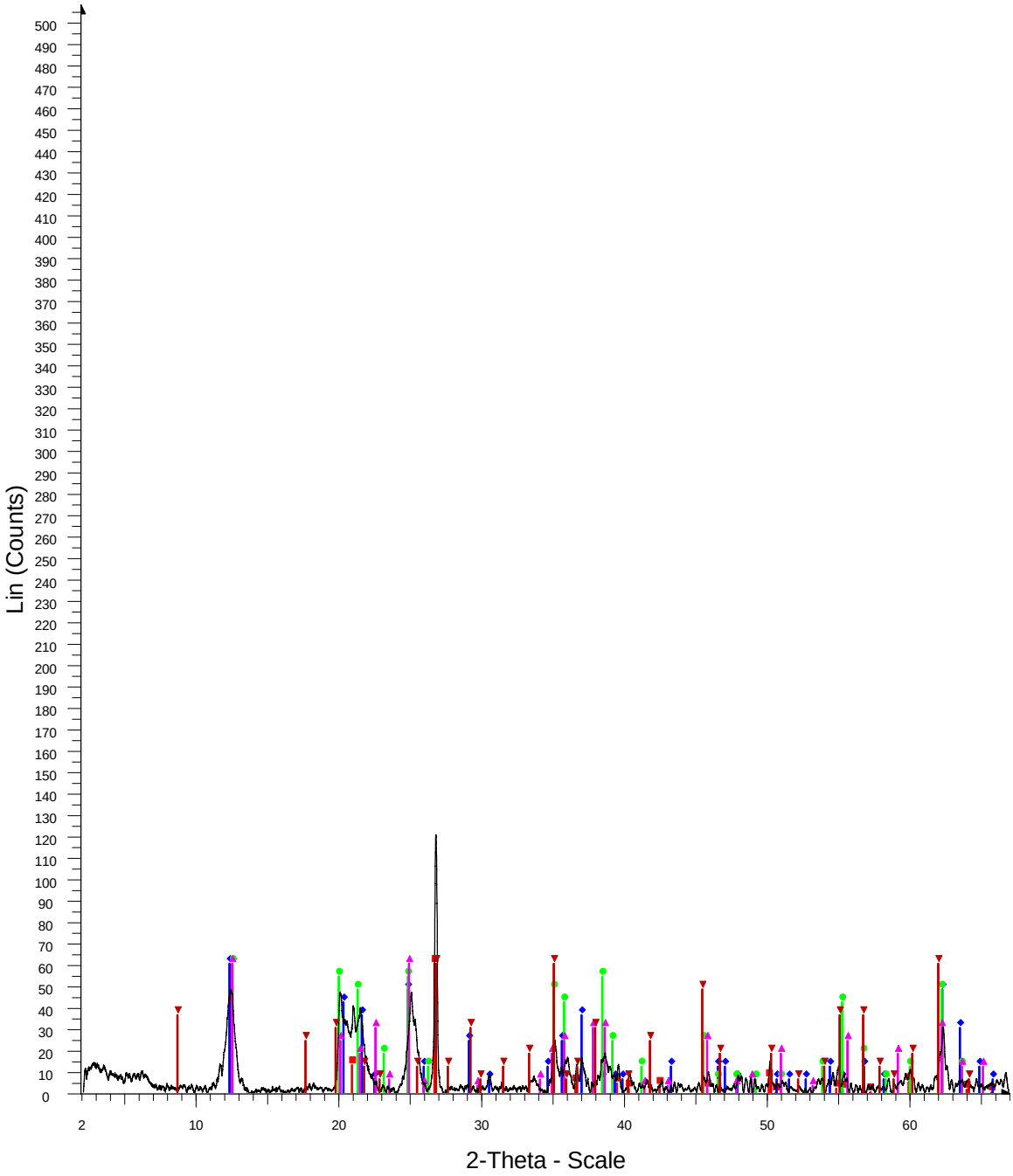
00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

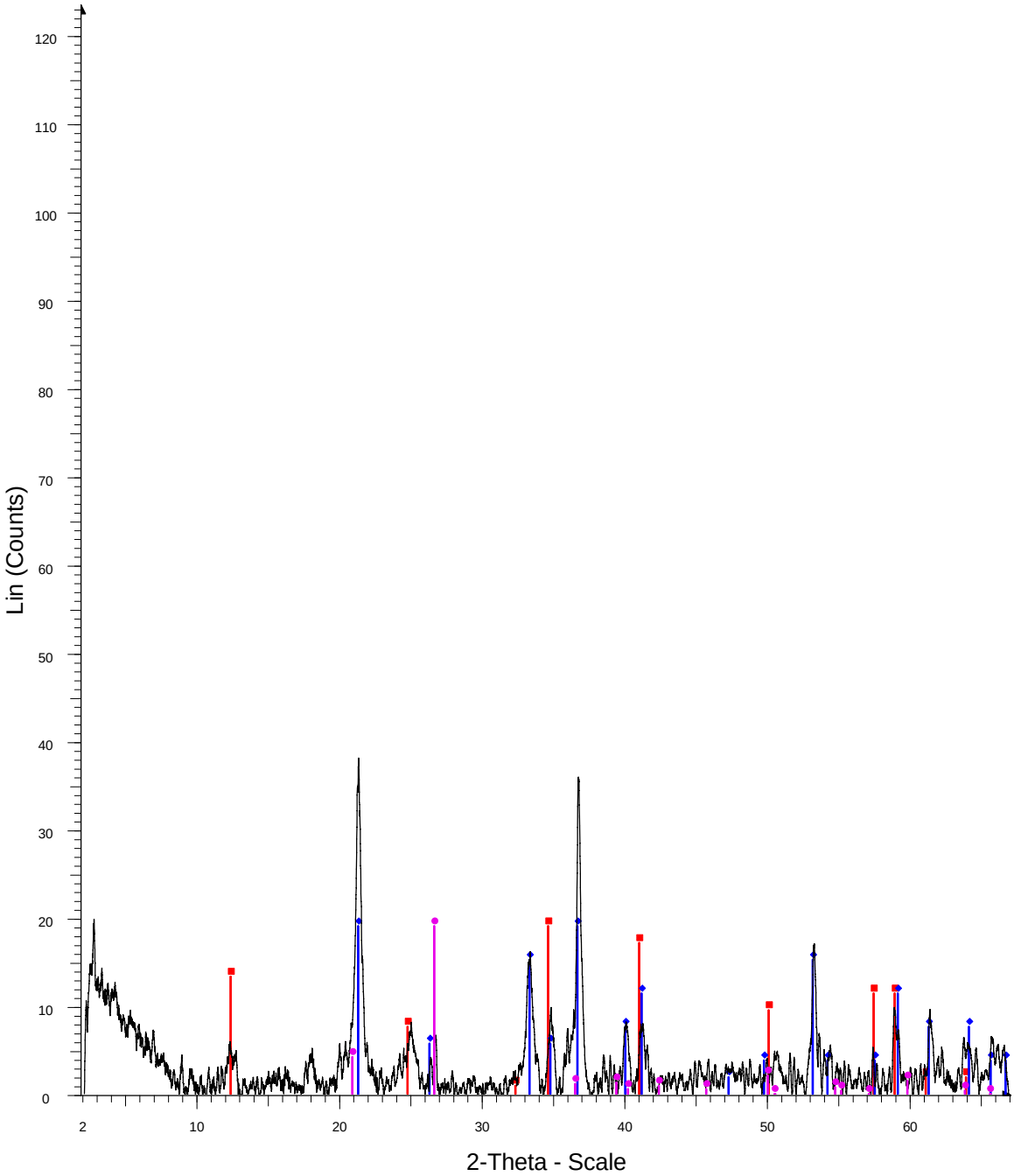
07C07


Lin (Counts)
2-Theta - Scale
07C07 - File: 07C07.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Time
Operations: Background 0.380,1.000 | Smooth 0.150 | Strip kAlpha2 0.500 | Background 0.380,1.000 | Import
01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -
00-007-0350 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-012-0243 (D) - Clinochlore - Mg-Fe-Fe-Al-Si-O-OH - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C08


