APPENDIX A: Specification on XRD work done at University of Pretoria and Mintek

The sample was prepared using standard Siemens sample holders and the powder was pressed into the holder using a glass slide.

TABLE 1: Instrument and data collection parameters

	Mintek	University of Pretoria
Instrument	Siemens D-500	Siemens D-501
Radiation	Cu *Kα*	Cu *Kα* (1.5418 Å)
Temperature	25°C	25°C
Specimen	Flat-plate, rotating (30 RPM)	flat-plate, rotating (30 RPM)
Power Setting	40 kV, 40 mA	40 kV, 40 mA
Soller slits	2°	2° (diffracted beam side)
Divergence slits	1°	1°
Receiving slits	0.05°	0.05°
Monochromator	Secondary, graphite	secondary, graphite
Detector	Scintillation counter	scintillation counter
Range of 2θ	5 – 80 ° 2θ	4 – 70 ° 2θ
Step width	0.02 ° 2θ	0.04° 2θ
Time per step	1 s	1.5s

APPENDIX B: ORIGINAL XRD DATA

B1: XRD of Dutoitspan

B2: XRD of Geluk Wes

B3: XRD of Koffiefontein

B4: XRD of Cullinan TKB

B5: XRD of Wesselton

B6: XRD of Venetia

B6.1 K1 Hypabyssal North East

B6.2 K1 Hypabyssal South

B6.3 K1 TKB East

B6.4 K2 North East

B6.5 K2 South

B6.6 K2 West

B6.7 K8

B6.8 Red Kimberlite

B1: XRD of Dutoitspan

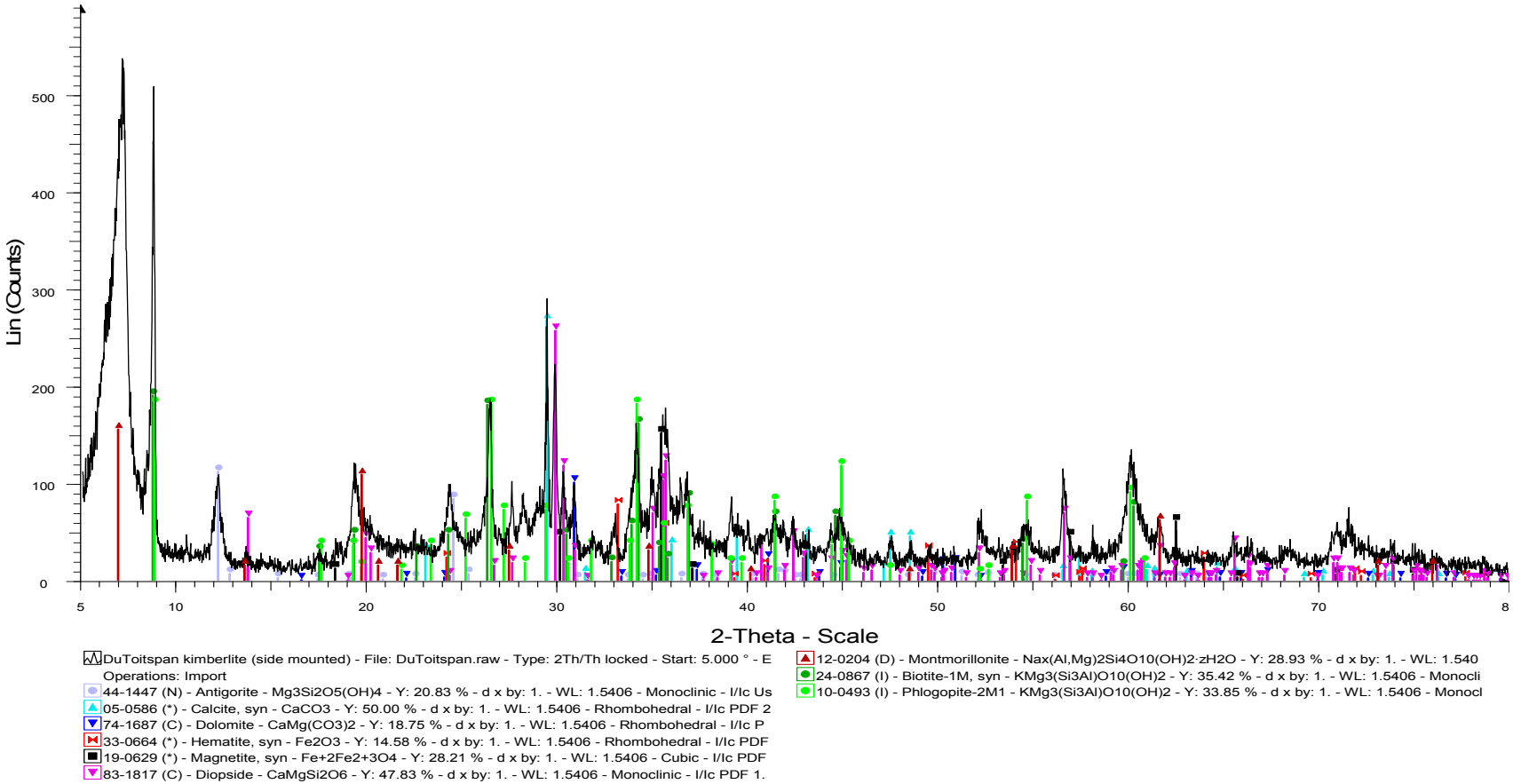

Figure 1. XRD Scan by Mintek on Dutoitspan

B2: XRD of Geluk Wes

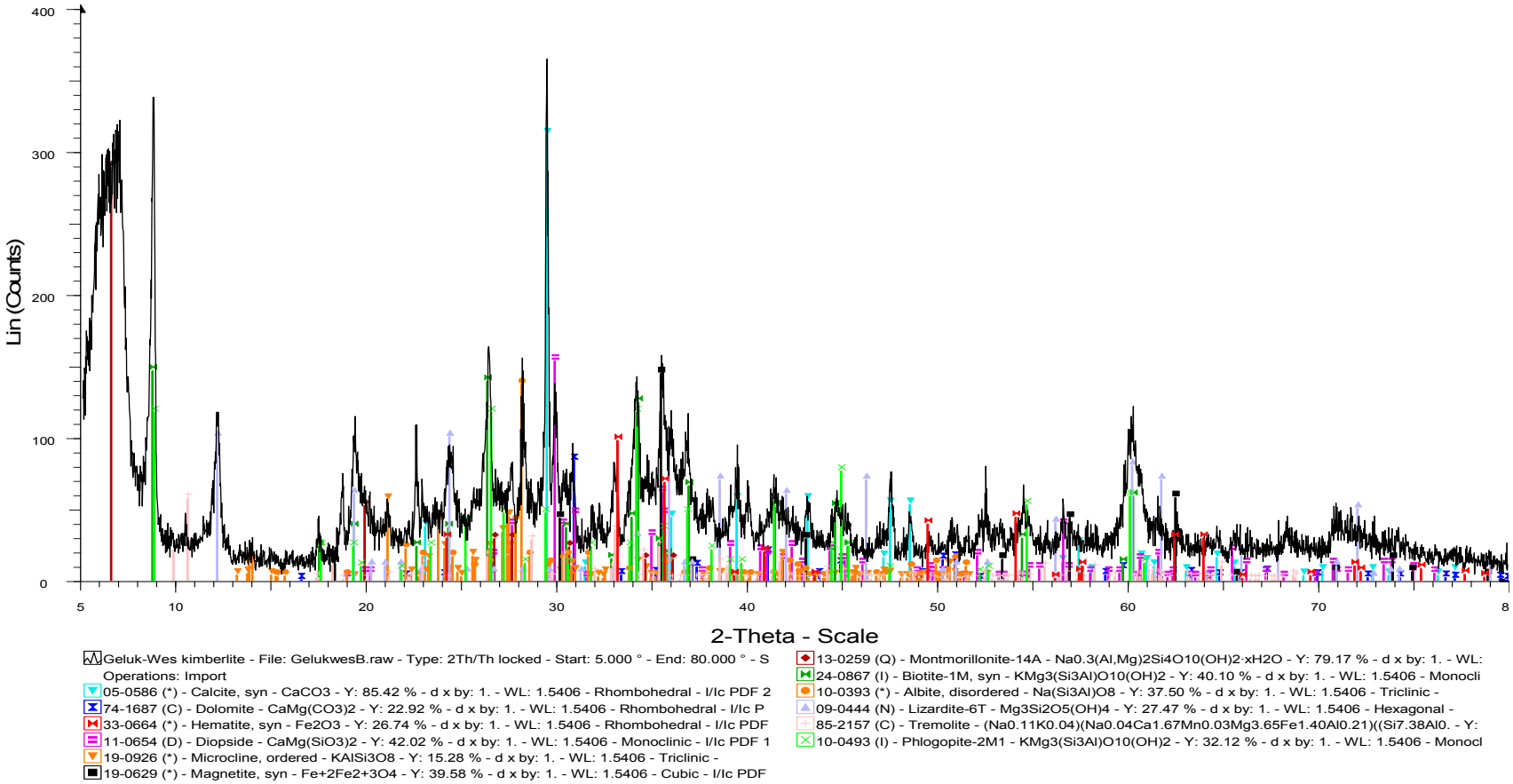

Figure 1. XRD Scan by Mintek on Geluk Wes

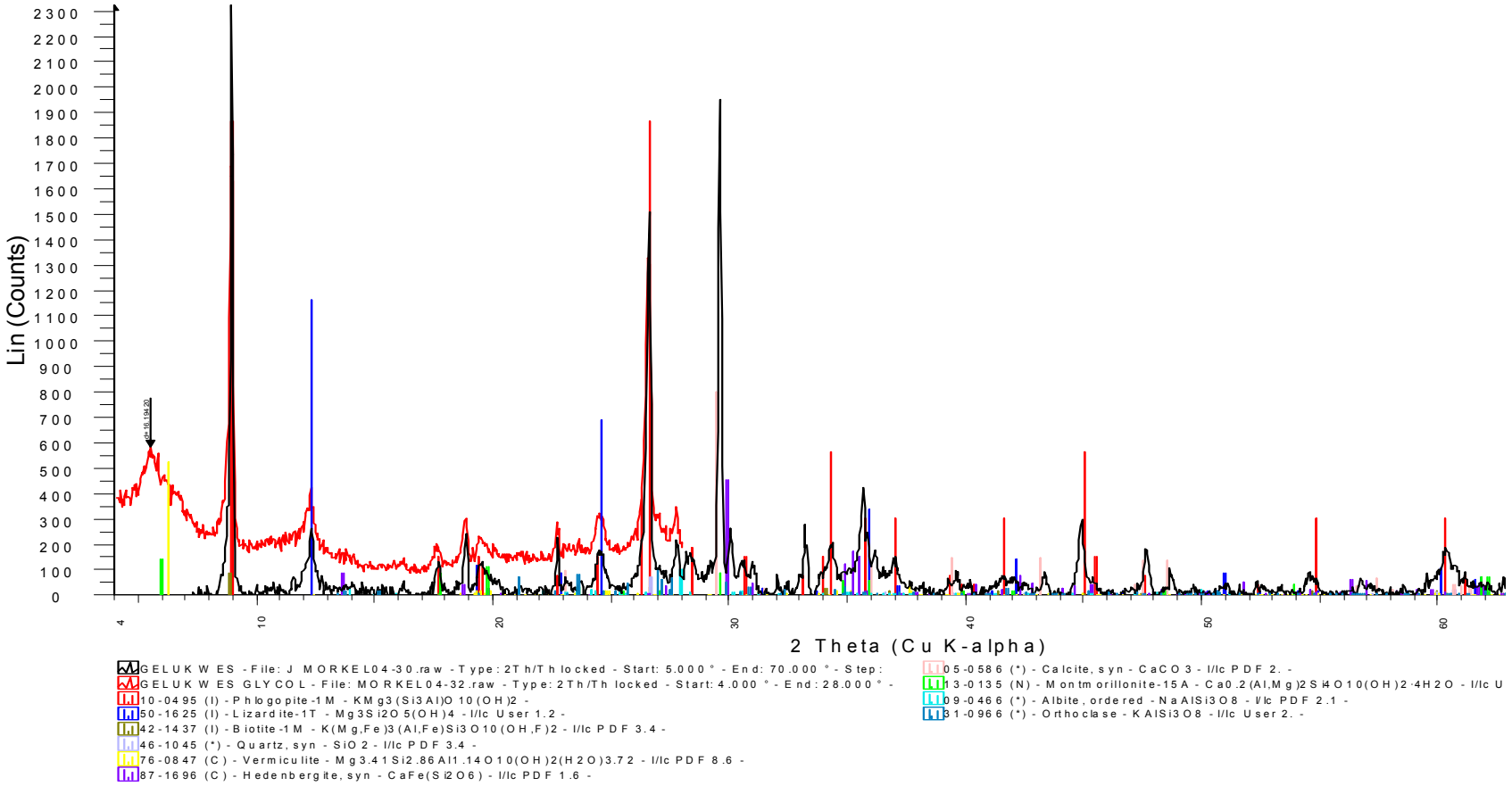

Figure 2. XRD Scan by University of Pretoria on Geluk Wes (Black shows air dry scan, red shows temperature treated scan)

B3: XRD of Koffiefontein

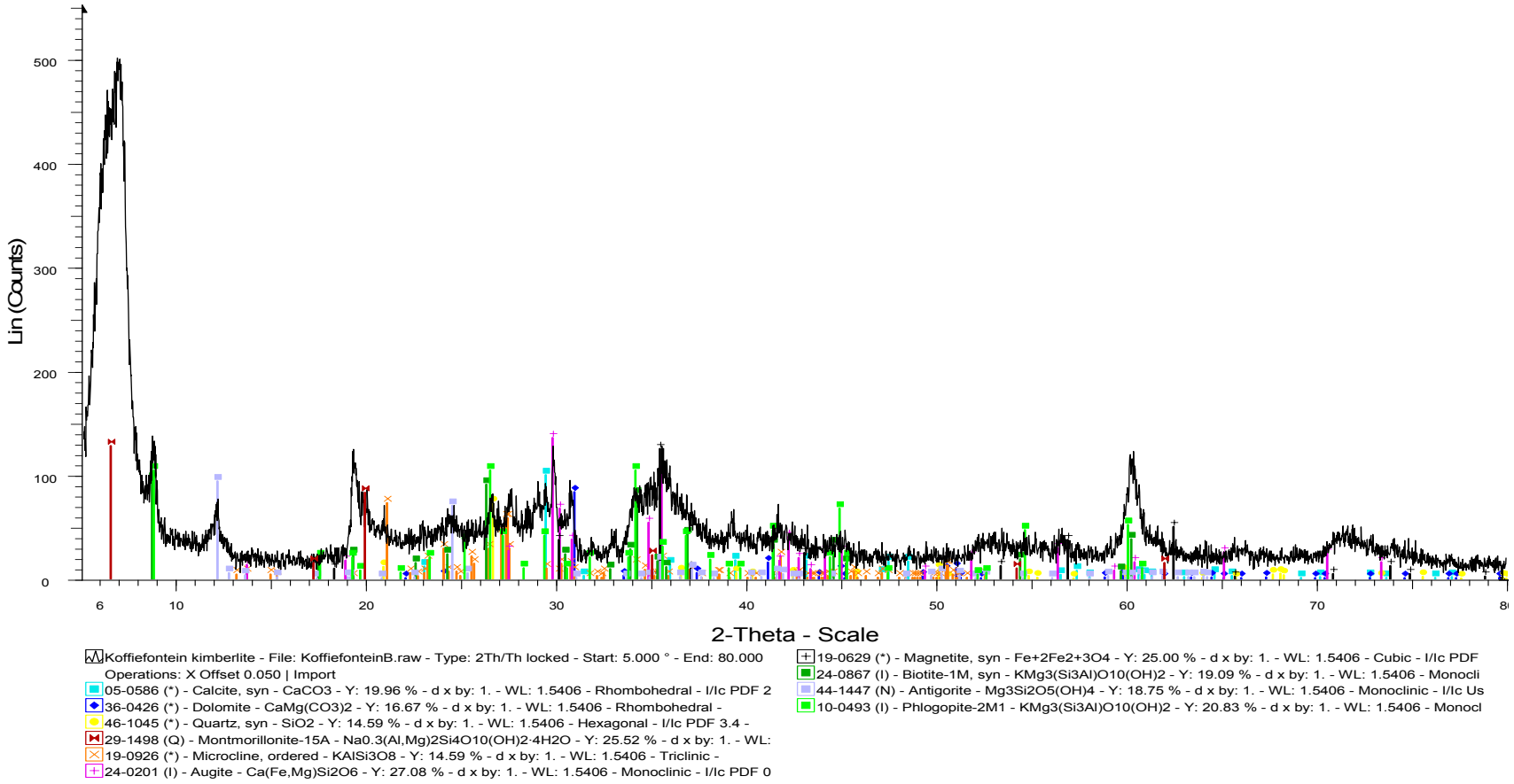

Figure 1. XRD Scan by Mintek on Koffiefontein

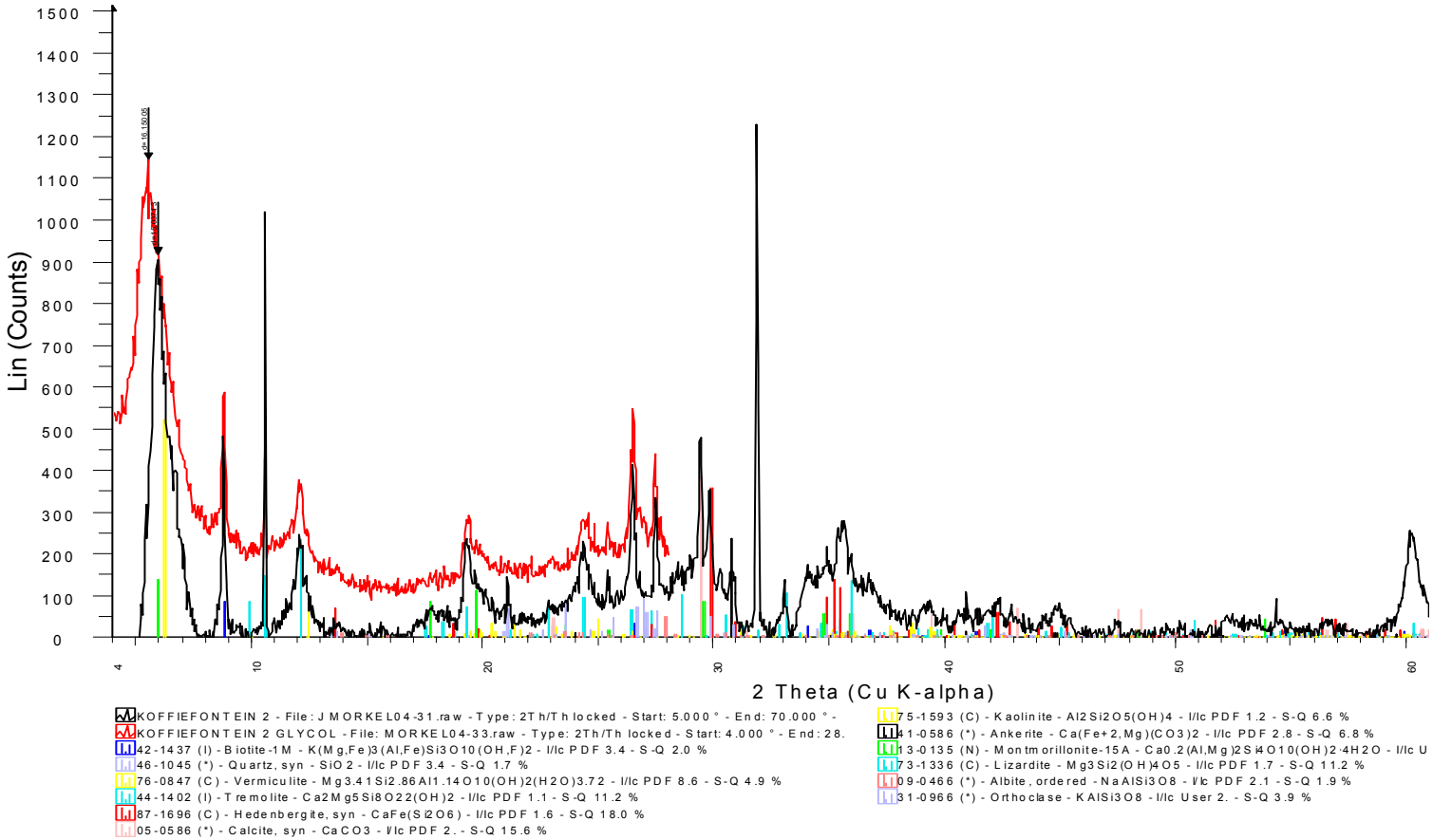

Figure 2. XRD Scan by University of Pretoria on Koffiefontein (Black shows air dry scan, red shows temperature treated scan)

B4: XRD of Cullinan TKB

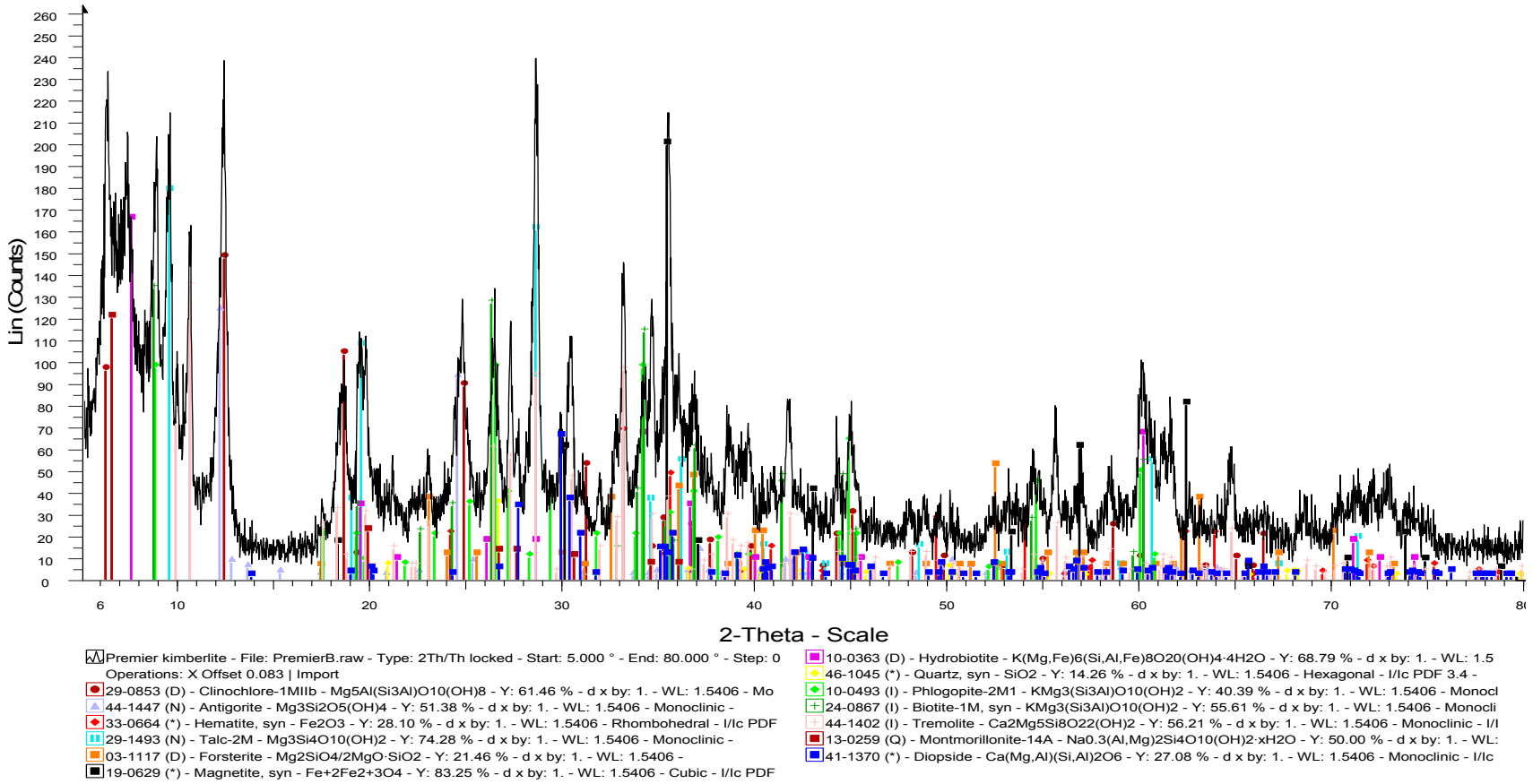

Figure 1. XRD Scan by Mintek on Cullinan TKB

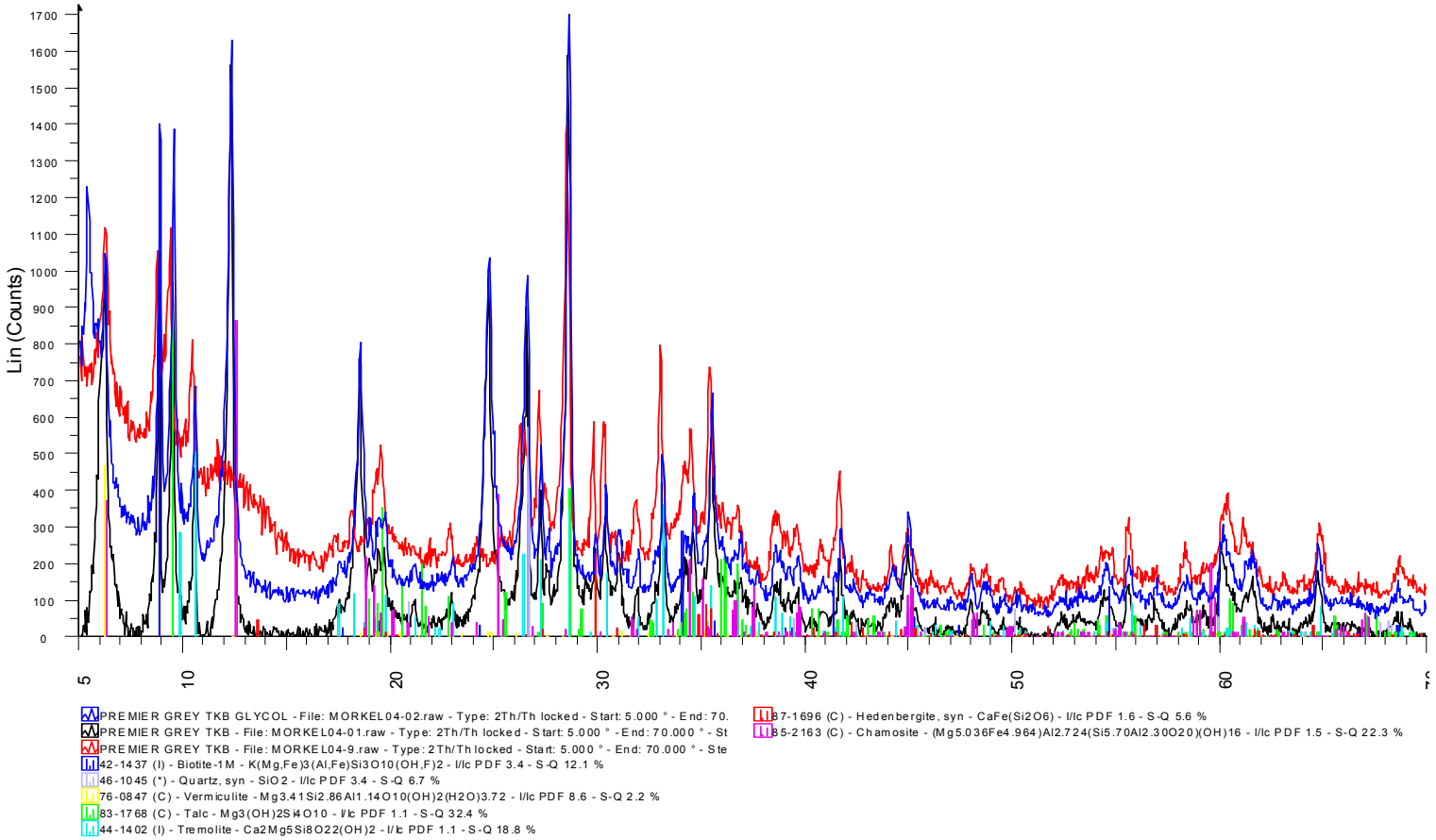

Figure 2. XRD Scan by University of Pretoria on Cullinan TKB (Black shows air dry scan, red shows temperature treated scan)

B5: XRD of Wesselton

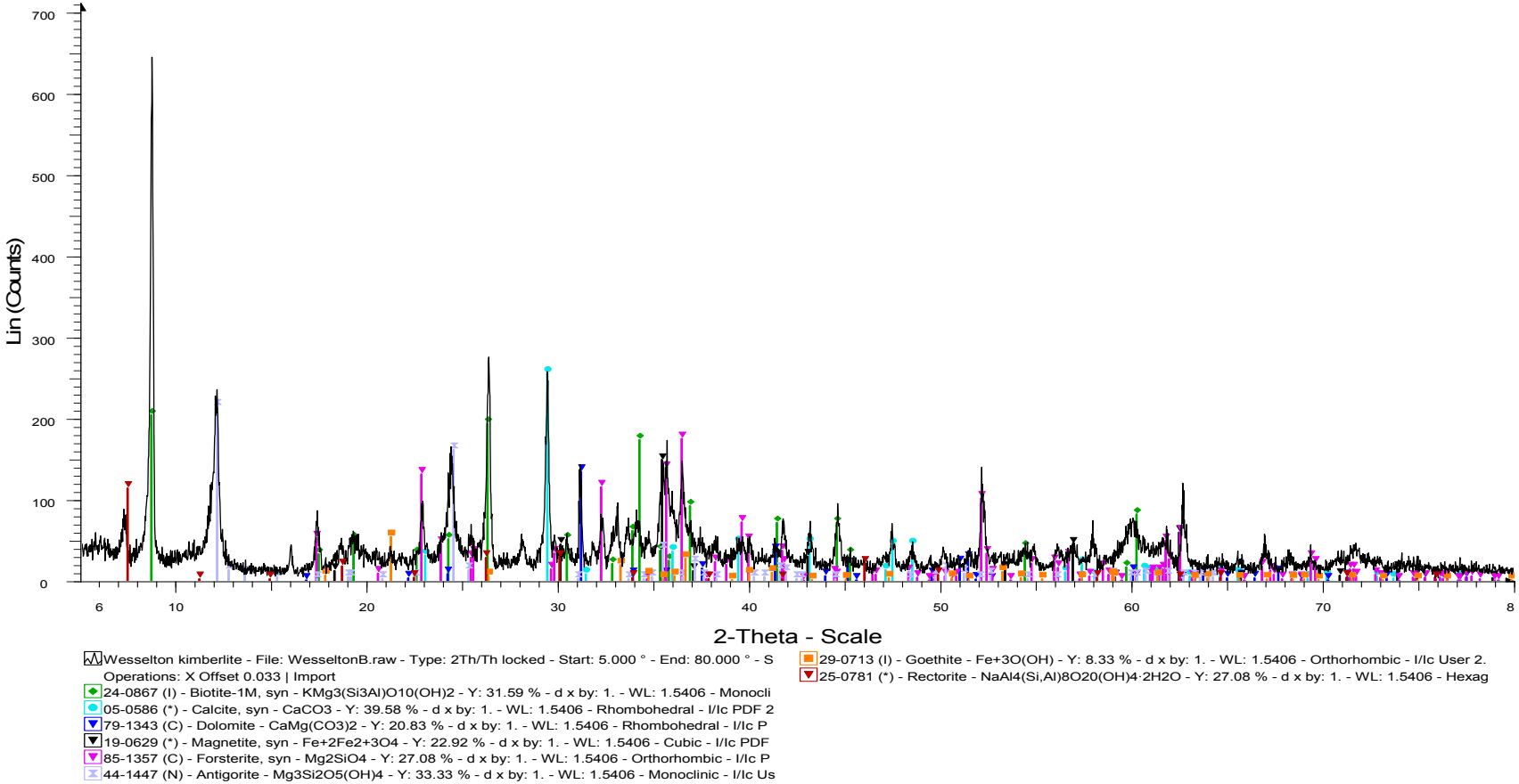

Figure 1. XRD Scan by Mintek on Wesselton

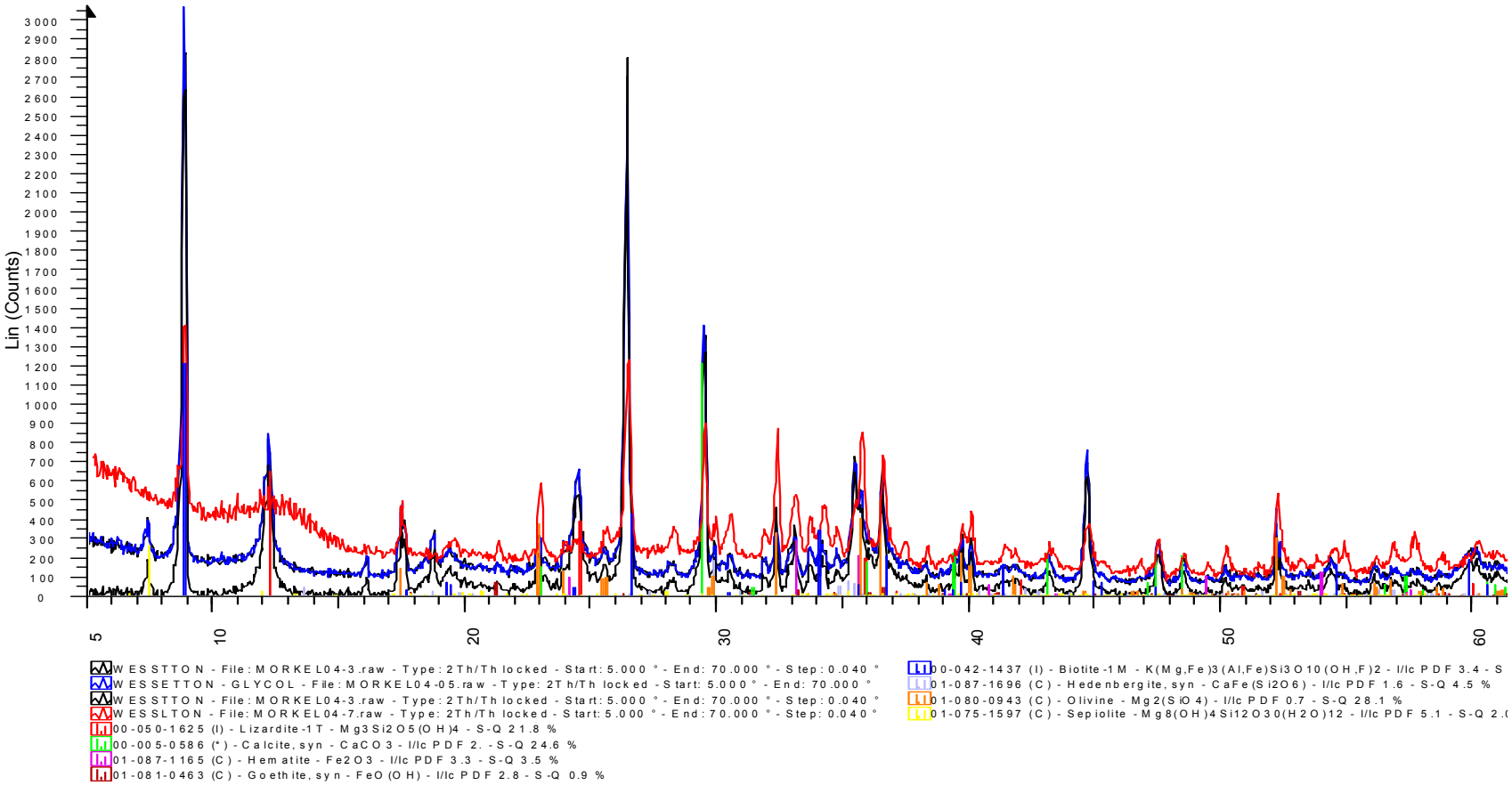

Figure 2. XRD Scan by University of Pretoria on Wesselton (Black shows air dry scan, red shows temperature treated scan)