Lin (Counts)
2-Theta - Scale
07C08 - File: 07C08.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Time
Operations: Background 0.380,1.000 | Smooth 0.150 | Strip kAlpha2 0.500 | Background 0.380,1.000 | Import
01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C09



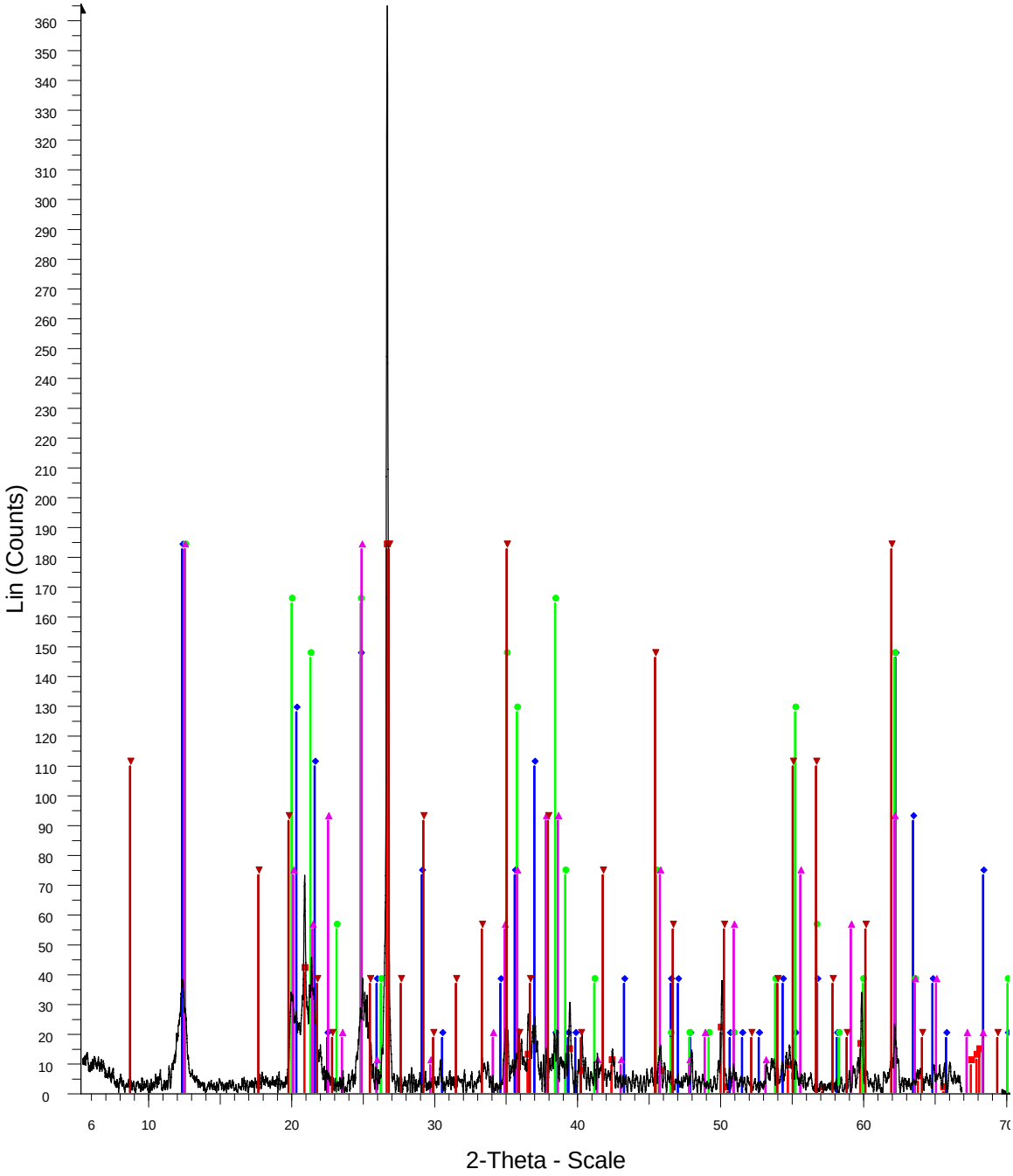
07C09 - File: 07C09.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Time Operations: Background 0.380,1.000 | Smooth 0.150 | Strip kAlpha2 0.500 | Background 0.380,1.000 | Import

00-011-0265 (D) - Greenalite-1T - Fe3Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-002-0273 (D) - Goethite - Fe2O3.H2O.xH2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

01-083-0539 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

07C10



07C10 - File: 07C10.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Time Operations: Background 0.120,1.000 | Smooth 0.082 | Strip kAlpha2 0.500 | Background 0.120,1.000 | Import

01-083-0539 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

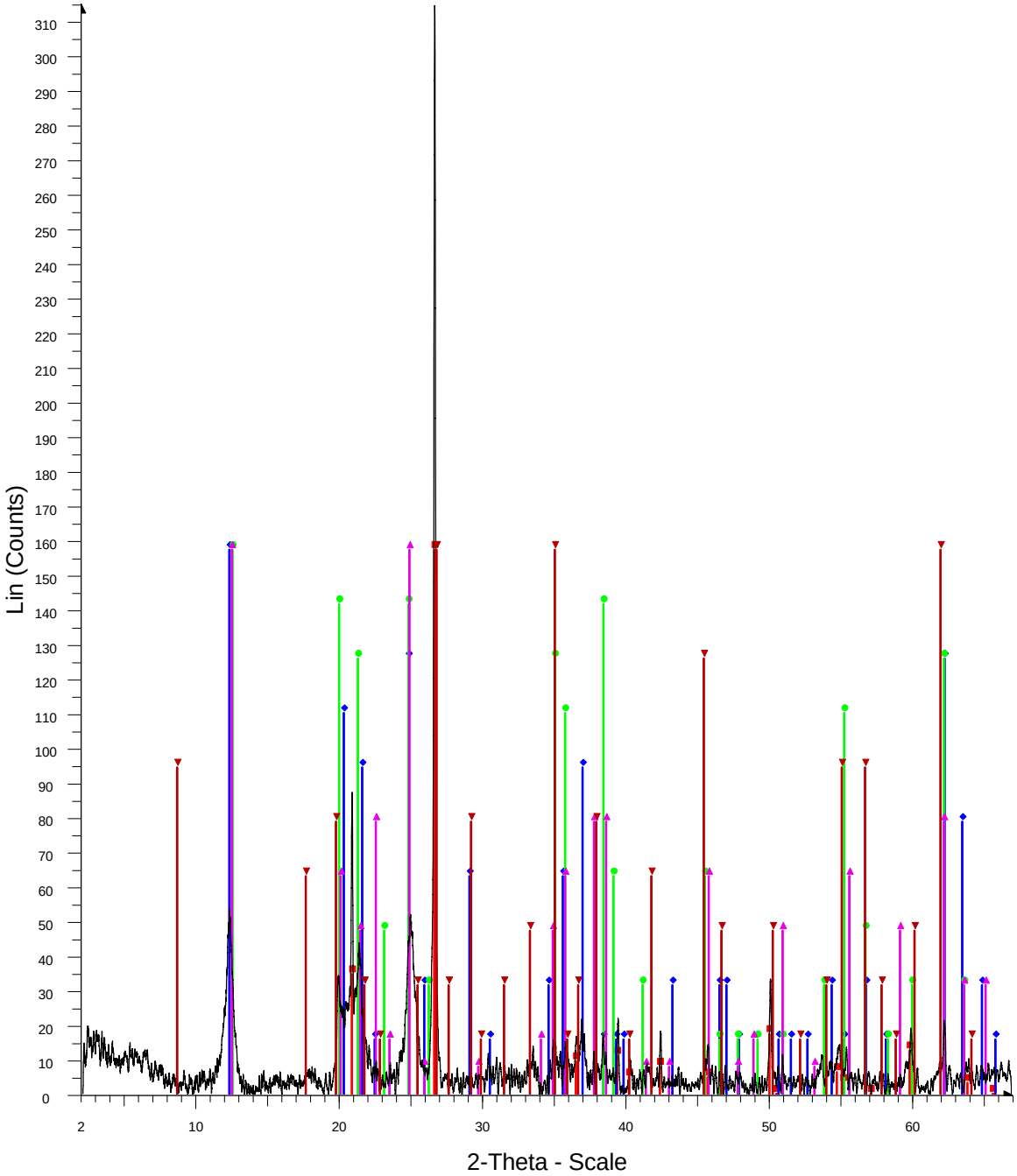
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C11