B6 Venetia Kimberlites

B6.1 K1 Hypabyssal North East

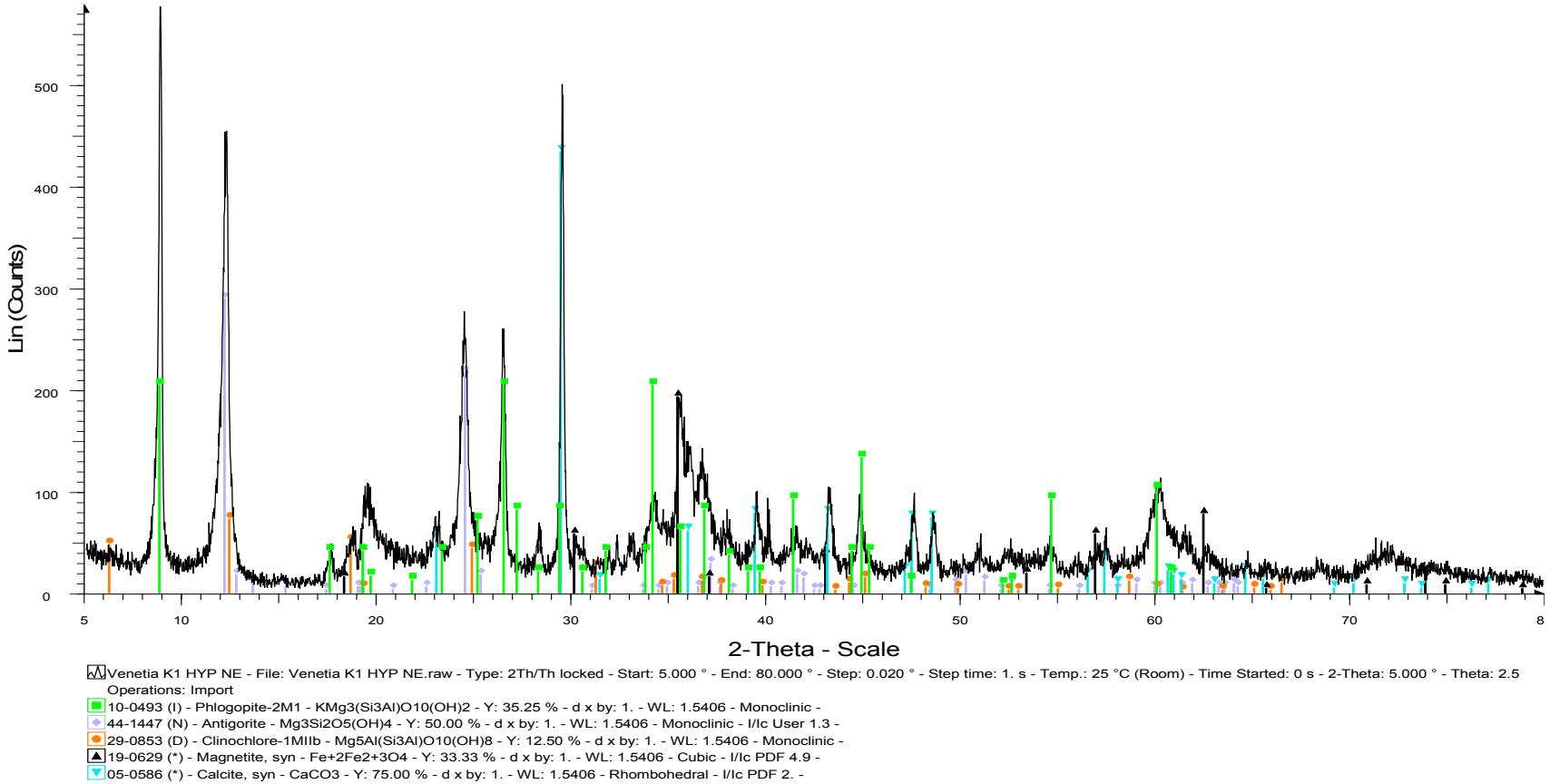

Figure 1. XRD Scan by Mintek on Venetia K1 Hypabyssal North East

B6.2 K1 Hypabyssal South

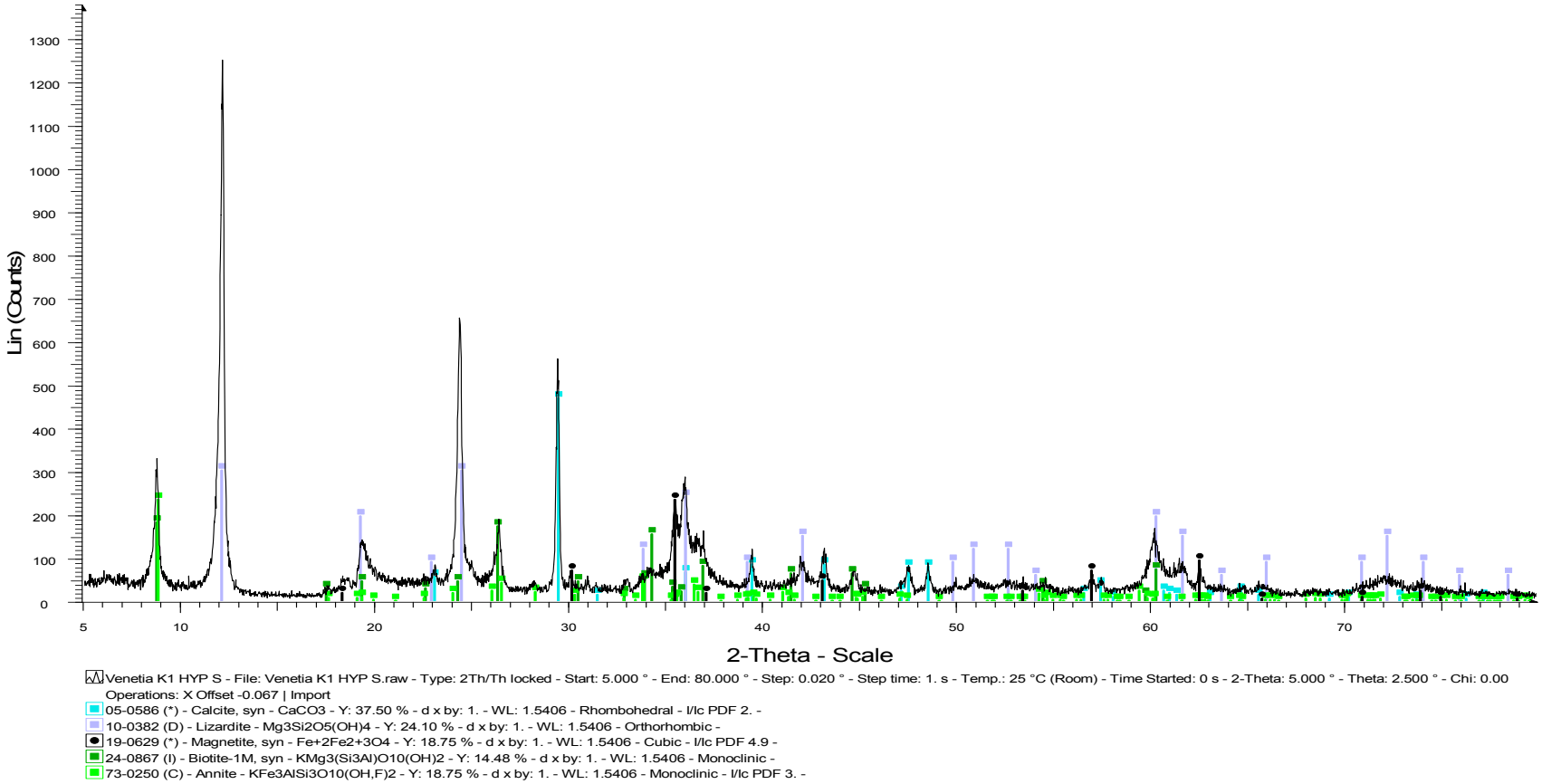

Figure 1. XRD Scan by Mintek on Venetia K1 Hypabyssal South

B6.3 K1 TKB East

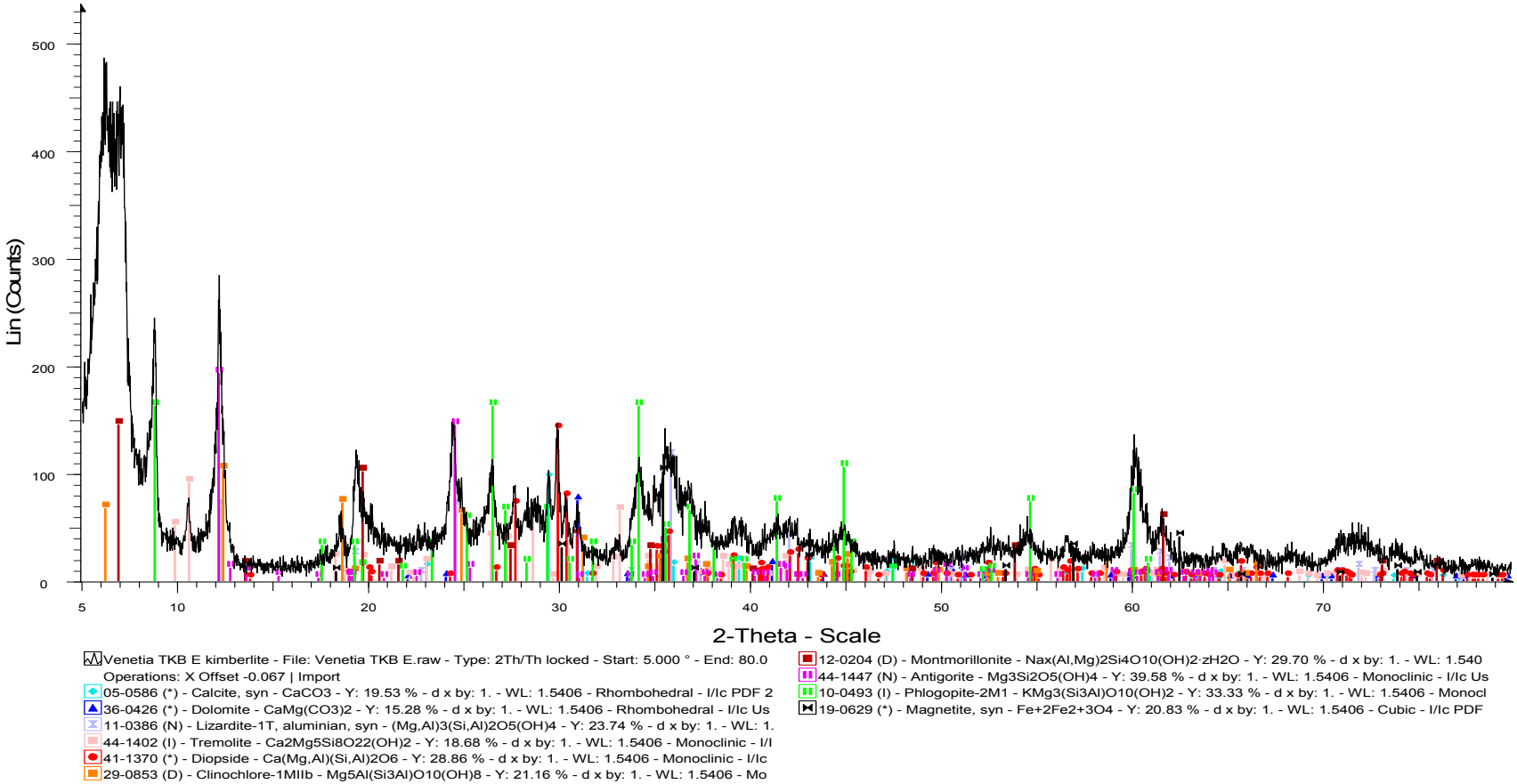

Figure 1. XRD Scan by Mintek on Venetia K1 TKB East

B6.4 K2 North East

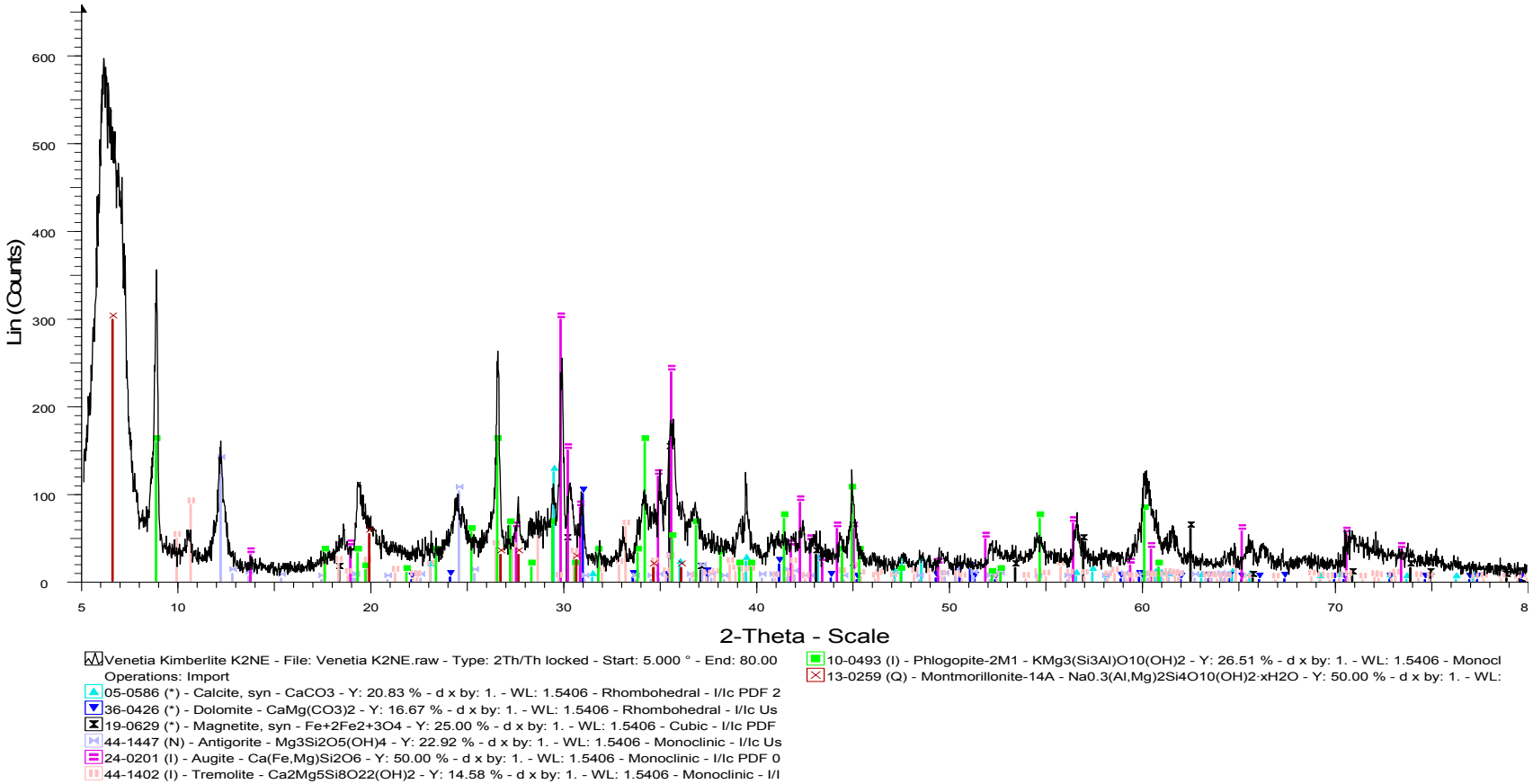

Figure 1. XRD Scan by Mintek on Venetia K2 North East

B6.5 K2 South

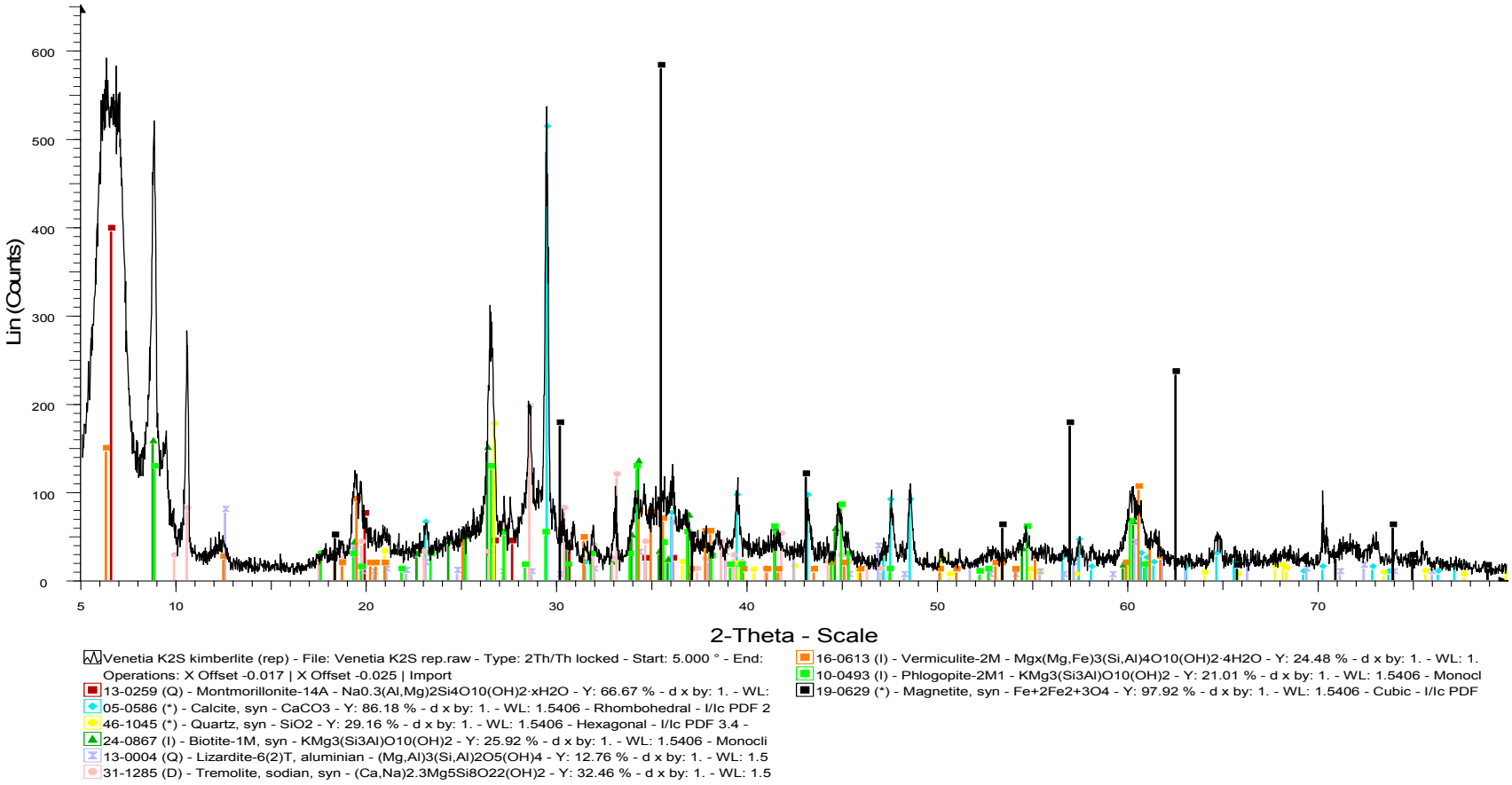

Figure 1. XRD Scan by Mintek on Venetia K2 South

B6.6 K2 West

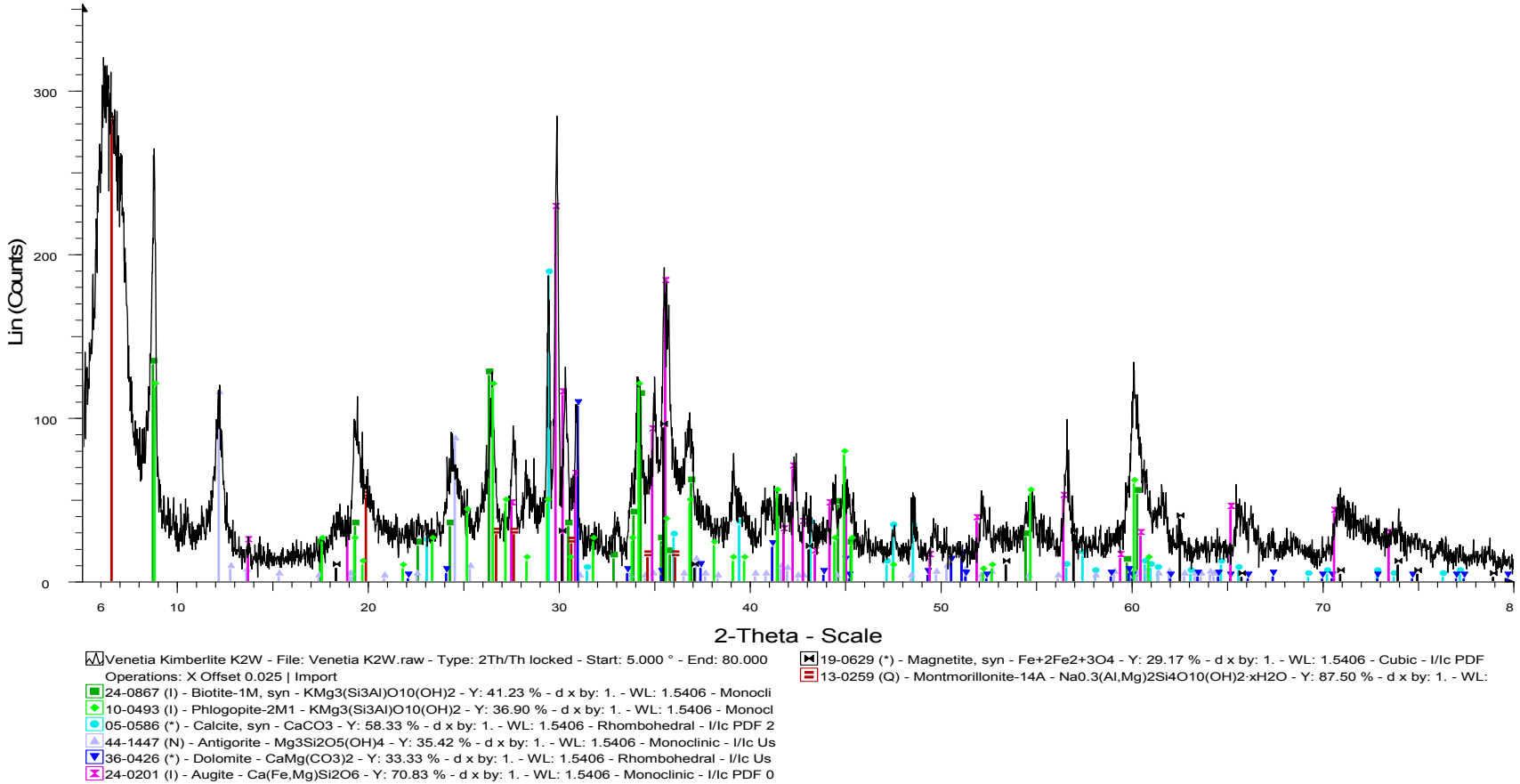

Figure 1. XRD Scan by Mintek on Venetia K2 West

B6.7 K8

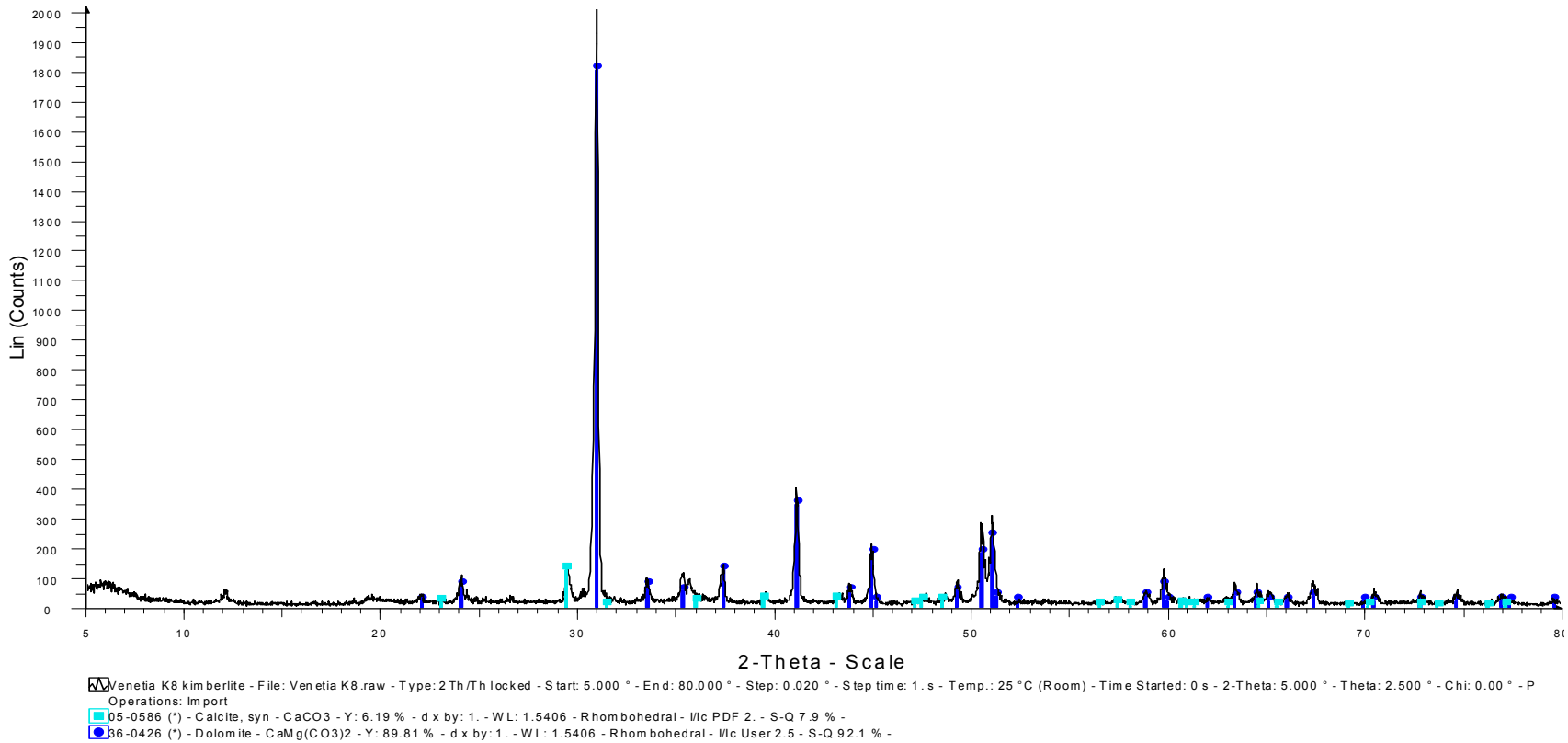

Figure 1. XRD Scan by Mintek on Venetia K8

B6.8 Red Kimberlite

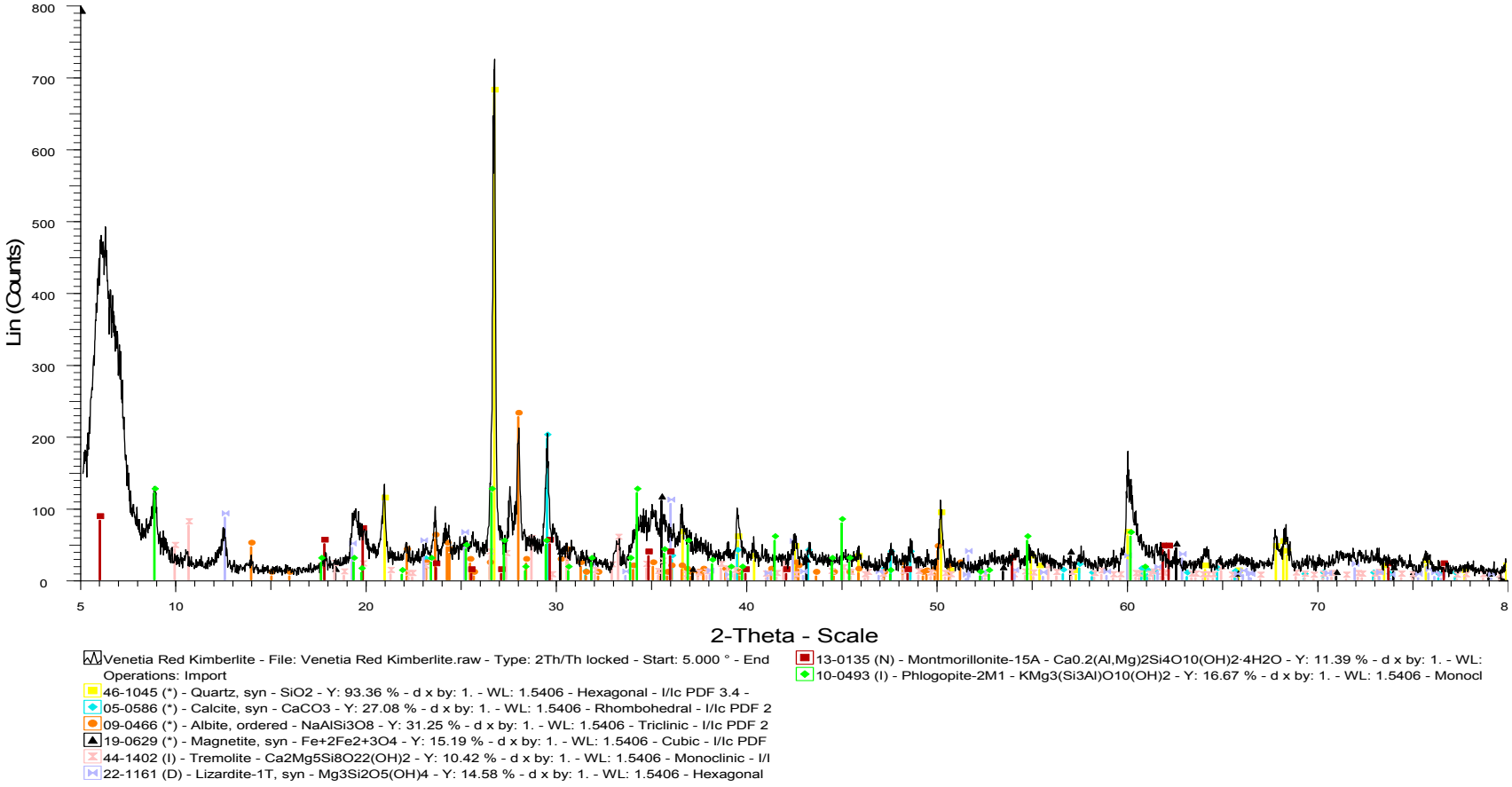

Figure 1. XRD Scan by Mintek on Venetia Red Kimberlite

APPENDIX C: SIZE DISTRIBUTION DATA

C1: Data of Dutoitspan

C2: Data of Geluk Wes

C3: Data of Koffiefontein

C4: Data of Cullinan TKB

C5: Data of Wesselton

C6: Data of Venetia

C6.1 K1 Hypabyssal North East

C6.2 K1 Hypabyssal South

C6.3 K1 TKB East

C6.4 K2 North East

C6.5 K2 South

C6.6 K2 West

C6.7 K8

C6.8 Red Kimberlite

C1: Data of Dutoitspan

C1.1 Standard Weathering test

Dutoitspan								
Weathering Condition			**Standard weathering test**					
Weathering Time			0 Days			6 Days		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	μm	g			g		
26500	22400	24450	1237.00	81.74	100.00	905.21	61.21	100.00
22400	19000	20700	208.00	13.74	18.26	272.98	18.46	38.79
19000	16000	17500	31.80	2.10	4.52	87.92	5.95	20.33
16000	13200	14600	0.00	0.00	2.42	59.99	4.06	14.38
13200	11200	12200	8.10	0.54	2.42	21.02	1.42	10.33
11200	6700	8950	3.60	0.24	1.88	52.53	3.55	8.91
6700	4750	5725	2.70	0.18	1.65	25.56	1.73	5.35
4750	3350	4050	1.80	0.12	1.47	11.60	0.78	3.63
3350	2360	2855	1.00	0.07	1.35	5.77	0.39	2.84
2360	1180	1770	1.40	0.09	1.28	7.59	0.51	2.45
1180	850	1015	0.50	0.03	1.19	2.54	0.17	1.94
850	600	725	0.40	0.03	1.16	1.78	0.12	1.77
335	180	257.5	5.80	0.38	1.13	11.77	0.80	1.65
125	75	100	9.50	0.63	0.75	10.72	0.72	0.85
75	0	37.5	1.80	0.12	0.12	1.85	0.13	0.13
			1513.40			1478.83		