07C11 - File: 07C11.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Time Operations: Background 0.120,1.000 | Smooth 0.089 | Strip kAlpha2 0.500 | Background 0.120,1.000 | Import

01-083-0539 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

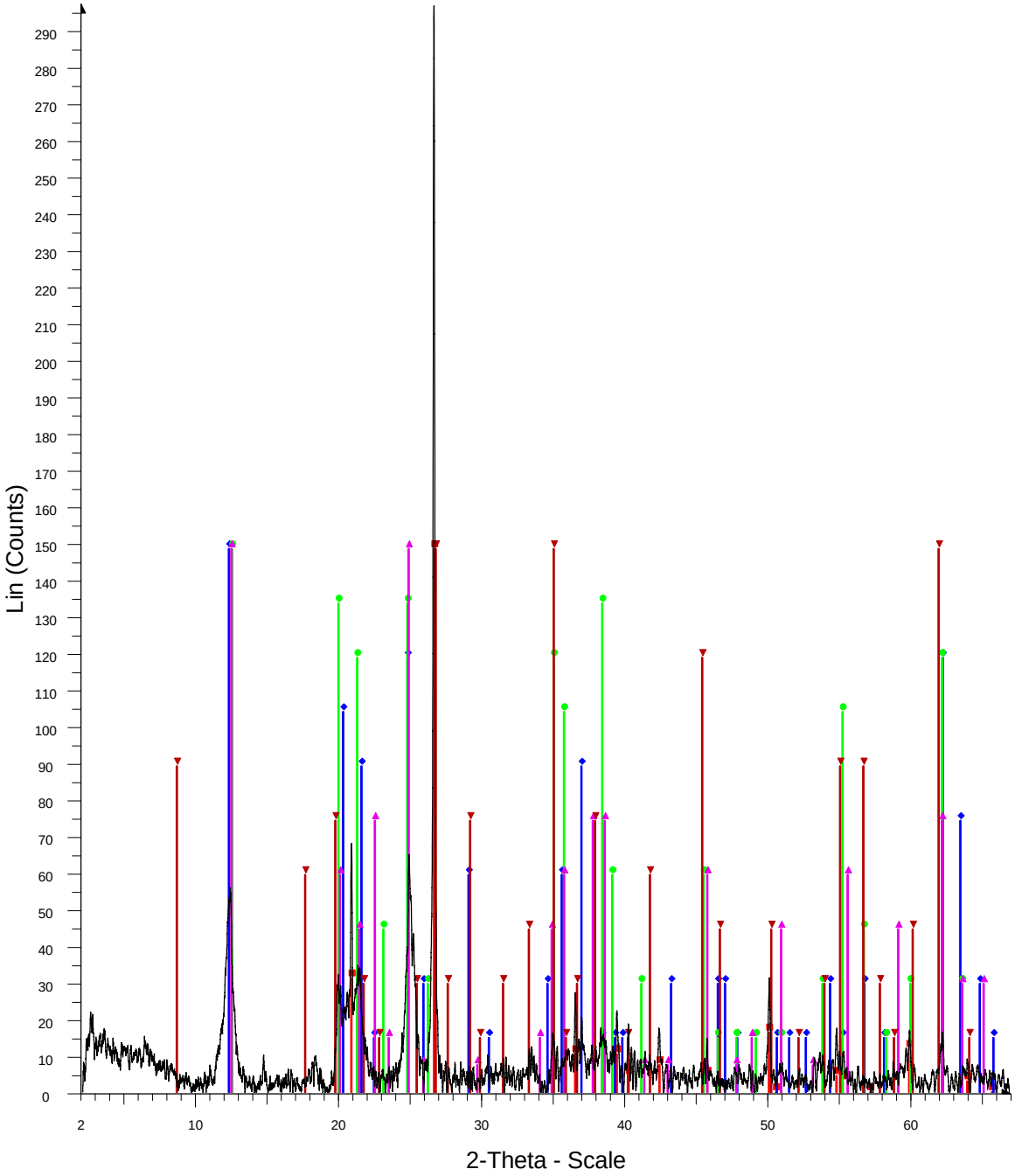
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C12



07C12 - File: 07C12.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Time Operations: Background 0.145,1.000 | Smooth 0.089 | Strip kAlpha2 0.500 | Background 0.145,1.000 | Import

01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

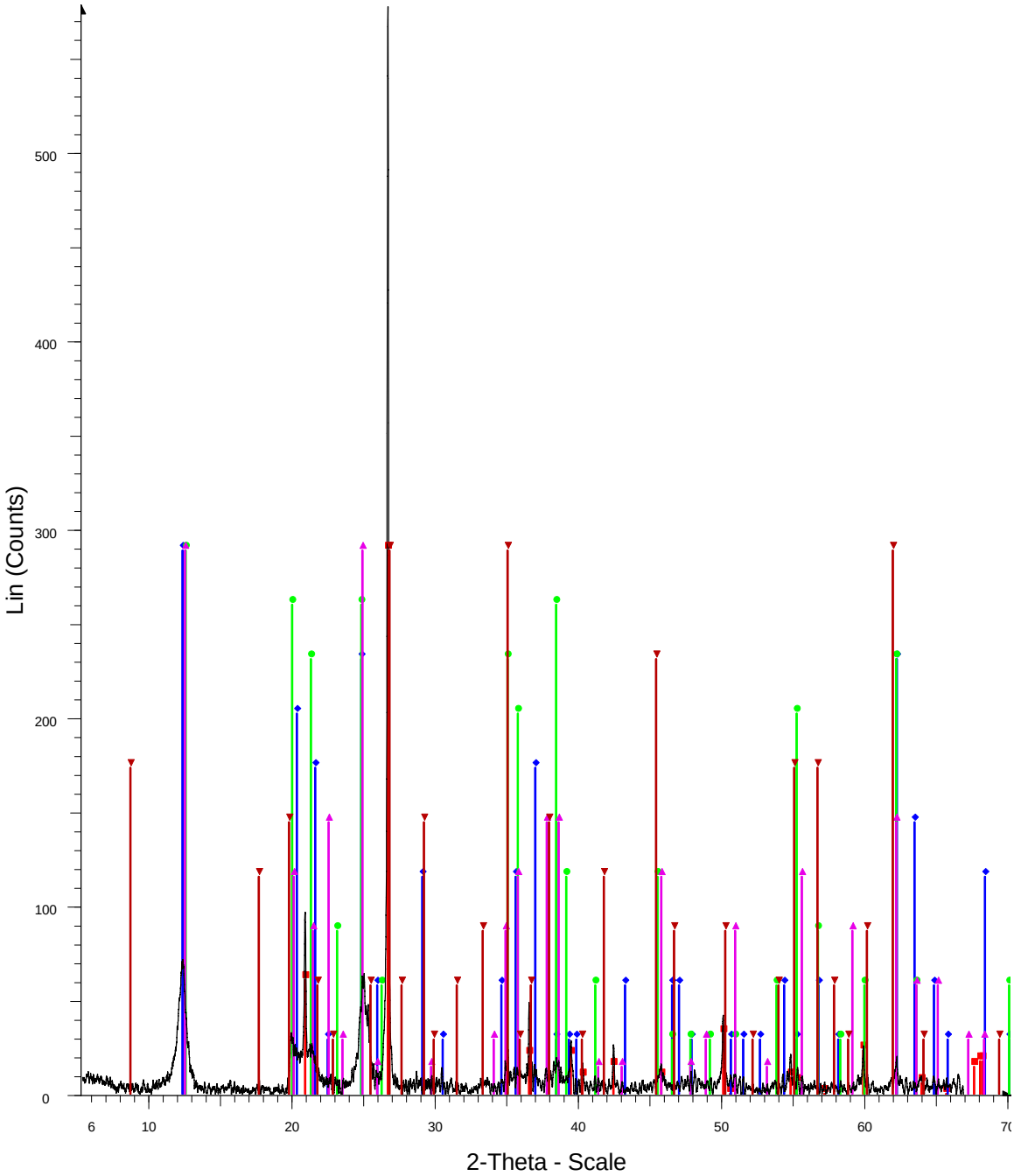
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C13