C1.2 Influence of cations on weathering: Monovalent cations

Dutoitspan											
Weathering Condition			**Monovalent Cations**								
Weathering Time			0 Days			6 Days KCl			6 Days NaCl		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	µm	g								
26500	22400	24450	1237.00	81.74	100.00	1054.80	72.25	100.00	811.10	55.75	100.00
22400	19000	20700	208.00	13.74	18.26	225.10	15.42	27.75	223.40	15.36	44.25
19000	16000	17500	31.80	2.10	4.52	77.32	5.30	12.34	109.70	7.54	28.90
16000	13200	14600	0.00	0.00	2.42	17.27	1.18	7.04	86.90	5.97	21.36
13200	11200	12200	8.10	0.54	2.42	11.20	0.77	5.86	53.30	3.66	15.38
11200	6700	8950	3.60	0.24	1.88	24.80	1.70	5.09	73.80	5.07	11.72
6700	4750	5725	2.70	0.18	1.65	8.06	0.55	3.39	29.50	2.03	6.65
4750	3350	4050	1.80	0.12	1.47	6.09	0.42	2.84	17.80	1.22	4.62
3350	2360	2855	1.00	0.07	1.35	3.02	0.21	2.42	9.00	0.62	3.40
2360	1180	1770	1.40	0.09	1.28	3.67	0.25	2.22	10.40	0.71	2.78
1180	850	1015	0.50	0.03	1.19	1.25	0.09	1.97	2.80	0.19	2.06
850	600	725	0.40	0.03	1.16	1.12	0.08	1.88	2.10	0.14	1.87
335	180	257.5	5.80	0.38	1.13	10.16	0.70	1.80	8.70	0.60	1.73
125	75	100	9.50	0.63	0.75	14.09	0.97	1.11	12.30	0.85	1.13
75	0	37.5	1.80	0.12	0.12	2.08	0.14	0.14	4.10	0.28	0.28
			1513.40			1460.03			1454.90		

Dutoitspan								
Weathering Condition			**Monovalent Cations**					
Weathering Time			6 Days LiCl			6 Days NH_4Cl		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	µm						
26500	22400	24450	315.30	21.31	100.00	918.40	63.05	100.00
22400	19000	20700	169.40	11.45	78.69	269.70	18.51	36.95
19000	16000	17500	171.70	11.61	67.24	86.10	5.91	18.44
16000	13200	14600	105.50	7.13	55.63	43.00	2.95	12.53
13200	11200	12200	177.00	11.96	48.50	30.20	2.07	9.58
11200	6700	8950	239.50	16.19	36.54	43.00	2.95	7.50
6700	4750	5725	119.90	8.10	20.35	12.50	0.86	4.55
4750	3350	4050	73.60	4.97	12.24	9.00	0.62	3.69
3350	2360	2855	34.50	2.33	7.27	3.40	0.23	3.08
2360	1180	1770	49.60	3.35	4.93	3.80	0.26	2.84
1180	850	1015	11.60	0.78	1.58	1.30	0.09	2.58
850	600	725	6.20	0.42	0.80	0.80	0.05	2.49
335	180	257.5	5.30	0.36	0.38	10.40	0.71	2.44
125	75	100	0.20	0.01	0.02	21.00	1.44	1.72
75	0	37.5	0.10	0.01	0.01	4.10	0.28	0.28
			1479.40			1456.70		

C1.2 Influence of cations on weathering: Divalent cations

Dutoitspan											
Weathering Condition			**Divalent Cations**								
Weathering Time			0 Days			6 Days $CuCl_2$			6 Days $MgCl_2$		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	µm	g								
26500	22400	24450	1237.00	81.74	100.00	25.20	1.61	100.00	561.50	37.63	100.00
22400	19000	20700	208.00	13.74	18.26	24.60	1.58	98.39	294.70	19.75	62.37
19000	16000	17500	31.80	2.10	4.52	40.60	2.60	96.81	130.60	8.75	42.61
16000	13200	14600	0.00	0.00	2.42	6.00	0.38	94.21	87.40	5.86	33.86
13200	11200	12200	8.10	0.54	2.42	1.10	0.07	93.82	85.40	5.72	28.00
11200	6700	8950	3.60	0.24	1.88	35.40	2.27	93.75	127.90	8.57	22.28
6700	4750	5725	2.70	0.18	1.65	38.50	2.47	91.49	53.00	3.55	13.71
4750	3350	4050	1.80	0.12	1.47	89.80	5.75	89.02	35.60	2.39	10.15
3350	2360	2855	1.00	0.07	1.35	92.10	5.90	83.27	19.80	1.33	7.77
2360	1180	1770	1.40	0.09	1.28	384.40	24.63	77.37	31.20	2.09	6.44
1180	850	1015	0.50	0.03	1.19	180.70	11.58	52.74	8.90	0.60	4.35
850	600	725	0.40	0.03	1.16	162.60	10.42	41.17	6.90	0.46	3.75
335	180	257.5	5.80	0.38	1.13	362.00	23.19	30.75	22.70	1.52	3.29
125	75	100	9.50	0.63	0.75	100.00	6.41	7.56	19.90	1.33	1.77
75	0	37.5	1.80	0.12	0.12	18.00	1.15	1.15	6.50	0.44	0.44
			1513.40			1561.00			1492.00		

Dutoitspan								
Weathering Condition			**Divalent Cations**					
Weathering Time			6 Days $CaCl_2$			6 Days $FeCl_2$		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	µm						
26500	22400	24450	359.10	24.04	100.00	291.40	19.17	100.00
22400	19000	20700	266.70	17.86	75.96	213.20	14.03	80.83
19000	16000	17500	119.50	8.00	58.10	165.60	10.90	66.80
16000	13200	14600	180.70	12.10	50.10	113.90	7.49	55.90
13200	11200	12200	92.50	6.19	38.00	129.80	8.54	48.41
11200	6700	8950	211.50	14.16	31.80	280.80	18.47	39.87
6700	4750	5725	85.20	5.70	17.64	148.20	9.75	21.40
4750	3350	4050	58.60	3.92	11.94	98.10	6.45	11.65
3350	2360	2855	26.50	1.77	8.01	37.00	2.43	5.19
2360	1180	1770	35.60	2.38	6.24	34.90	2.30	2.76
1180	850	1015	10.00	0.67	3.86	3.80	0.25	0.46
850	600	725	7.40	0.50	3.19	1.40	0.09	0.21
335	180	257.5	22.80	1.53	2.69	1.20	0.08	0.12
125	75	100	14.90	1.00	1.17	0.40	0.03	0.04
75	0	37.5	2.50	0.17	0.17	0.20	0.01	0.01
			1493.50			1519.90		

C1.2 Influence of cations on weathering: Trivalent cations

Dutoitspan											
Weathering Condition			**Trivalent Cations**								
Weathering Time			0 Days			6 Days $FeCl_3$			6 Days $AlCl_3$		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	μm	g								
26500	22400	24450	1237.00	81.74	100.00	490.50	33.11	100.00	595.62	38.98	100.00
22400	19000	20700	208.00	13.74	18.26	288.80	19.50	66.89	260.05	17.02	61.02
19000	16000	17500	31.80	2.10	4.52	173.64	11.72	47.39	77.36	5.06	44.00
16000	13200	14600	0.00	0.00	2.42	75.89	5.12	35.67	105.46	6.90	38.94
13200	11200	12200	8.10	0.54	2.42	57.71	3.90	30.55	85.42	5.59	32.03
11200	6700	8950	3.60	0.24	1.88	122.32	8.26	26.65	169.50	11.09	26.44
6700	4750	5725	2.70	0.18	1.65	50.02	3.38	18.39	77.97	5.10	15.35
4750	3350	4050	1.80	0.12	1.47	31.40	2.12	15.02	43.00	2.81	10.25
3350	2360	2855	1.00	0.07	1.35	19.82	1.34	12.90	18.40	1.20	7.43
2360	1180	1770	1.40	0.09	1.28	39.84	2.69	11.56	29.41	1.92	6.23
1180	850	1015	0.50	0.03	1.19	18.91	1.28	8.87	10.33	0.68	4.30
850	600	725	0.40	0.03	1.16	15.62	1.05	7.59	7.70	0.50	3.63
335	180	257.5	5.80	0.38	1.13	66.04	4.46	6.54	30.28	1.98	3.12
125	75	100	9.50	0.63	0.75	24.53	1.66	2.08	16.02	1.05	1.14
75	0	37.5	1.80	0.12	0.12	6.28	0.42	0.42	1.44	0.09	0.09
			1513.40			1481.32			1527.96		

C1.3 Time dependence tests: Mg time tests (0.2 M)

Dutoitspan														
Weathering Condition			**Time tests**											
Weathering Time			0 Days			2 Days			6 Days			15 Days		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	μm	g			g			g			g		
26500	22400	24450	1173.44	78.19	100.00	578.75	39.29	100.00	362.5	24.33	100.00	290.5	19.50	100.00
22400	19000	20700	225.87	15.05	21.81	276.65	18.78	60.71	316.46	21.24	75.67	273	18.32	80.50
19000	16000	17500	34.2	2.28	6.76	159.01	10.80	41.92	116.8	7.84	54.43	126.7	8.50	62.18
16000	13200	14600	17.67	1.18	4.49	62.27	4.23	31.13	140.2	9.41	46.59	108.7	7.30	53.67
13200	11200	12200	10.72	0.71	3.31	69.57	4.72	26.90	117.08	7.86	37.19	90.8	6.09	46.38
11200	9500	10350	3.64	0.24	2.59	63.99	4.34	22.17	64.76	4.35	29.33	87.6	5.88	40.28
9500	6700	8100	5.39	0.36	2.35	83.74	5.69	17.83	130.19	8.74	24.98	149	10.00	34.40
6700	5600	6150	1.07	0.07	1.99	32.49	2.21	12.14	39.25	2.63	16.24	62.2	4.18	24.40
5600	4750	5175	1.9	0.13	1.92	22.55	1.53	9.94	28.93	1.94	13.61	40.8	2.74	20.22
4750	3350	4050	2.5	0.17	1.79	37.1	2.52	8.41	50.17	3.37	11.67	76.5	5.13	17.49
3350	1180	2265	2.84	0.19	1.63	40.15	2.73	5.89	59.56	4.00	8.30	95.2	6.39	12.35
1180	850	1015	0.62	0.04	1.44	5.78	0.39	3.16	10.06	0.68	4.30	16.4	1.10	5.96
850	335	592.5	1.63	0.11	1.40	10.65	0.72	2.77	17.99	1.21	3.63	27.4	1.84	4.86
335	180	257.5	3.15	0.21	1.29	8.75	0.59	2.05	13.43	0.90	2.42	16.7	1.12	3.02
180	75	127.5	9.4	0.63	1.08	14.22	0.97	1.45	14.68	0.99	1.52	17.7	1.19	1.90
75	0	37.5	6.8	0.45	0.45	7.18	0.49	0.49	7.97	0.53	0.53	10.6	0.71	0.71
			1500.84			1472.85			1490.03			1489.8		

C1.3 Time dependence tests: Cu time tests (0.2 M)

Dutoitspan											
Weathering Condition			**Time**								
Weathering Time			0 Days			6 Hours $CuSO_4$			12 Hours $CuSO_4$		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	µm	g			g			g		
26500	22400	24450	1237.00	81.74	100.00	554.60	38.37	100.00	71.00	4.73	100.00
22400	19000	20700	208.00	13.74	18.26	268.80	18.60	61.63	168.00	11.19	95.27
19000	16000	17500	31.80	2.10	4.52	163.40	11.30	43.04	308.40	20.54	84.08
16000	13200	14600	0.00	0.00	2.42	111.50	7.71	31.73	207.40	13.81	63.55
13200	11200	12200	8.10	0.54	2.42	57.40	3.97	24.02	128.40	8.55	49.73
11200	6700	8950	3.60	0.24	1.88	129.70	8.97	20.05	223.60	14.89	41.18
6700	4750	5725	2.70	0.18	1.65		0.00	11.08	91.10	6.07	26.29
4750	3350	4050	1.80	0.12	1.47	33.70	2.33	11.08	67.00	4.46	20.23
3350	2360	2855	1.00	0.07	1.35	16.80	1.16	8.74	41.20	2.74	15.76
2360	1180	1770	1.40	0.09	1.28	32.60	2.26	7.58	61.30	4.08	13.02
1180	850	1015	0.50	0.03	1.19	12.90	0.89	5.33	23.60	1.57	8.94
850	600	725	0.40	0.03	1.16	10.80	0.75	4.43	20.10	1.34	7.37
335	180	257.5	5.80	0.38	1.13	32.80	2.27	3.69	57.80	3.85	6.03
125	75	100	9.50	0.63	0.75	15.90	1.10	1.42	24.30	1.62	2.18
75	0	37.5	1.80	0.12	0.12	4.60	0.32	0.32	8.40	0.56	0.56
			1513.40			1445.50			1501.60		

Dutoitspan								
Weathering Condition			**Time**					
Weathering Time			24 Hours $CuSO_4$			6 Days $CuSO_4$		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	µm	g			g		
26500	22400	24450	132.60	9.04	100.00	43.30	2.92	100.00
22400	19000	20700	94.60	6.45	90.96	0.00	0.00	97.08
19000	16000	17500	72.80	4.96	84.51	15.10	1.02	97.08
16000	13200	14600	149.30	10.18	79.55	15.00	1.01	96.07
13200	11200	12200	115.60	7.88	69.37	15.40	1.04	95.06
11200	6700	8950	226.30	15.43	61.49	71.90	4.84	94.02
6700	4750	5725	119.50	8.15	46.07	61.70	4.16	89.18
4750	3350	4050	109.60	7.47	37.92	113.70	7.66	85.02
3350	2360	2855	64.10	4.37	30.45	132.60	8.93	77.36
2360	1180	1770	127.30	8.68	26.08	459.30	30.94	68.43
1180	850	1015	58.20	3.97	17.40	133.30	8.98	37.50
850	600	725	42.30	2.88	13.44	106.40	7.17	28.52
335	180	257.5	103.80	7.08	10.55	220.20	14.83	21.35
125	75	100	36.40	2.48	3.48	68.90	4.64	6.52
75	0	37.5	14.60	1.00	1.00	27.90	1.88	1.88
			1467.00			1484.70		

C1.3 Time dependence tests: Cu time tests (0.5 M)

Dutoitspan												
Weathering Condition			**Time dependance**									
Weathering Time			4 Hours			8 Hours			24 Hours			
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	
-	+	µm	g			g			g			
16000	13200	14600	64.2	39.29	100.00	65.2	25.76	100.00	24.1	14.16	100.00	
13200	11200	12200	47.0	28.76	60.71	39.1	15.45	74.24	9.5	5.58	85.84	
11200	9500	10350	11.3	6.92	31.95	37.3	14.74	58.79	6.8	4.00	80.26	
9500	6700	8100	11.3	6.92	25.03	37.0	14.62	44.05	12.7	7.46	76.26	
6700	4750	5725	8.6	5.26	18.12	15.7	6.20	29.44	12.9	7.58	68.80	
4750	1180	2965	12.1	7.41	12.85	35.9	14.18	23.23	55.1	32.37	61.22	
1180	600	890	2.4	1.47	5.45	7.8	3.08	9.05	20.4	11.99	28.85	
600	335	467.5	1.9	1.16	3.98	5.1	2.02	5.97	9.0	5.29	16.86	
335	75	205	4.2	2.57	2.82	9.0	3.56	3.95	17.6	10.34	11.57	
	-75	37.5	0.4	0.24	0.24	1.0	0.40	0.40	2.1	1.23	1.23	
			163.4			253.1			170.2			

Dutoitspan																
Weathering Condition			**Time dependance**													
Weathering Time			48 Hours			168 Hours			360 Hours			720 Hours				
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing		
-	+	µm	g			g			g							
16000	13200	14600	15.8	5.88	100.00	5.0	2.67	100.00	6.7	4.16	100.00	13.5	5.10	100.00		
13200	11200	12200	16.0	5.96	94.12	3.8	2.03	97.33	0.0	0.00	95.84	1.7	0.65	94.90		
11200	9500	10350	3.7	1.38	88.16	1.5	0.80	95.30	0.0	0.00	95.84	1.0	0.38	94.26		
9500	6700	8100	31.4	11.69	86.78	1.9	1.01	94.50	6.8	4.22	95.84	3.9	1.47	93.88		
6700	4750	5725	22.5	8.38	75.09	11.1	5.92	93.49	6.7	4.16	91.61	6.4	2.42	92.40		
4750	1180	2965	105.1	39.13	66.72	89.5	47.76	87.57	64.5	40.06	87.45	106.0	40.01	89.99		
1180	600	890	33.3	12.40	27.59	29.8	15.90	39.81	33.1	20.56	47.39	46.0	17.36	49.98		
600	335	467.5	14.4	5.36	15.19	15.4	8.22	23.91	14.9	9.25	26.83	26.8	10.12	32.61		
335	75	205	23.4	8.71	9.83	26.5	14.14	15.69	25.2	15.65	17.58	50.3	18.99	22.50		
	-75	37.5	3.0	1.12	1.12	2.9	1.55	1.55	3.1	1.93	1.93	9.3	3.51	3.51		
			268.6			187.4			161.0			264.9				

C1.4 Cation concentration

Dutoitspan											
Weathering Condition			**Concentration**								
Weathering Time			0 Days			6 Days $CuSO_4$ (0.005 M)			6 Days $CuSO_4$ (0.025 M)		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	µm	g			g			g		
26500	22400	24450	1237.00	81.74	100.00	857.10	57.37	100.00	309.10	21.02	100.00
22400	19000	20700	208.00	13.74	18.26	206.80	13.84	42.63	211.00	14.35	78.98
19000	16000	17500	31.80	2.10	4.52	180.40	12.07	28.79	183.10	12.45	64.63
16000	13200	14600	0.00	0.00	2.42	68.30	4.57	16.71	144.20	9.81	52.18
13200	11200	12200	8.10	0.54	2.42	39.30	2.63	12.14	108.10	7.35	42.37
11200	6700	8950	3.60	0.24	1.88	66.30	4.44	9.51	227.20	15.45	35.02
6700	4750	5725	2.70	0.18	1.65	24.50	1.64	5.07	81.80	5.56	19.57
4750	3350	4050	1.80	0.12	1.47	17.20	1.15	3.43	58.10	3.95	14.01
3350	2360	2855	1.00	0.07	1.35	7.50	0.50	2.28	35.20	2.39	10.06
2360	1180	1770	1.40	0.09	1.28	10.80	0.72	1.78	54.60	3.71	7.66
1180	850	1015	0.50	0.03	1.19	2.90	0.19	1.06	15.30	1.04	3.95
850	600	725	0.40	0.03	1.16	2.50	0.17	0.86	11.30	0.77	2.91
335	180	257.5	5.80	0.38	1.13	7.20	0.48	0.70	23.00	1.56	2.14
125	75	100	9.50	0.63	0.75	2.60	0.17	0.21	7.00	0.48	0.58
75	0	37.5	1.80	0.12	0.12	0.60	0.04	0.04	1.50	0.10	0.10
			1513.40			1494.00			1470.50		

Dutoitspan														
Weathering Condition			**Concentration**											
Weathering Time			6 Days $CuSO_4$ (0.05 M)			6 Days $CuSO_4$ (0.1 M)			6 Days $CuSO_4$ (0.2 M)			6 Days $CuSO_4$ (0.4 M)		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	µm	g			g			g			g		
26500	22400	24450	81.30	5.58	100.00	117.20	7.78	100.00	43.50	2.86	100.00	43.30	2.92	100.00
22400	19000	20700	61.80	4.24	94.42	22.70	1.51	92.22	38.60	2.54	97.14	0.00	0.00	97.08
19000	16000	17500	114.20	7.84	90.17	48.40	3.21	90.71	29.70	1.96	94.59	15.10	1.02	97.08
16000	13200	14600	174.10	11.96	82.33	45.70	3.03	87.50	21.90	1.44	92.64	15.00	1.01	96.07
13200	11200	12200	119.40	8.20	70.37	38.20	2.54	84.46	27.10	1.78	91.20	15.40	1.04	95.06
11200	6700	8950	283.00	19.44	62.17	190.50	12.65	81.93	96.20	6.33	89.41	71.90	4.84	94.02
6700	4750	5725	127.40	8.75	42.73	123.60	8.21	69.28	97.10	6.39	83.08	61.70	4.16	89.18
4750	3350	4050	141.80	9.74	33.98	145.90	9.69	61.07	160.10	10.54	76.69	113.70	7.66	85.02
3350	2360	2855	81.30	5.58	24.24	187.60	12.46	51.38	135.70	8.93	66.15	132.60	8.93	77.36
2360	1180	1770	130.20	8.94	18.66	291.60	19.36	38.93	435.60	28.68	57.21	459.30	30.94	68.43
1180	850	1015	36.90	2.53	9.72	78.00	5.18	19.57	106.50	7.01	28.53	133.30	8.98	37.50
850	600	725	28.40	1.95	7.18	57.60	3.82	14.39	86.00	5.66	21.52	106.40	7.17	28.52
335	180	257.5	55.50	3.81	5.23	124.50	8.27	10.56	179.50	11.82	15.86	220.20	14.83	21.35
125	75	100	17.30	1.19	1.42	32.00	2.12	2.30	49.60	3.27	4.04	68.90	4.64	6.52
75	0	37.5	3.40	0.23	0.23	2.60	0.17	0.17	11.80	0.78	0.78	27.90	1.88	1.88
			1456.00			1506.10			1518.90			1484.70		

C1.5 Temperature tests

Dutoitspan											
Weathering Condition			**Temperature tests**								
Weathering Time			0 Days			6 Days Water Room Temperature			6 Days $MgCl_2$ Room Temperature		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	µm	g			g			g		
19000	16000	17500	1036.28	67.81	100.00	958.99	63.36	100.00	619.34	43.61	100.00
16000	13200	14600	409.33	26.79	32.19	338.21	22.34	36.64	335.27	23.61	56.39
13200	11200	12200	44.06	2.88	5.40	50.08	3.31	14.30	106.32	7.49	32.79
11200	9500	10350	6.41	0.42	2.52	35.68	2.36	10.99	60.89	4.29	25.30
9500	6700	8100	7.83	0.51	2.10	36.37	2.40	8.63	105.33	7.42	21.01
6700	5600	6150	1.59	0.10	1.58	12.06	0.80	6.23	46.15	3.25	13.60
5600	4750	5175	0.78	0.05	1.48	12.74	0.84	5.43	21.28	1.50	10.35
4750	3350	4050	2.52	0.16	1.43	17.30	1.14	4.59	42.31	2.98	8.85
3350	1180	2265	2.80	0.18	1.26	19.92	1.32	3.45	47.74	3.36	5.87
1180	850	1015	0.49	0.03	1.08	3.03	0.20	2.13	6.03	0.42	2.51
850	335	592.5	1.16	0.08	1.05	6.31	0.42	1.93	8.79	0.62	2.08
335	180	257.5	1.80	0.12	0.97	5.05	0.33	1.52	5.94	0.42	1.46
180	75	127.5	8.06	0.53	0.86	9.52	0.63	1.18	8.24	0.58	1.05
75	0	37.5	5.02	0.33	0.33	8.39	0.55	0.55	6.61	0.47	0.47
			1528.13			1513.65			1420.24		

Dutoitspan								
Weathering Condition			**Temperature tests**					
Weathering Time			6 Days Water 40 °C			6 Days $MgCl_2$ 40 °C		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	µm	g			g		
19000	16000	17500	482.30	32.52	100.00	280.40	18.72	100.00
16000	13200	14600	422.00	28.46	67.48	314.10	20.97	81.28
13200	11200	12200	151.00	10.18	39.02	161.20	10.76	60.31
11200	9500	10350	77.70	5.24	28.84	118.60	7.92	49.55
9500	6700	8100	115.40	7.78	23.60	205.10	13.69	41.64
6700	5600	6150	44.70	3.01	15.81	73.60	4.91	27.94
5600	4750	5175	28.90	1.95	12.80	53.60	3.58	23.03
4750	3350	4050	50.30	3.39	10.85	91.80	6.13	19.45
3350	1180	2265	54.30	3.66	7.46	108.60	7.25	13.32
1180	850	1015	7.80	0.53	3.80	17.30	1.15	6.07
850	335	592.5	13.10	0.88	3.27	28.00	1.87	4.92
335	180	257.5	10.40	0.70	2.39	18.30	1.22	3.05
180	75	127.5	14.50	0.98	1.69	18.60	1.24	1.83
75	0	37.5	10.50	0.71	0.71	8.80	0.59	0.59
			1482.90			1498.00		

C1.6 Influence of anions

Dutoitspan											
Weathering Condition			**Anion Effect**								
Weathering Time			0 Days			6 Days $CuCl_2$			6 Days $CuSO_4$		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	μm	g			g			g		
26500	22400	24450	1237.00	81.74	100.00	25.20	1.61	100.00	43.30	2.92	100.00
22400	19000	20700	208.00	13.74	18.26	24.60	1.58	98.39	0.00	0.00	97.08
19000	16000	17500	31.80	2.10	4.52	40.60	2.60	96.81	15.10	1.02	97.08
16000	13200	14600	0.00	0.00	2.42	6.00	0.38	94.21	15.00	1.01	96.07
13200	11200	12200	8.10	0.54	2.42	1.10	0.07	93.82	15.40	1.04	95.06
11200	6700	8950	3.60	0.24	1.88	35.40	2.27	93.75	71.90	4.84	94.02
6700	4750	5725	2.70	0.18	1.65	38.50	2.47	91.49	61.70	4.16	89.18
4750	3350	4050	1.80	0.12	1.47	89.80	5.75	89.02	113.70	7.66	85.02
3350	2360	2855	1.00	0.07	1.35	92.10	5.90	83.27	132.60	8.93	77.36
2360	1180	1770	1.40	0.09	1.28	384.40	24.63	77.37	459.30	30.94	68.43
1180	850	1015	0.50	0.03	1.19	180.70	11.58	52.74	133.30	8.98	37.50
850	600	725	0.40	0.03	1.16	162.60	10.42	41.17	106.40	7.17	28.52
335	180	257.5	5.80	0.38	1.13	362.00	23.19	30.75	220.20	14.83	21.35
125	75	100	9.50	0.63	0.75	100.00	6.41	7.56	68.90	4.64	6.52
75	0	37.5	1.80	0.12	0.12	18.00	1.15	1.15	27.90	1.88	1.88
			1513.40			1561.00			1484.70		

C1.7 Particle size tests

Dutoitspan											
Weathering Condition			**Particle size investigation**								
Weathering Time			0 Days			2 Days $MgCl_2$			6 Days $MgCl_2$		
Particle Size			- 26.5 + 22.4 mm			- 26.5 + 22.4 mm			- 26.5 + 22.4 mm		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	µm	g			g			g		
26500	22400	24450	1237	81.30	100.00	578.75	39.29	100.00	362.5	24.33	100.00
22400	19000	20700	208	13.67	18.70	276.65	18.78	60.71	316.46	21.24	75.67
19000	16000	17500	31.8	2.09	5.03	159.01	10.80	41.92	116.8	7.84	54.43
16000	13200	14600	0	0.00	2.94	62.27	4.23	31.13	140.2	9.41	46.59
13200	11200	12200	8.1	0.53	2.94	69.57	4.72	26.90	117.08	7.86	37.19
11200	9500	10350	3.6	0.24	2.41	63.99	4.34	22.17	64.76	4.35	29.33
9500	6700	8100	2.7	0.18	2.17	83.74	5.69	17.83	130.19	8.74	24.98
6700	5600	6150	1.8	0.12	1.99	32.49	2.21	12.14	39.25	2.63	16.24
5600	4750	5175	1	0.07	1.88	22.55	1.53	9.94	28.93	1.94	13.61
4750	3350	4050	1.4	0.09	1.81	37.1	2.52	8.41	50.17	3.37	11.67
3350	1180	2265	0.5	0.03	1.72	40.15	2.73	5.89	59.56	4.00	8.30
1180	850	1015	0.4	0.03	1.69	5.78	0.39	3.16	10.06	0.68	4.30
850	335	592.5	5.8	0.38	1.66	10.65	0.72	2.77	17.99	1.21	3.63
335	180	257.5	9.5	0.62	1.28	8.75	0.59	2.05	13.43	0.90	2.42
180	75	127.5	1.8	0.12	0.65	14.22	0.97	1.45	14.68	0.99	1.52
75	0	37.5	8.14	0.53	0.53	7.18	0.49	0.49	7.97	0.53	0.53
			1521.54			1472.85			1490.03		

Dutoitspan														
Weathering Condition			**Particle size investigation**											
Weathering Time			0 Days			6 Days $MgCl_2$			0 Days			6 Days $MgCl_2$		
Particle Size			- 22.4 + 19 mm			- 22.4 + 19 mm			- 19 + 16 mm			- 19 + 16 mm		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	µm	g			g			g			g		
22400	19000	20700	1078.00	72.82	100.00	437.28	29.30	100.00						
19000	16000	17500	315.30	21.30	27.18	308.88	20.69	70.70	1036.28	68.46	100.00	519.34	34.62	100.00
16000	13200	14600	33.40	2.26	5.88	142.65	9.56	50.01	409.33	27.04	31.54	355.27	23.68	65.38
13200	11200	12200	23.00	1.55	3.62	104.77	7.02	40.45	16.74	1.11	4.50	126.32	8.42	41.70
11200	9500	10350	12.50	0.84	2.07	81.44	5.46	33.43	6.41	0.42	3.39	80.89	5.39	33.28
9500	6700	8100	2.10	0.14	1.22	119.38	8.00	27.98	7.83	0.52	2.97	105.33	7.02	27.89
6700	5600	6150	2.50	0.17	1.08	54.36	3.64	19.98	1.59	0.11	2.45	66.15	4.41	20.87
5600	4750	5175	1.50	0.10	0.91	29.89	2.00	16.34	0.78	0.05	2.35	51.28	3.42	16.46
4750	3350	4050	1.50	0.10	0.81	60.48	4.05	14.33	2.52	0.17	2.30	72.31	4.82	13.04
3350	1180	2265	0.20	0.01	0.71	78.05	5.23	10.28	2.80	0.18	2.13	57.74	3.85	8.22
1180	850	1015	0.10	0.01	0.70	12.92	0.87	5.05	0.49	0.03	1.94	20.03	1.34	4.37
850	335	592.5	0.30	0.02	0.69	21.12	1.41	4.19	1.16	0.08	1.91	12.79	0.85	3.04
335	180	257.5	1.80	0.12	0.67	16.59	1.11	2.77	14.71	0.97	1.84	9.94	0.66	2.19
180	75	127.5	2.13	0.14	0.55	16.36	1.10	1.66	8.06	0.53	0.86	12.24	0.82	1.52
75	0	37.5	5.98	0.40	0.40	8.44	0.57	0.57	5.02	0.33	0.33	10.61	0.71	0.71
			1480.31			1492.61			1513.72			1500.24		

Du Toit Span								
Weathering Condition			**Particle size investigation**					
Weathering Time			0 Days			6 Days $MgCl_2$		
Particle Size			- 16 + 13.2 mm			- 16 + 13.2 mm		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	µm	g			g		
16000	13200	14600	990.22	66.06	100.00	390.22	26.03	100.00
13200	11200	12200	391.74	26.13	33.94	299.19	19.96	73.97
11200	9500	10350	65.82	4.39	7.80	171.08	11.41	54.01
9500	6700	8100	17.83	1.19	3.41	234.35	15.63	42.60
6700	5600	6150	3.94	0.26	2.22	76.77	5.12	26.96
5600	4750	5175	3.24	0.22	1.96	42.56	2.84	21.84
4750	3350	4050	6.87	0.46	1.74	90.33	6.03	19.00
3350	1180	2265	5.25	0.35	1.29	106.27	7.09	12.98
1180	850	1015	0.70	0.05	0.94	17.86	1.19	5.89
850	335	592.5	1.35	0.09	0.89	27.45	1.83	4.70
335	180	257.5	1.44	0.10	0.80	16.85	1.12	2.87
180	75	127.5	6.08	0.41	0.70	15.93	1.06	1.74
75	0	37.5	4.46	0.30	0.30	10.18	0.68	0.68
			1498.94			1499.04		