07C13 - File: 07C13.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Time Operations: Background 0.098,1.000 | Smooth 0.076 | Strip kAlpha2 0.500 | Background 0.098,1.000 | Import

01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

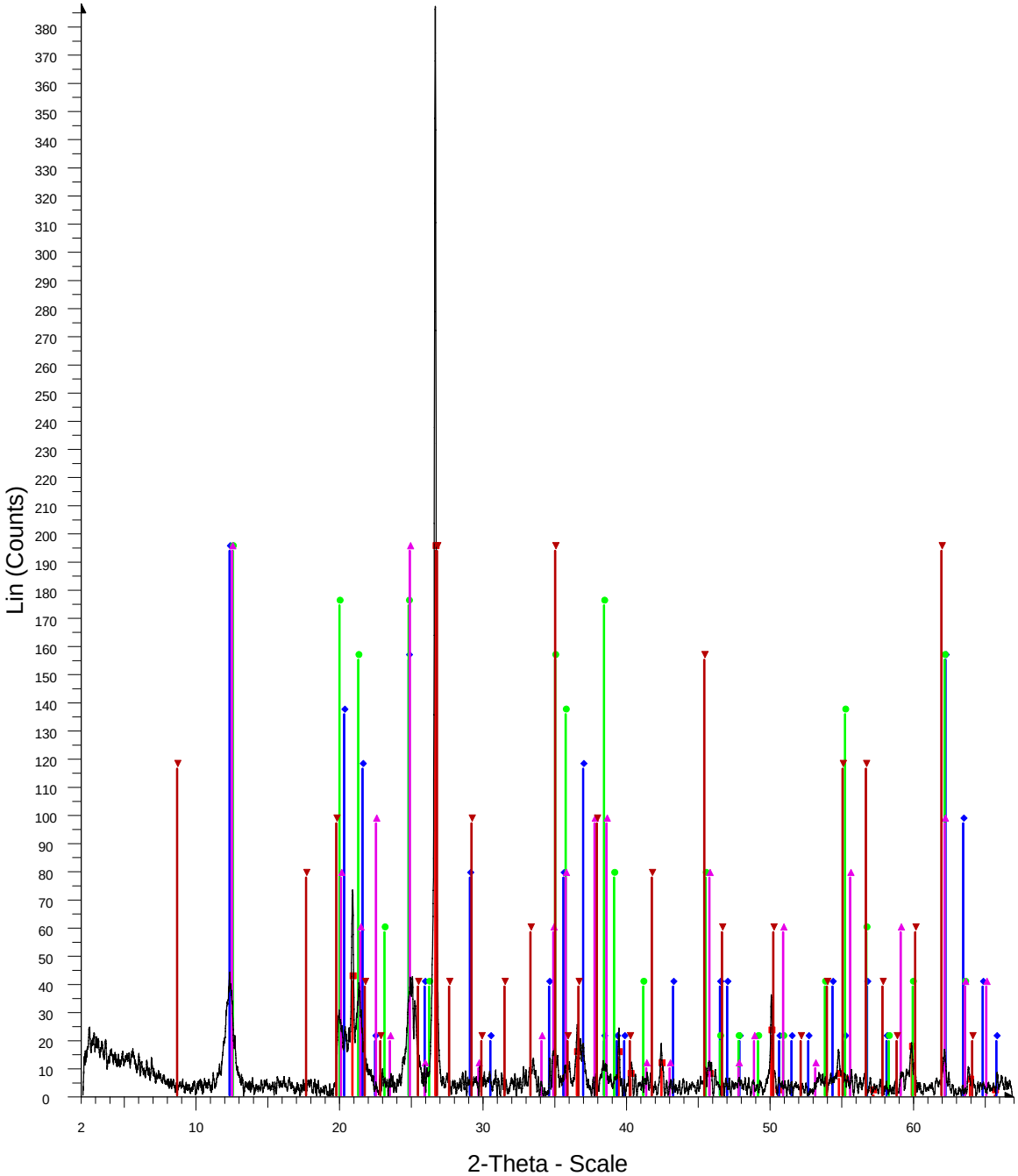
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C14



07C14 - File: 07C14.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Time Operations: Background 0.120,1.000 | Smooth 0.089 | Strip kAlpha2 0.500 | Background 0.120,1.000 | Import

01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

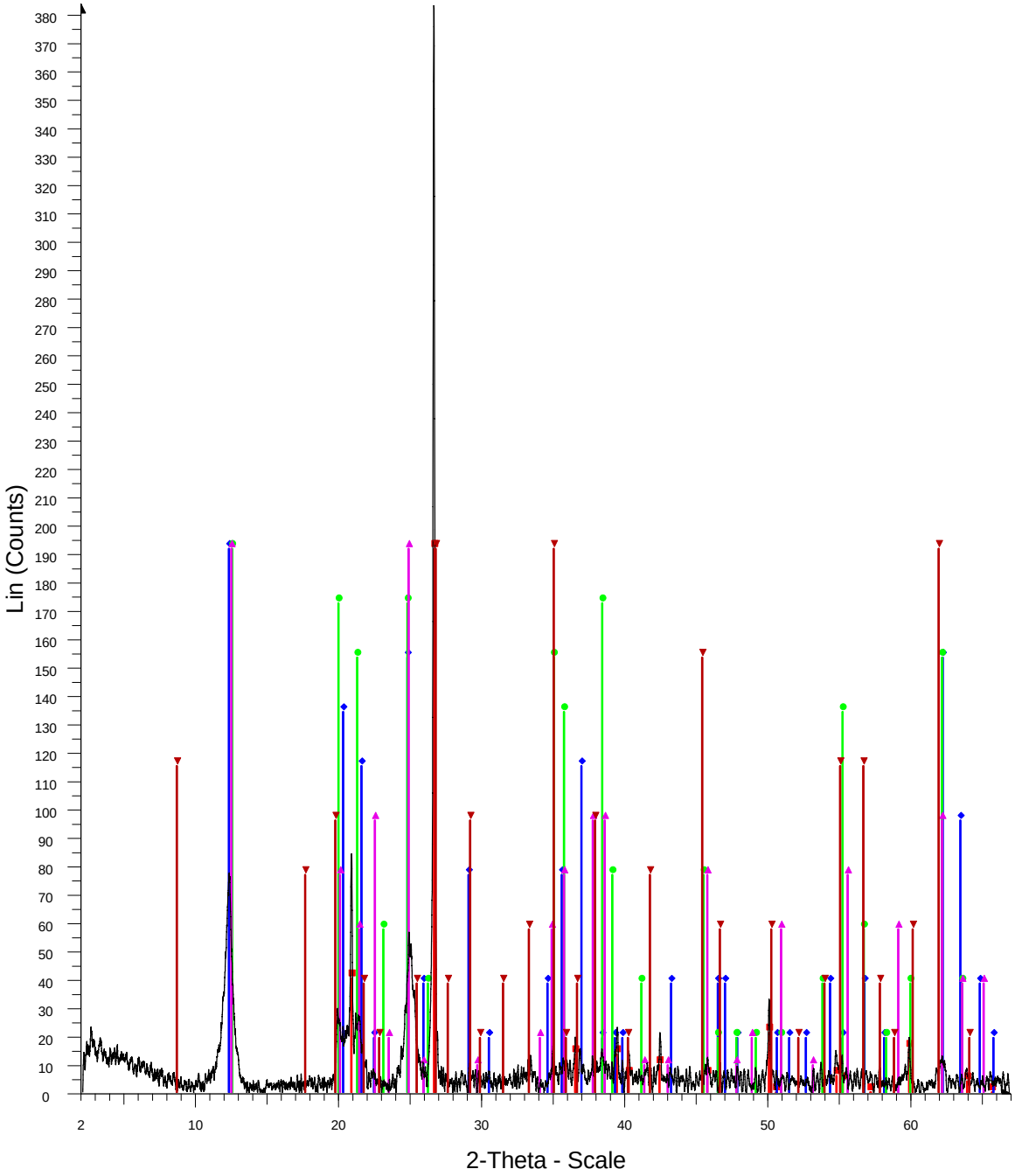
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C15



07C15 - File: 07C15.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Time Operations: Background 0.120,1.000 | Smooth 0.089 | Strip kAlpha2 0.500 | Background 0.120,1.000 | Import

01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

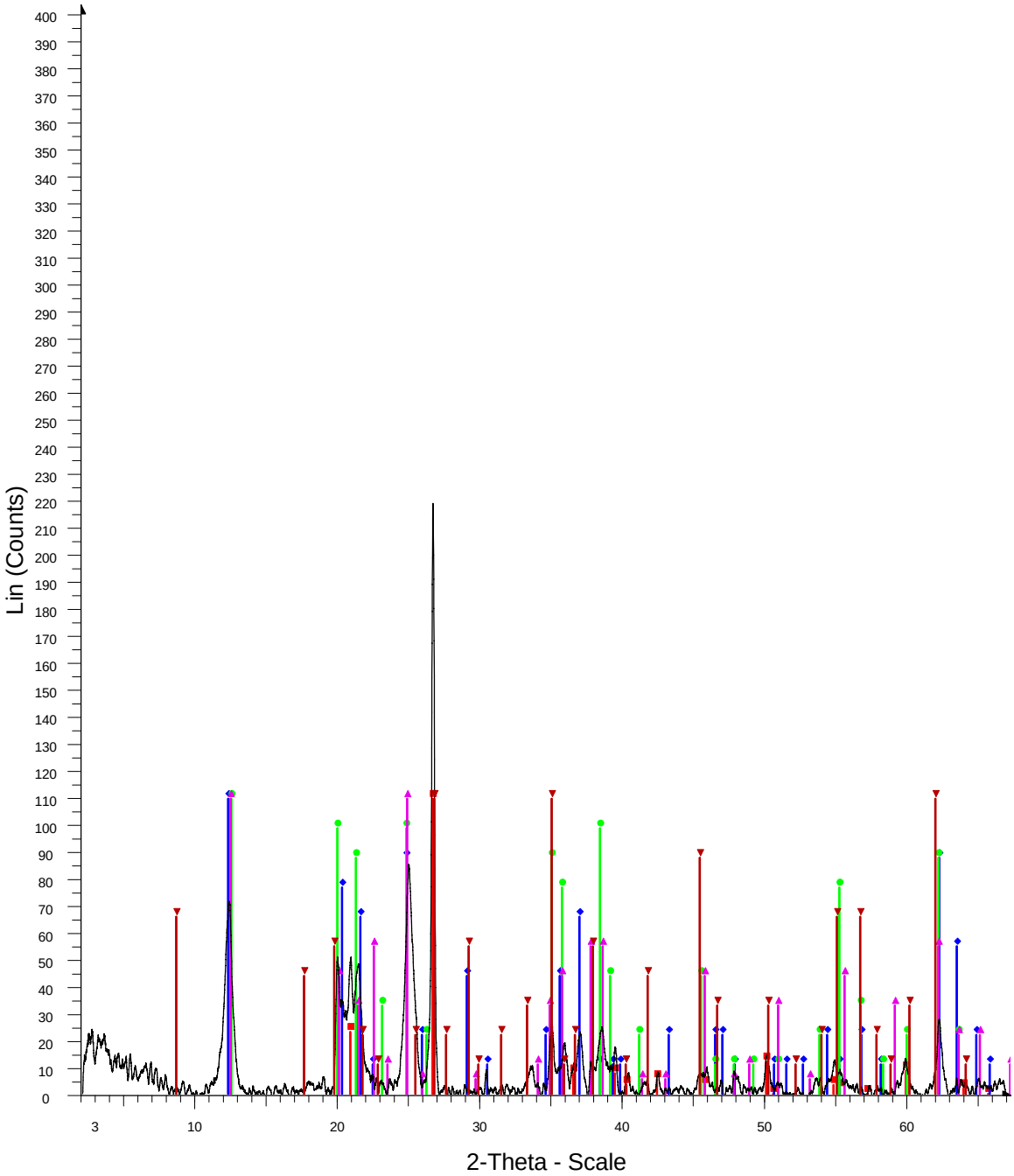
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

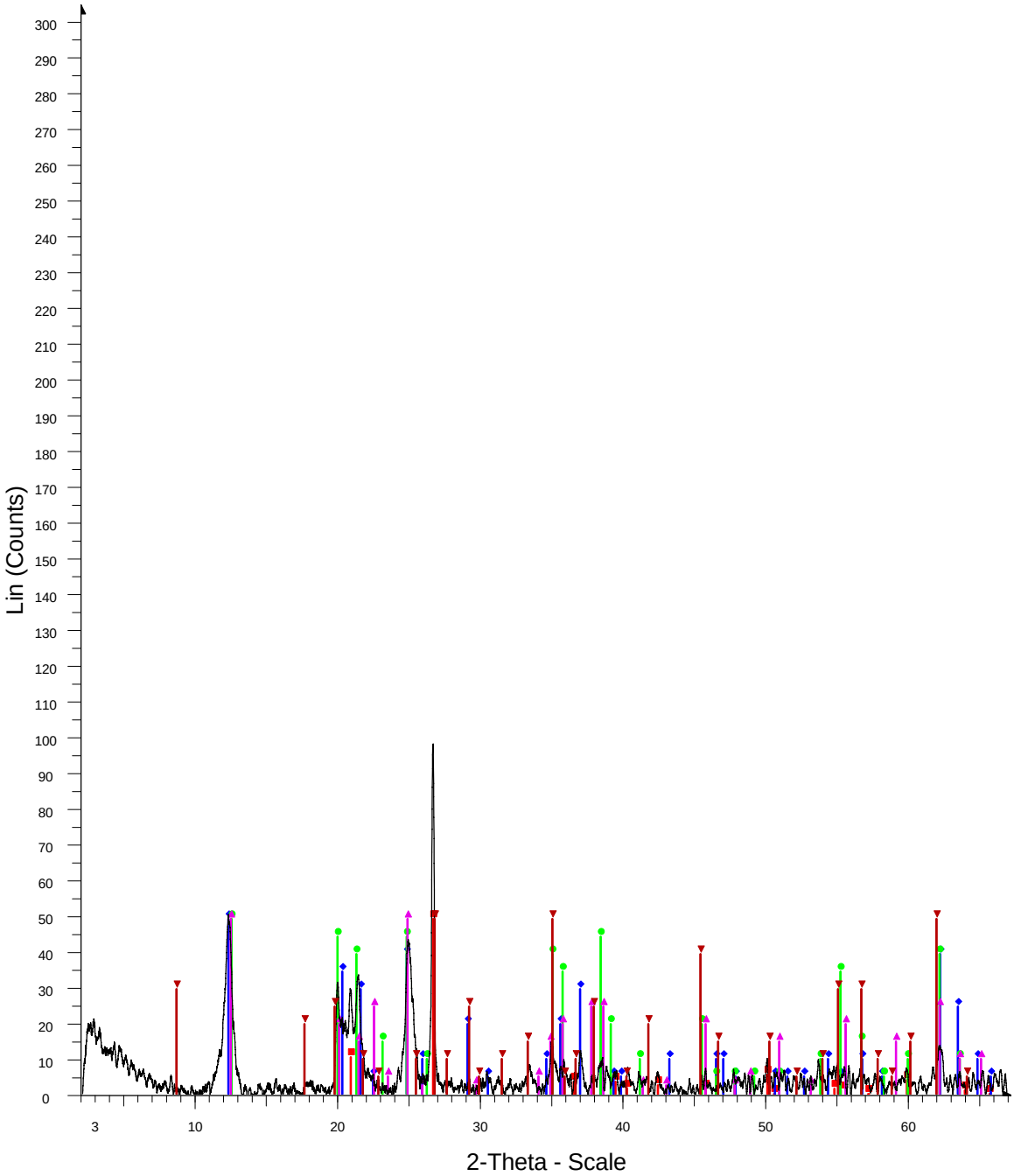
00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