C1.8 Influence of milling on weathering results

Dutoitspan											
Weathering Condition			**Influence of milling**								
Weathering Time			0 Days			12 Hours $CuSO_4$			12 Hours $CuSO_4$ MILLED		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	µm	g			g			g		
26500	22400	24450	1237.00	81.74	100.00	71.00	4.73	100.00	168.4	11.21	100.00
22400	19000	20700	208.00	13.74	18.26	168.00	11.19	95.27	92.6	6.17	88.79
19000	16000	17500	31.80	2.10	4.52	308.40	20.54	84.08	102.9	6.85	82.62
16000	13200	14600	0.00	0.00	2.42	207.40	13.81	63.55	135.4	9.02	75.77
13200	11200	12200	8.10	0.54	2.42	128.40	8.55	49.73	106.5	7.09	66.75
11200	6700	8950	3.60	0.24	1.88	223.60	14.89	41.18	296.7	19.76	59.66
6700	4750	5725	2.70	0.18	1.65	91.10	6.07	26.29	135.5	9.02	39.90
4750	3350	4050	1.80	0.12	1.47	67.00	4.46	20.23	78	5.19	30.88
3350	2360	2855	1.00	0.07	1.35	41.20	2.74	15.76	43.6	2.90	25.68
2360	1180	1770	1.40	0.09	1.28	61.30	4.08	13.02	89.6	5.97	22.78
1180	850	1015	0.50	0.03	1.19	23.60	1.57	8.94	40.1	2.67	16.81
850	600	725	0.40	0.03	1.16	20.10	1.34	7.37	37.5	2.50	14.14
335	180	257.5	5.80	0.38	1.13	57.80	3.85	6.03	128.6	8.56	11.65
125	75	100	9.50	0.63	0.75	24.30	1.62	2.18	41.4	2.76	3.08
75	0	37.5	1.80	0.12	0.12	8.40	0.56	0.56	4.9	0.33	0.33
			1513.40			1501.60			1501.7		

C1.9 The effect of a stabilising cation vs. a swelling cation

Dutoitspan												
Weathering Condition			**Copper (swelling medium)**									
Weathering Time			4 Hours			8 Hours			24 Hours			
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	
-	+	µm	g			g			g			
16000	13200	14600	64.2	39.29	100.00	65.2	25.76	100.00	24.1	14.16	100.00	
13200	11200	12200	47.0	28.76	60.71	39.1	15.45	74.24	9.5	5.58	85.84	
11200	9500	10350	11.3	6.92	31.95	37.3	14.74	58.79	6.8	4.00	80.26	
9500	6700	8100	11.3	6.92	25.03	37.0	14.62	44.05	12.7	7.46	76.26	
6700	4750	5725	8.6	5.26	18.12	15.7	6.20	29.44	12.9	7.58	68.80	
4750	1180	2965	12.1	7.41	12.85	35.9	14.18	23.23	55.1	32.37	61.22	
1180	600	890	2.4	1.47	5.45	7.8	3.08	9.05	20.4	11.99	28.85	
600	335	467.5	1.9	1.16	3.98	5.1	2.02	5.97	9.0	5.29	16.86	
335	75	205	4.2	2.57	2.82	9.0	3.56	3.95	17.6	10.34	11.57	
	-75	37.5	0.4	0.24	0.24	1.0	0.40	0.40	2.1	1.23	1.23	
			163.4			253.1			170.2			

Dutoitspan															
Weathering Condition			**Copper (swelling medium)**												
Weathering Time			48 Hours			168 Hours			360 Hours			720 Hours			
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	
-	+	µm	g			g			g						
16000	13200	14600	15.8	5.88	100.00	5.0	2.67	100.00	6.7	4.16	100.00	13.5	5.10	100.00	
13200	11200	12200	16.0	5.96	94.12	3.8	2.03	97.33	0.0	0.00	95.84	1.7	0.65	94.90	
11200	9500	10350	3.7	1.38	88.16	1.5	0.80	95.30	0.0	0.00	95.84	1.0	0.38	94.26	
9500	6700	8100	31.4	11.69	86.78	1.9	1.01	94.50	6.8	4.22	95.84	3.9	1.47	93.88	
6700	4750	5725	22.5	8.38	75.09	11.1	5.92	93.49	6.7	4.16	91.61	6.4	2.42	92.40	
4750	1180	2965	105.1	39.13	66.72	89.5	47.76	87.57	64.5	40.06	87.45	106.0	40.01	89.99	
1180	600	890	33.3	12.40	27.59	29.8	15.90	39.81	33.1	20.56	47.39	46.0	17.36	49.98	
600	335	467.5	14.4	5.36	15.19	15.4	8.22	23.91	14.9	9.25	26.83	26.8	10.12	32.61	
335	75	205	23.4	8.71	9.83	26.5	14.14	15.69	25.2	15.65	17.58	50.3	18.99	22.50	
	-75	37.5	3.0	1.12	1.12	2.9	1.55	1.55	3.1	1.93	1.93	9.3	3.51	3.51	
			268.6			187.4			161.0			264.9			

Dutoitspan											
Weathering Condition			**K (collapsing medium)**								
Weathering Time			8 Hours			2 Days			6 Days		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	µm	g								
16000	13200	14600	135.5	57.64	100.00	176.0	62.86	100.00	211.0	63.96	100.00
13200	11200	12200	74.5	31.69	42.36	66.9	23.89	37.14	84.2	25.52	36.04
6700	4750	5725	19.0	8.08	10.68	31.1	11.11	13.25	28.1	8.52	10.52
600	335	467.5	5.2	2.21	2.59	5.4	1.93	2.14	6.0	1.82	2.00
335	0	167.5	0.9	0.38	0.38	0.6	0.21	0.21	0.6	0.18	0.18
			235.1			280.0			329.9		

C1.10 Repeatability of results

Dutoitspan												
Weathering Condition			**Repeatability**									
Weathering Time			2 Days 0.025 M Cu			2 Days 0.025 M Cu			2 Days 0.025 M Cu			
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	
-	+	µm	g									
16000	13200	14600	89.40	45.38	100.00	86.20	44.14	100.00	99.40	51.13	100.00	
13200	11200	12200	60.70	30.81	54.62	53.70	27.50	55.86	49.90	25.67	48.87	
11200	9500	10350	16.10	8.17	23.81	17.10	8.76	28.37	11.50	5.92	23.20	
9500	6700	8100	16.80	8.53	15.63	16.70	8.55	19.61	13.00	6.69	17.28	
6700	4750	5725	4.10	2.08	7.11	8.50	4.35	11.06	6.90	3.55	10.60	
4750	1180	2965	7.60	3.86	5.03	10.00	5.12	6.71	10.40	5.35	7.05	
1180	600	890	0.90	0.46	1.17	1.20	0.61	1.59	1.30	0.67	1.70	
600	335	467.5	0.50	0.25	0.71	0.70	0.36	0.97	0.70	0.36	1.03	
335	75	205	0.80	0.41	0.46	1.10	0.56	0.61	1.20	0.62	0.67	
	-75	37.5	0.10	0.05	0.05	0.10	0.05	0.05	0.10	0.05	0.05	
			197.00			195.30			194.40			

Dutoitspan												
Weathering Condition			**Repeatability**									
Weathering Time			2 Days 0.1 M Cu			2 Days 0.1 M Cu			2 Days 0.1 M Cu			
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	
-	+	µm	g									
16000	13200	14600	61.70	30.22	100.00	49.80	25.53	100.00	62.9	32.08	100.00	
13200	11200	12200	46.40	22.72	69.78	43.30	22.19	74.47	29.2	14.89	67.92	
11200	9500	10350	23.00	11.26	47.06	24.70	12.66	52.28	31.10	15.86	53.03	
9500	6700	8100	28.50	13.96	35.80	31.00	15.89	39.62	25.90	13.21	37.17	
6700	4750	5725	12.50	6.12	21.84	14.50	7.43	23.73	13.00	6.63	23.97	
4750	1180	2965	22.30	10.92	15.72	21.70	11.12	16.30	23.50	11.98	17.34	
1180	600	890	3.10	1.52	4.80	3.50	1.79	5.18	3.70	1.89	5.35	
600	335	467.5	2.90	1.42	3.28	2.10	1.08	3.38	2.00	1.02	3.47	
335	75	205	3.00	1.47	1.86	3.80	1.95	2.31	4.00	2.04	2.45	
	-75	37.5	0.80	0.39	0.39	0.70	0.36	0.36	0.80	0.41	0.41	
			204.20			195.10			196.1			

Dutoitspan												
Weathering Condition			**Repeatability**									
Weathering Time			2 Days 0.5 M Cu			2 Days 0.5 M Cu			2 Days 0.5 M Cu			
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	
-	+	µm	g									
16000	13200	14600	12.60	6.41	100.00	20.10	10.48	100.00	14.7	7.70	100.00	
13200	11200	12200	11.80	6.00	93.59	6.70	3.49	89.52	2.7	1.42	92.30	
11200	9500	10350	7.40	3.76	87.59	5.50	2.87	86.03	5.30	2.78	90.88	
9500	6700	8100	16.00	8.14	83.83	17.20	8.97	83.16	12.80	6.71	88.10	
6700	4750	5725	17.80	9.05	75.69	19.20	10.01	74.19	22.60	11.84	81.39	
4750	1180	2965	82.60	42.01	66.63	78.50	40.93	64.18	88.40	46.33	69.55	
1180	600	890	20.10	10.22	24.62	17.90	9.33	23.25	17.80	9.33	23.22	
600	335	467.5	9.10	4.63	14.39	9.20	4.80	13.92	9.40	4.93	13.89	
335	75	205	17.20	8.75	9.77	15.60	8.13	9.12	14.90	7.81	8.96	
	-75	37.5	2.00	1.02	1.02	1.90	0.99	0.99	2.20	1.15	1.15	
			196.60			191.80			190.8			

C2: Data on Geluk Wes

C2.1 Standard Weathering test

Geluk Wes								
Weathering Condition			**Standard weathering test**					
Weathering Time			0 Days			15 Days		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	μm	g			g		
19000	16000	17500	1094.34	71.02	100.00	1012.00	67.72	100.00
16000	13200	14600	347.96	22.58	28.98	318.03	21.28	32.28
13200	11200	12200	35.02	2.27	6.40	42.72	2.86	11.00
11200	6700	8950	19.54	1.27	4.13	44.50	2.98	8.14
6700	4750	5725	5.74	0.37	2.86	15.11	1.01	5.16
4750	3350	4050	4.88	0.32	2.49	11.04	0.74	4.15
3350	2360	2855	2.61	0.17	2.17	5.25	0.35	3.41
2360	1180	1770	3.47	0.23	2.00	8.05	0.54	3.06
1180	850	1015	0.89	0.06	1.77	3.26	0.22	2.52
850	600	725	0.89	0.06	1.72	2.68	0.18	2.31
600	335	467.5	1.36	0.09	1.66	4.24	0.28	2.13
335	180	257.5	2.40	0.16	1.57	5.70	0.38	1.84
180	125	152.5	2.13	0.14	1.42	3.26	0.22	1.46
125	75	100	5.47	0.35	1.28	6.09	0.41	1.24
75	0	37.5	14.21	0.92	0.92	12.48	0.84	0.84
			1540.91			1494.41		

C2.2 Sodium-, lithium-, aluminium- chloride media (0.2 M)

Geluk Wes											
Weathering Condition			**Investigating the weathering media**								
Weathering Time			0 Days			6 Days H_2O			6 Days NaCl		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	µm	g			g			g		
22400	19000	20700	1107.75	75.73	100.00	942.64	62.52	100.00	962.44	63.56	100.00
19000	16000	17500	267.30	18.27	24.27	440.80	29.24	37.48	400.39	26.44	36.44
16000	13200	14600	28.56	1.95	6.00	15.80	1.05	8.25	39.43	2.60	10.00
13200	11200	12200	10.21	0.70	4.05	15.75	1.04	7.20	16.82	1.11	7.40
11200	6700	8950	5.05	0.35	3.35	19.60	1.30	6.15	17.06	1.13	6.28
6700	4750	5725	8.36	0.57	3.00	21.23	1.41	4.85	21.05	1.39	5.16
4750	3350	4050	1.28	0.09	2.43	3.36	0.22	3.45	4.15	0.27	3.77
3350	2360	2855	2.94	0.20	2.35	7.53	0.50	3.22	8.56	0.57	3.49
2360	1180	1770	1.26	0.09	2.14	4.07	0.27	2.72	3.90	0.26	2.93
1180	850	1015	2.00	0.14	2.06	5.24	0.35	2.45	5.42	0.36	2.67
850	600	725	0.80	0.05	1.92	2.16	0.14	2.11	2.19	0.14	2.31
600	335	467.5	2.11	0.14	1.87	5.76	0.38	1.96	4.95	0.33	2.17
335	180	257.5	3.67	0.25	1.72	6.40	0.42	1.58	5.57	0.37	1.84
180	125	152.5	2.97	0.20	1.47	4.65	0.31	1.16	4.24	0.28	1.47
125	75	100	8.99	0.61	1.27	6.61	0.44	0.85	9.18	0.61	1.19
75	0	37.5	9.57	0.65	0.65	6.17	0.41	0.41	8.90	0.59	0.59
			1462.82			1507.77			1514.25		

Geluk Wes											
Weathering Condition			**Investigating the weathering media**								
Weathering Time			6 Days NaCl + Acid			6 Days $AlCl_3$			6 Days LiCl		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	µm	g			g			g		
22400	19000	20700	950.58	62.95	100.00	738.62	49.65	100.00	564.78	38.10	100.83
19000	16000	17500	370.67	24.55	37.05	359.04	24.13	50.35	396.30	27.09	62.74
16000	13200	14600	46.59	3.09	12.50	127.97	8.60	26.22	90.96	6.22	35.65
13200	11200	12200	30.94	2.05	9.41	25.18	1.69	17.61	55.60	3.80	29.43
11200	6700	8950	20.57	1.36	7.37	26.85	1.80	15.92	38.47	2.63	25.63
6700	4750	5725	26.98	1.79	6.00	71.87	4.83	14.12	78.60	5.37	23.00
4750	3350	4050	4.78	0.32	4.22	10.53	0.71	9.29	18.89	1.29	17.62
3350	2360	2855	10.13	0.67	3.90	19.28	1.30	8.58	36.16	2.47	16.33
2360	1180	1770	3.76	0.25	3.23	9.71	0.65	7.28	16.87	1.15	13.86
1180	850	1015	6.62	0.44	2.98	17.45	1.17	6.63	33.58	2.30	12.71
850	600	725	2.50	0.17	2.54	6.70	0.45	5.46	12.99	0.89	10.41
600	335	467.5	5.65	0.37	2.38	16.45	1.11	5.01	33.47	2.29	9.52
335	180	257.5	6.57	0.44	2.00	15.73	1.06	3.90	32.05	2.19	7.24
180	125	152.5	3.96	0.26	1.57	8.64	0.58	2.84	19.78	1.35	5.05
125	75	100	10.80	0.72	1.30	14.09	0.95	2.26	28.41	1.94	3.69
75	0	37.5	8.90	0.59	0.59	19.55	1.31	1.31	25.61	1.75	1.75
			1510.00			1487.66			1482.52		

C3: Data on Koffiefontein

Koffiefontein											
Weathering Condition			**Standard weathering test**								
Weathering Time			0 Days			1 Hour			3 Hours		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	μm	g			g			g		
26500	22400	24450	1151.10	77.91	100.00	411.78	27.08	100.00	44.90	3.01	100.00
22400	19000	20700	221.80	15.01	22.09	345.33	22.71	72.92	228.70	15.32	96.99
19000	16000	17500	37.00	2.50	7.08	72.61	4.78	50.20	165.60	11.10	81.67
16000	13200	14600	16.00	1.08	4.58	84.30	5.54	45.43	129.80	8.70	70.57
13200	11200	12200	2.70	0.18	3.49	42.23	2.78	39.88	53.50	3.58	61.87
11200	9500	10350	4.50	0.30	3.31	29.69	1.95	37.10	57.80	3.87	58.29
9500	6700	8100	11.90	0.81	3.01	71.93	4.73	35.15	128.30	8.60	54.42
6700	4750	5725	2.20	0.15	2.20	60.13	3.95	30.42	55.80	3.74	45.82
4750	3350	4050	1.50	0.10	2.05	33.32	2.19	26.47	51.30	3.44	42.08
3350	1180	2265	2.20	0.15	1.95	89.79	5.91	24.27	125.20	8.39	38.64
1180	850	1015	3.90	0.26	1.80	176.95	11.64	18.37	216.40	14.50	30.25
850	335	592.5	0.90	0.06	1.54	29.09	1.91	6.73	44.10	2.95	15.75
335	180	257.5	1.90	0.13	1.48	43.94	2.89	4.82	93.80	6.29	12.80
180	75	127.5	3.00	0.20	1.35	18.12	1.19	1.93	44.20	2.96	6.51
125	75	100	8.60	0.58	1.14	9.08	0.60	0.74	28.60	1.92	3.55
75	0	37.5	8.30	0.56	0.56	2.10	0.14	0.14	24.40	1.63	1.63
			1477.50			1520.39			1492.40		