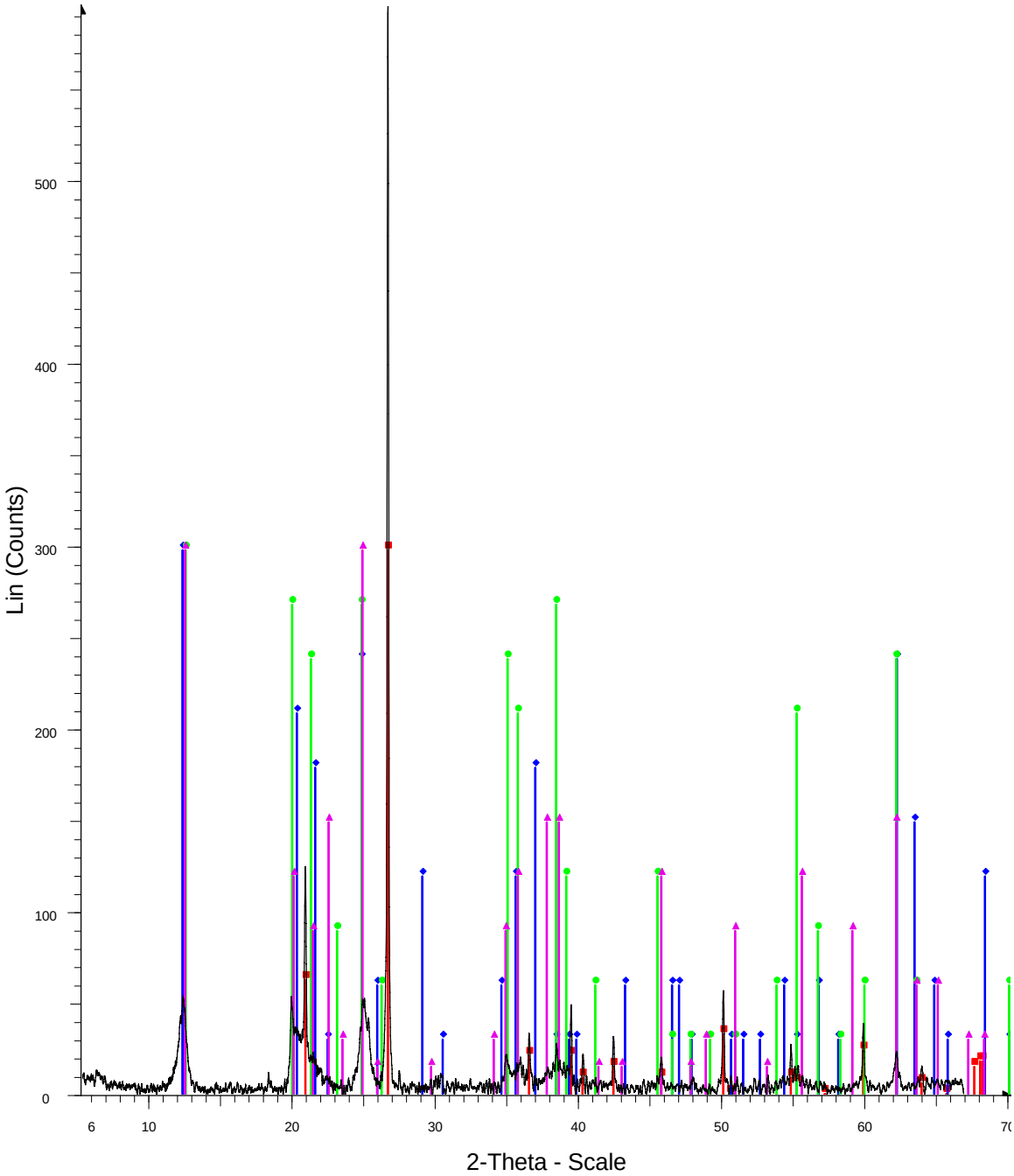
07C16


Lin (Counts)
2-Theta - Scale
07C16 - File: 07C16.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Time
Operations: Background 0.380,1.000 | Smooth 0.150 | Background 0.380,1.000 | Import
01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C17


Lin (Counts)
2-Theta - Scale
07C17 - File: 07C17.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Time
Operations: Background 0.380,1.000 | Smooth 0.150 | Strip kAlpha2 0.500 | Background 0.380,1.000 | Import
01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C18



07C18 - File: 07C18.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Time Operations: Background 0.120,1.000 | Smooth 0.089 | Strip kAlpha2 0.500 | Background 0.120,1.000 | Import

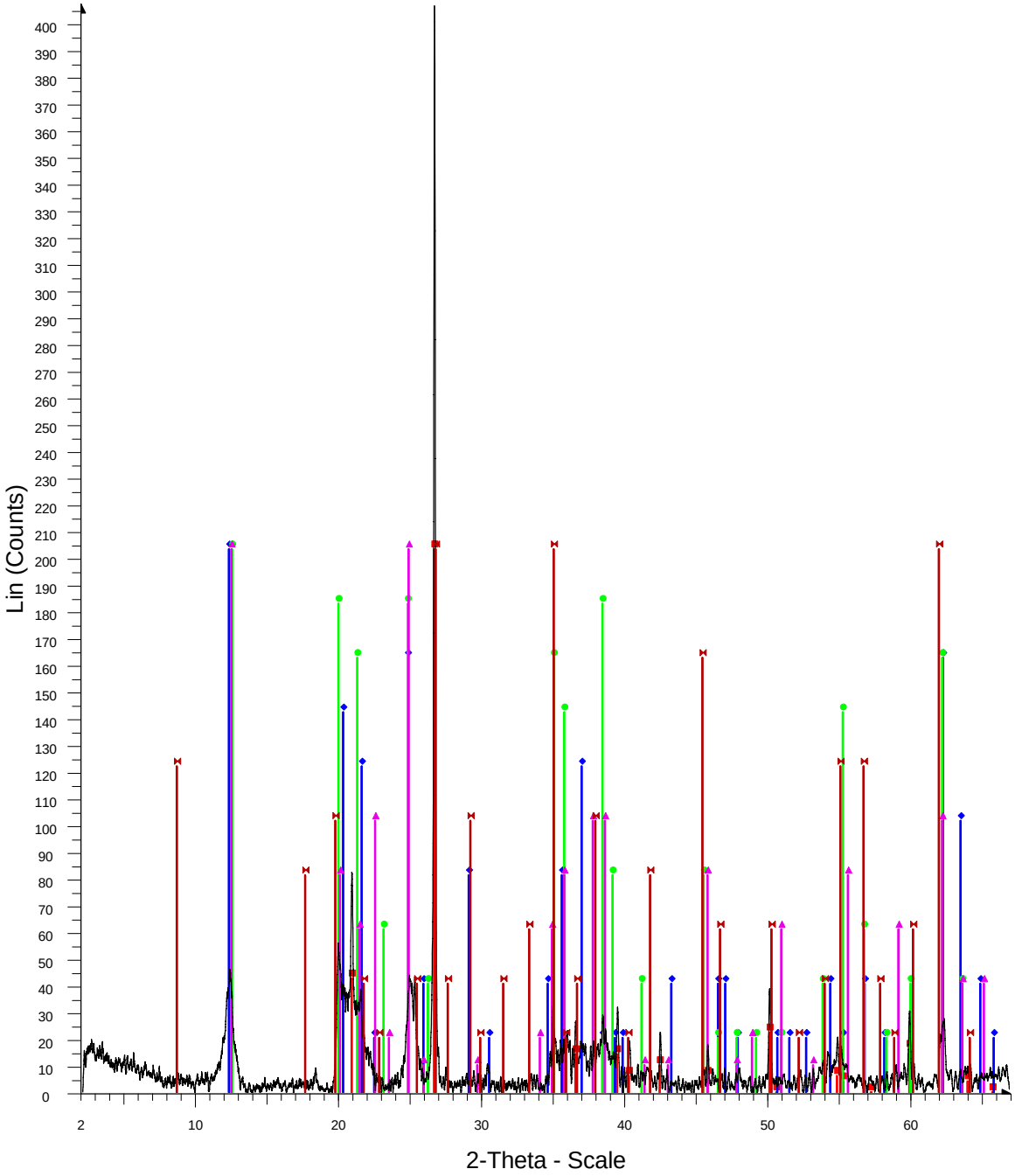
01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

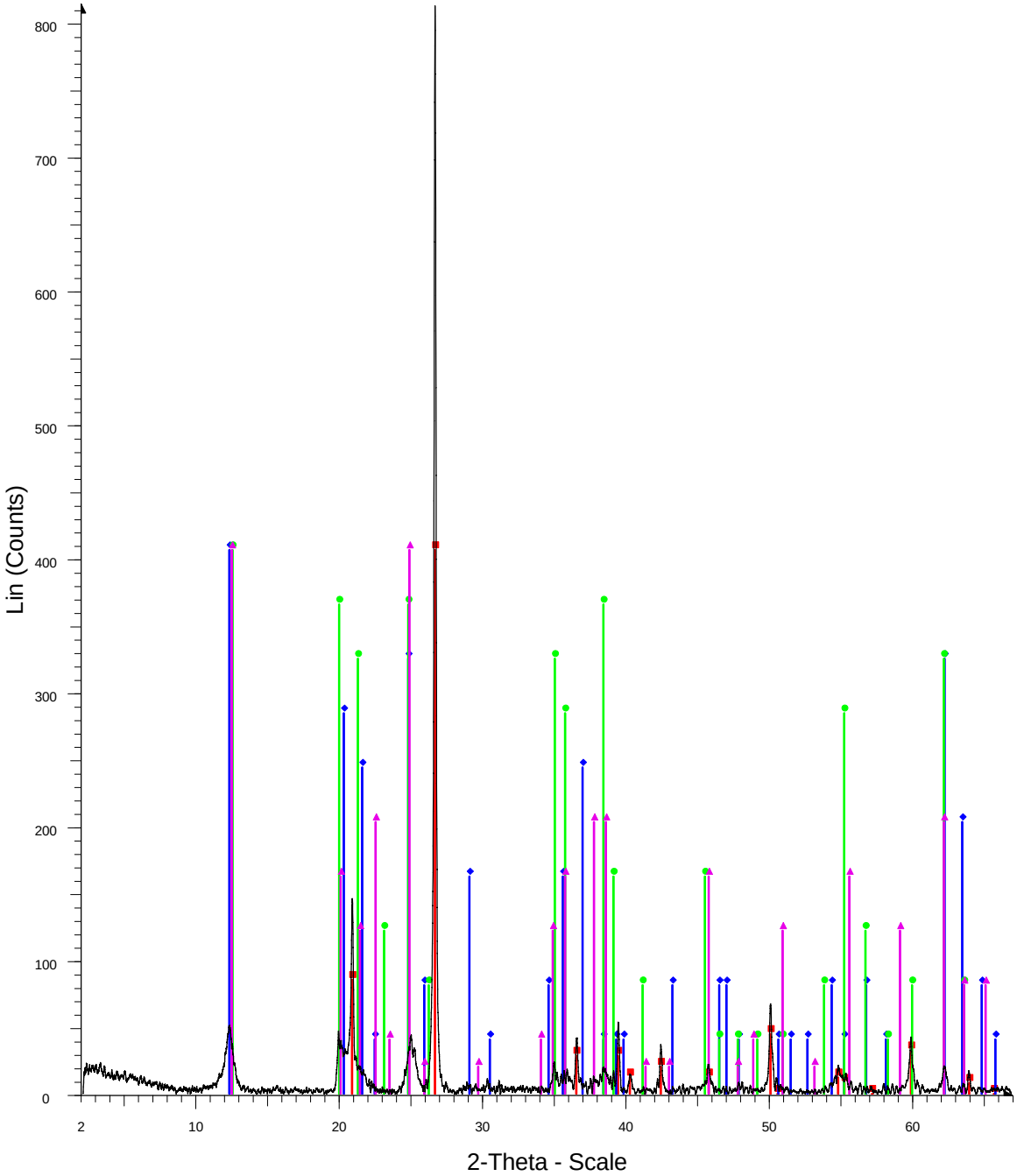
00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C19


Lin (Counts)
2-Theta - Scale
07C19 - File: 07C19.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Time
Operations: Background 0.120,1.000 | Smooth 0.089 | Strip kAlpha2 0.500 | Background 0.120,1.000 | Import
01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-015-0603 (D) - Illite - K(AlFe)2AlSi3O10(OH)2.H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C20



07C20 - File: 07C20.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Time Operations: Background 0.120,1.000 | Smooth 0.089 | Strip kAlpha2 0.500 | Background 0.120,1.000 | Import

01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -

00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

07C21

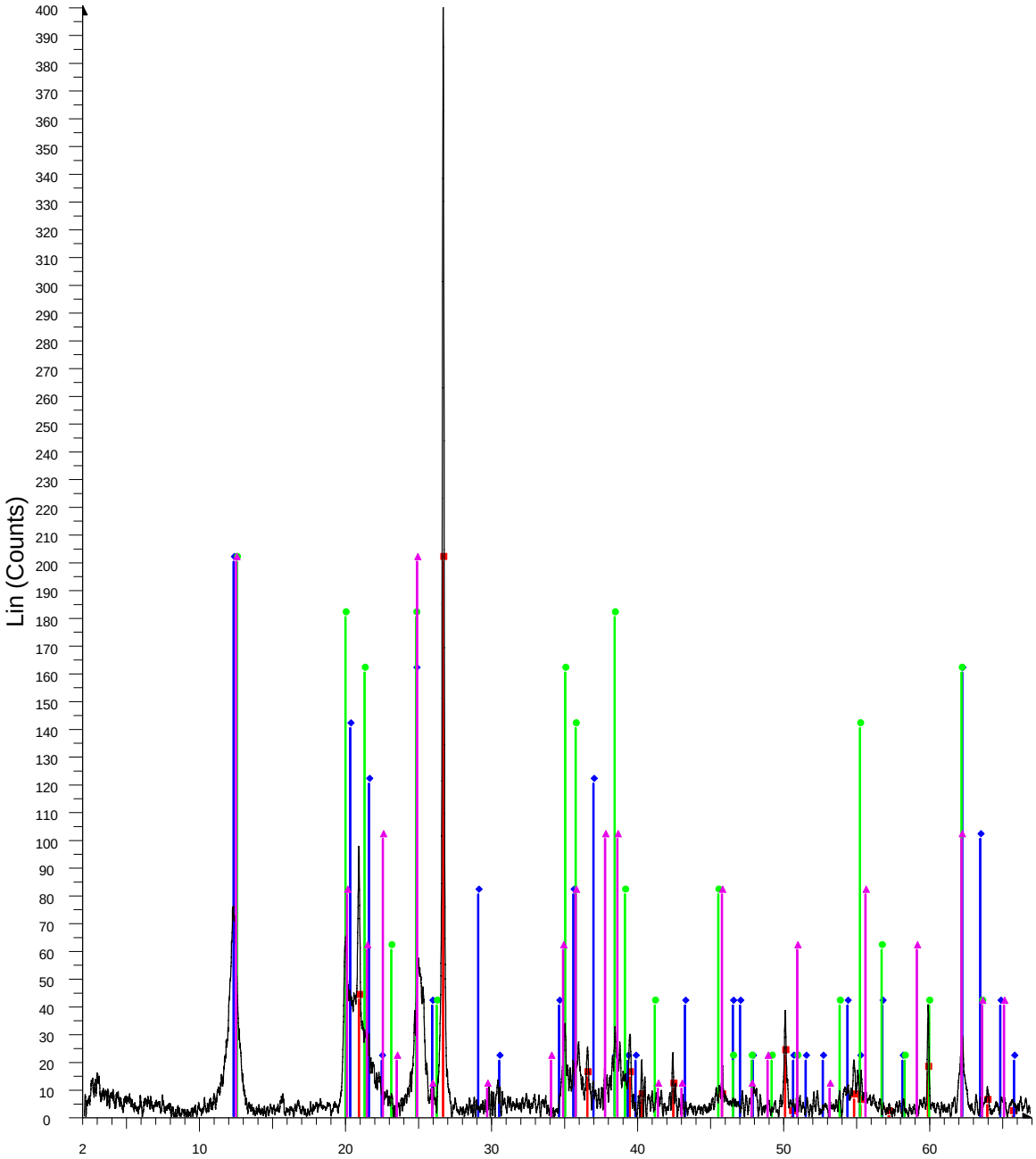

Lin (Counts)
2-Theta - Scale
07C21 - File: 07C21.raw - Type: 2Th/Th locked - Start: 2.000 ° - End: 67.000 ° - Step: 0.010 ° - Step time: 1.5 s - Temp.: 25 °C (Room) - Time
Operations: Background 0.120,1.000 | Smooth 0.089 | Strip kAlpha2 0.500 | Background 0.120,1.000 | Import
01-079-1910 (C) - Quartz - SiO2 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 - I/Ic PDF 3.1 -
00-007-0320 (D) - Nacrite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-003-0052 (D) - Kaolinite - Al2O3.2SiO2.2H2O - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -
00-003-0055 (D) - Dickite - Al2Si2O5(OH)4 - Y: 50.00 % - d x by: 1. - WL: 1.5406 - 0 -

Table 2: Summary of mineralogy of samples 07C01-07C22

Sample	Lab ID	Mineralogy	Comments
P101	07C01	quartz, nacrite, kaolinite, dickite, illite (?), clinochlore	Enhancement of basal reflections of the kaolinites in the oriented mount. Oriented mount had no effect on basal reflections of illite.
P102	07C02	quartz, nacrite, kaolinite, dickite, illite (?), clinochlore	Enhancement of basal reflections of the kaolinites in the oriented mount. Oriented mount had no effect on basal reflections of illite.
P103	07C03	quartz, nacrite, kaolinite, dickite, illite, clinochlore	Only enhancement in quartz detected in oriented mounts.
P201	07C04	quartz, nacrite, kaolinite, dickite, illite (?), clinochlore	Enhancement of basal reflections of the kaolinites in the oriented mount. Oriented mounts had no effect on basal reflections of illite.
P202	07C07	quartz, nacrite, kaolinite, dickite, illite (?), clinochlore	Enhancement of basal reflections of the kaolinites in the oriented mount. Oriented mount had no effect on basal reflections of illite.
P203	07C08	quartz, nacrite, kaolinite, dickite, illite (?)	Enhancement of basal reflections of the kaolinites in the oriented mount. Oriented mount had no effect on basal reflections of illite.
P301	07C05	quartz, nacrite, kaolinite, dickite, illite (?)	Enhancement of basal reflections of the kaolinites in the oriented mount. Oriented mount had no effect on basal reflections of illite.
P302	07C06	quartz, nacrite, kaolinite, dickite, illite (?)	Enhancement of basal reflections of the kaolinites in the oriented mount. Oriented mount had no effect on basal reflections of illite.
P303	07C09	greenalite, goethite, quartz	Enhancement in goethite peak at 21.5 ° and greenalite at 24.7 ° in oriented mount.
P401	07C10	quartz, nacrite, kaolinite, dickite, illite (?)	Enhancement of basal reflections of the kaolinites in the oriented mount. Oriented mount had no effect on basal reflections of illite.
P402	07C11	quartz, nacrite, kaolinite, dickite, illite (?)	Enhancement of basal reflections of the kaolinites in the oriented mount. Oriented mount had no effect on basal reflections of illite.
P403	07C12	quartz, nacrite, kaolinite, dickite, illite (?)	Rich in quartz. Enhancement of basal reflections of the kaolinites in the oriented mount. Oriented mount had no effect on basal reflections of illite.
P501	07C13	quartz, nacrite, kaolinite, dickite, illite (?)	Rich in quartz. Enhancement of basal reflections of the kaolinites in the oriented mount. Oriented mount had no effect on

			basal reflections of illite.
P502	07C14	quartz, nacrite, kaolinite, dickite, illite (?)	Rich in quartz. Enhancement of basal reflections of the kaolinites in the oriented mount. Oriented mount had no effect on basal reflections of illite.
P503	07C15	quartz, nacrite, kaolinite, dickite, illite (?)	Rich in quartz. Enhancement of basal reflections of the kaolinites in the oriented mount. Oriented mount had no effect on basal reflections of illite.
P601	07C16	quartz, nacrite, kaolinite, dickite, illite (?)	Enhancement of basal reflections of the kaolinites in the oriented mount. Oriented mount had no effect on basal reflections of illite.
P602	07C17	quartz, nacrite, kaolinite, dickite, illite (?)	Enhancement of basal reflections of the kaolinites in the oriented mount. Oriented mount had no effect on basal reflections of illite.
P701	07C18	quartz, nacrite, kaolinite, dickite	Rich in quartz. No significant difference between random and oriented mounts.
P702	07C19	quartz, nacrite, kaolinite, dickite, illite (?)	Rich in quartz. No significant difference between random and oriented mounts.
P703	07C20	quartz, nacrite, kaolinite, dickite	Very rich in quartz. No significant difference between random and oriented mounts.
P704	07C21	quartz, nacrite, kaolinite, dickite	Rich in quartz. No significant difference between random and oriented mounts.
White material	07C22	quartz	Only random mount.

(?) There is some discrepancy surrounding the presence of illite in these samples particularly because the reflections at 8.5 ° (d = 10 Å) and 17.6 ° (d = 5 Å) are only weakly detected or absent in most cases and are not affected by orientation in any case at all. Since the most intense peaks of illite overlap with quartz, nacrite, dickite and kaolinite it is difficult to confirm the presence of illite without elemental analysis. In fact even in qualitative analyses XRD should not be used alone and it is recommended that elemental analyses data are obtained from XRF or other techniques. One could argue that due to the relatively high intensity of the quartz peak at 26.7 ° (d = 3.34 Å) the illite peaks at d = 10 and 5 Å are not observable. This might be supported from the fact that the samples very rich in quartz (with very intense 26.7 ° peaks) do not show any presence of the weaker illite peaks.

This work was conducted by Dr. Marvadeen Singh Wilmot and Ms. Kenesha Wilson,
X-ray Crystallography Facility, Chem. Dept. U. W. I. Mona.
Report prepared by Dr. Marvadeen Singh-Wilmot.