C4: Data on Cullinan TKB

C4.1 Standard Weathering test

Premier TKB											
Weathering Condition			**Standard weathering test**								
Weathering Time			0 Days			6 Days			15 Days		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	μm	g			g			g		
19000	16000	17500	1188.07	77.49	100.00	1174.07	77.68	100.00	1194.93	79.01	100.00
16000	13200	14600	283.86	18.51	22.51	285.99	18.92	22.32	263.03	17.39	20.99
13200	11200	12200	32.83	2.14	4.00	20.72	1.37	3.40	23.70	1.57	3.60
11200	6700	8950	7.36	0.48	1.86	9.01	0.60	2.03	5.21	0.34	2.03
6700	4750	5725	1.58	0.10	1.38	1.65	0.11	1.43	1.87	0.12	1.69
4750	3350	4050	1.89	0.12	1.28	2.66	0.18	1.32	3.06	0.20	1.57
3350	2360	2855	0.89	0.06	1.15	1.04	0.07	1.15	1.10	0.07	1.36
2360	1180	1770	1.52	0.10	1.09	2.09	0.14	1.08	2.52	0.17	1.29
1180	850	1015	0.60	0.04	1.00	0.66	0.04	0.94	0.83	0.05	1.12
850	600	725	0.47	0.03	0.96	0.53	0.04	0.90	0.60	0.04	1.07
600	335	467.5	0.71	0.05	0.93	0.83	0.05	0.86	0.99	0.07	1.03
335	180	257.5	1.42	0.09	0.88	1.86	0.12	0.81	1.99	0.13	0.96
180	125	152.5	1.18	0.08	0.79	1.06	0.07	0.68	1.67	0.11	0.83
125	75	100	1.92	0.13	0.71	3.16	0.21	0.61	3.25	0.21	0.72
75	0	37.5	8.96	0.58	0.58	6.12	0.40	0.40	7.66	0.51	0.51
			1533.26			1511.45			1512.41		

C4.2 Sodium chloride media

Premier TKB											
Weathering Condition			**Sodium Chloride Media**								
Weathering Time			0 Days			6 Days			15 Days		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	µm	g			g			g		
19000	16000	17500	1188.07	79.10	100.00	1041.39	70.54	100.00	1084.90	72.61	100.00
16000	13200	14600	283.86	18.90	20.90	370.04	25.06	29.46	327.30	21.91	27.39
13200	11200	12200	1.59	0.11	2.00	19.38	1.31	4.40	22.40	1.50	5.48
11200	6700	8950	7.36	0.49	1.90	10.24	0.69	3.09	5.40	0.36	3.98
6700	4750	5725	1.58	0.11	1.41	3.32	0.22	2.39	2.50	0.17	3.62
4750	3350	4050	1.89	0.13	1.30	3.17	0.21	2.17	5.20	0.35	3.45
3350	2360	2855	0.89	0.06	1.18	2.62	0.18	1.95	3.00	0.20	3.11
2360	1180	1770	1.52	0.10	1.12	4.05	0.27	1.78	7.90	0.53	2.90
1180	850	1015	0.60	0.04	1.02	1.58	0.11	1.50	4.50	0.30	2.38
850	600	725	0.47	0.03	0.98	1.59	0.11	1.40	4.00	0.27	2.07
600	335	467.5	0.71	0.05	0.94	2.58	0.17	1.29	5.20	0.35	1.81
335	180	257.5	1.42	0.09	0.90	3.69	0.25	1.11	6.30	0.42	1.46
180	125	152.5	1.18	0.08	0.80	1.97	0.13	0.86	2.50	0.17	1.04
125	75	100	1.92	0.13	0.72	3.71	0.25	0.73	4.80	0.32	0.87
75	0	37.5	8.96	0.60	0.60	7.06	0.48	0.48	8.20	0.55	0.55
			1502.02			1476.39			1494.10		

C5: Data on Wesselton

C5.1 Standard Weathering test

Wesselton											
Weathering Condition			**Standard weathering test**								
Weathering Time			0 Days			6 Days			15 Days		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	μm	g								
19000	16000	17500	1209.45	79.53	100.00	1130.68	75.08	100.00	1169	78.09	100.00
16000	13200	14600	244.34	16.07	20.47	253.76	16.85	24.92	192.25	12.84	21.91
13200	11200	12200	26.61	1.75	4.40	46.41	3.08	8.07	102.22	6.83	9.07
11200	6700	8950	6.62	0.44	2.65	37.66	2.50	4.99	4.73	0.32	2.25
6700	4750	5725	5.26	0.35	2.21	5.18	0.34	2.49	1.63	0.11	1.93
4750	3350	4050	2.87	0.19	1.87	3.79	0.25	2.14	4.13	0.28	1.82
3350	2360	2855	1.999	0.13	1.68	3.48	0.23	1.89	1.54	0.10	1.54
2360	1180	1770	2.35	0.15	1.55	3.84	0.25	1.66	2.31	0.15	1.44
1180	850	1015	0.99	0.07	1.39	0.84	0.06	1.40	0.72	0.05	1.29
850	600	725	0.84	0.06	1.33	1.35	0.09	1.35	0.83	0.06	1.24
600	335	467.5	1.55	0.10	1.27	1.73	0.11	1.26	1.36	0.09	1.18
335	180	257.5	2.4	0.16	1.17	2.81	0.19	1.14	2.48	0.17	1.09
180	125	152.5	1.6	0.11	1.01	1.79	0.12	0.96	1.38	0.09	0.93
125	75	100	3.31	0.22	0.91	3.38	0.22	0.84	3.25	0.22	0.83
75	0	37.5	10.5	0.69	0.69	9.24	0.61	0.61	9.25	0.62	0.62
			1520.694			1505.94			1497.08		

C5.2 Acid water media

Wesselton												
Weathering Condition			**Acid media**									
Weathering Time			0 Days			6 Days			15 Days			
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	μm	g								
19000	16000	17500	1209.45	79.78	100.00	1191.33	76.91	100.00	1153.02	76.13	100.00
16000	13200	14600	244.34	16.12	20.22	294.06	18.99	23.09	294.97	19.47	23.87
13200	11200	12200	21.86	1.44	4.10	17.80	1.15	4.10	22.19	1.46	4.40
11200	6700	8950	6.62	0.44	2.66	12.95	0.84	2.95	12.16	0.80	2.93
6700	4750	5725	5.26	0.35	2.22	4.64	0.30	2.11	2.75	0.18	2.13
4750	3350	4050	2.87	0.19	1.87	4.22	0.27	1.81	2.88	0.19	1.95
3350	2360	2855	1.999	0.13	1.68	2.01	0.13	1.54	2.26	0.15	1.76
2360	1180	1770	2.35	0.16	1.55	3.08	0.20	1.41	2.21	0.15	1.61
1180	850	1015	0.99	0.07	1.40	1	0.06	1.21	0.79	0.05	1.47
850	600	725	0.84	0.06	1.33	1.01	0.07	1.15	0.88	0.06	1.41
600	335	467.5	1.55	0.10	1.28	1.01	0.07	1.08	1.54	0.10	1.35
335	180	257.5	2.4	0.16	1.17	2.48	0.16	1.02	2.68	0.18	1.25
180	125	152.5	1.6	0.11	1.02	1.42	0.09	0.86	4.22	0.28	1.08
125	75	100	3.31	0.22	0.91	2.91	0.19	0.77	3.32	0.22	0.80
75	0	37.5	10.5	0.69	0.69	8.97	0.58	0.58	8.76	0.58	0.58
			1515.934			1548.892			1514.625		

C5.3 Sodium chloride media

Wesselton												
Weathering Condition			**Sodium Chloride Media**									
Weathering Time			0 Days			6 Days			15 Days			
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	
-	+	μm	g									
19000	16000	17500	1209.45	79.70	100.00	1161.23	76.38	100.00	1164.5	76.77	100.00	
16000	13200	14600	244.34	16.10	20.30	313.44	20.62	23.62	306.8	20.23	23.23	
13200	11200	12200	23.45	1.55	4.20	28.91	1.90	3.00	16.90	1.11	3.00	
11200	6700	8950	6.62	0.44	2.65	2.86	0.19	1.10	7.5	0.49	1.89	
6700	4750	5725	5.26	0.35	2.22	1.95	0.13	0.91	1.6	0.11	1.39	
4750	3350	4050	2.87	0.19	1.87	0.61	0.04	0.78	2.5	0.16	1.29	
3350	2360	2855	1.999	0.13	1.68	0.12	0.01	0.74	0.9	0.06	1.12	
2360	1180	1770	2.35	0.15	1.55	0.09	0.01	0.73	1.3	0.09	1.06	
1180	850	1015	0.99	0.07	1.40	0.03	0.00	0.73	0.5	0.03	0.98	
850	600	725	0.84	0.06	1.33	1.11	0.07	0.73	0.4	0.03	0.94	
600	335	467.5	1.55	0.10	1.28	0.76	0.05	0.65	0.9	0.06	0.92	
335	180	257.5	2.4	0.16	1.17	2.5	0.16	0.60	1.9	0.13	0.86	
180	125	152.5	1.6	0.11	1.02	1.34	0.09	0.44	1.6	0.11	0.73	
125	75	100	3.31	0.22	0.91	3.21	0.21	0.35	2.9	0.19	0.63	
75	0	37.5	10.5	0.69	0.69	2.12	0.14	0.14	6.6	0.44	0.44	
			1517.526			1520.278			1516.8			

C5.4 Cyclic water wetting

Wesselton												
Weathering Condition			**Cyclic Water wetting**									
Weathering Time			0 Days			6 Days			15 Days			
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	
-	+	µm	g									
19000	16000	17500	1209.45	79.87	100.00	1134.24	76.49	100.00	1160.7	76.58	100.00	
16000	13200	14600	244.34	16.13	20.13	290.15	19.57	23.51	291.22	19.22	23.42	
13200	11200	12200	20.28	1.34	4.00	19.01	1.28	3.94	25.83	1.70	4.20	
11200	6700	8950	6.62	0.44	2.66	11.16	0.75	2.66	6.87	0.45	2.50	
6700	4750	5725	5.26	0.35	2.22	4.04	0.27	1.90	4.62	0.30	2.04	
4750	3350	4050	2.87	0.19	1.88	2.93	0.20	1.63	3.15	0.21	1.74	
3350	2360	2855	1.999	0.13	1.69	1.54	0.10	1.43	2.25	0.15	1.53	
2360	1180	1770	2.35	0.16	1.55	2.03	0.14	1.33	1.95	0.13	1.38	
1180	850	1015	0.99	0.07	1.40	0.79	0.05	1.19	0.77	0.05	1.25	
850	600	725	0.84	0.06	1.33	0.73	0.05	1.14	1.3	0.09	1.20	
600	335	467.5	1.55	0.10	1.28	1.19	0.08	1.09	2.24	0.15	1.12	
335	180	257.5	2.4	0.16	1.18	2.43	0.16	1.01	1.48	0.10	0.97	
180	125	152.5	1.6	0.11	1.02	1.24	0.08	0.85	1.5	0.10	0.87	
125	75	100	3.31	0.22	0.91	2.44	0.16	0.76	2.8	0.18	0.77	
75	0	37.5	10.5	0.69	0.69	8.88	0.60	0.60	8.89	0.59	0.59	
			1514.362			1482.8			1515.574			

C5.5 Copper sulphate media

Wesselton											
Weathering Condition			**Copper media weathering**								
Weathering Time			0 Days			6 Days Water			6 Days $CuSO_4$		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	µm	g								
26500	22400	24450	1028.08	67.20	100.00	952.83	62.66	100.00	1089.30	70.08	100.00
22400	19000	20700	425.40	27.80	32.80	470.48	30.94	37.34	382.80	24.63	29.92
19000	16000	17500	44.21	2.89	5.00	50.36	3.31	6.40	46.97	3.02	5.30
16000	13200	14600	0.00	0.00	2.11	0.00	0.00	3.09	10.90	0.70	2.28
13200	11200	12200	0.00	0.00	2.11	2.20	0.14	3.09	0.00	0.00	1.58
11200	6700	8950	0.00	0.00	2.11	6.58	0.43	2.94	1.40	0.09	1.58
6700	4750	5725	3.86	0.25	2.11	9.09	0.60	2.51	1.00	0.06	1.49
4750	3350	4050	2.55	0.17	1.86	2.41	0.16	1.91	1.60	0.10	1.42
3350	2360	2855	1.68	0.11	1.69	2.21	0.15	1.75	0.00	0.00	1.32
2360	1180	1770	1.53	0.10	1.58	2.95	0.19	1.61	2.10	0.14	1.32
1180	850	1015	1.68	0.11	1.48	0.84	0.06	1.42	0.60	0.04	1.18
850	600	725	0.67	0.04	1.37	1.22	0.08	1.36	1.00	0.06	1.15
600	335	467.5	1.74	0.11	1.33	2.07	0.14	1.28	1.00	0.06	1.08
335	180	257.5	3.51	0.23	1.21	3.67	0.24	1.14	2.80	0.18	1.02
180	125	152.5	2.04	0.13	0.98	2.25	0.15	0.90	6.30	0.41	0.84
125	75	100	4.25	0.28	0.85	3.89	0.26	0.75	0.00	0.00	0.43
75	0	37.5	8.78	0.57	0.57	7.58	0.50	0.50	6.70	0.43	0.43
			1529.98			1520.63			1554.47		

C6: Data on Venetia ores

Venetia											
Weathering Condition			**Cu^{2+} weathering tests**								
Kimberlite Name			K1 HYP NE			K1 HYP S			K1 TKB E		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	μm	g			g			g		
26500	22400	24450	358.38	35.72	100.00	275.74	27.04	100.00	54.00	5.40	100.00
22400	19000	20700	460.77	45.92	64.28	580.83	56.96	72.96	151.58	15.15	94.60
19000	16000	17500	161.41	16.09	18.36	144.76	14.20	16.00	229.47	22.94	79.45
16000	13200	14600	19.38	1.93	2.27	17.45	1.71	1.80	117.28	11.72	56.52
13200	11200	12200	2.67	0.27	0.34	0.80	0.08	0.09	63.49	6.35	44.79
11200	9500	10350	0.70	0.07	0.07	0.10	0.01	0.01	59.92	5.99	38.45
9500	6700	8100	0.00	0.00	0.00	0.00	0.00	0.00	76.75	7.67	32.46
6700	5600	6150	0.00	0.00	0.00	0.00	0.00	0.00	17.59	1.76	24.79
5600	4750	5175	0.00	0.00	0.00	0.00	0.00	0.00	14.33	1.43	23.03
4750	3350	4050	0.00	0.00	0.00	0.00	0.00	0.00	26.97	2.70	21.60
3350	1180	2265	0.00	0.00	0.00	0.00	0.00	0.00	64.30	6.43	18.90
1180	850	1015	0.00	0.00	0.00	0.00	0.00	0.00	18.41	1.84	12.47
850	335	592.5	0.00	0.00	0.00	0.00	0.00	0.00	47.70	4.77	10.63
335	180	257.5	0.00	0.00	0.00	0.00	0.00	0.00	27.96	2.79	5.87
180	75	127.5	0.00	0.00	0.00	0.00	0.00	0.00	22.23	2.22	3.07
75	0	37.5	0.00	0.00	0.00	0.00	0.00	0.00	8.51	0.85	0.85
			1003.31			1019.68			1000.49		

Venetia											
Weathering Condition			**Cu^{2+} weathering tests**								
Kimberlite Name			K2 NE			K2 S			K2 W		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	μm	g			g			g		
26500	22400	24450	126.69	12.54	100.00	74.54	7.37	100.00	293.59	29.27	99.92
22400	19000	20700	313.29	31.00	87.46	193.80	19.16	92.63	347.80	34.67	70.65
19000	16000	17500	325.89	32.25	56.47	378.77	37.44	73.47	282.59	28.17	35.98
16000	13200	14600	58.81	5.82	24.22	119.44	11.81	36.03	20.78	2.07	7.80
13200	11200	12200	40.84	4.04	18.40	47.37	4.68	24.22	5.83	0.58	5.73
11200	9500	10350	16.83	1.67	14.36	23.35	2.31	19.54	14.35	1.43	5.15
9500	6700	8100	33.34	3.30	12.69	43.06	4.26	17.23	15.08	1.50	3.72
6700	5600	6150	13.50	1.34	9.40	21.35	2.11	12.98	7.87	0.78	2.21
5600	4750	5175	14.01	1.39	8.06	15.83	1.56	10.87	4.02	0.40	1.43
4750	3350	4050	19.89	1.97	6.67	27.41	2.71	9.30	4.21	0.42	1.03
3350	1180	2265	19.79	1.96	4.71	31.86	3.15	6.59	2.86	0.29	0.61
1180	850	1015	3.93	0.39	2.75	5.80	0.57	3.44	0.40	0.04	0.32
850	335	592.5	9.72	0.96	2.36	12.35	1.22	2.87	0.85	0.08	0.28
335	180	257.5	7.03	0.70	1.40	7.98	0.79	1.65	0.81	0.08	0.20
180	75	127.5	5.28	0.52	0.70	6.10	0.60	0.86	0.83	0.08	0.12
75	0	37.5	1.81	0.18	0.18	2.59	0.26	0.26	0.36	0.04	0.04
			1010.65			1011.60			1002.23		

Venetia								
Weathering Condition			**Cu^{2+} weathering tests**					
Kimberlite Name			K8			RED		
Min. size	Max. size	Ave size	Weight	% in fraction	Cum % passing	Weight	% in fraction	Cum % passing
-	+	µm	g			g		
26500	22400	24450	353.47	35.24	100.00	23.26	2.27	100.00
22400	19000	20700	476.13	47.47	64.76	27.97	2.73	97.73
19000	16000	17500	153.37	15.29	17.29	161.05	15.72	95.00
16000	13200	14600	14.14	1.41	2.00	136.98	13.37	79.28
13200	11200	12200	1.52	0.15	0.59	128.21	12.51	65.91
11200	9500	10350	0.00	0.00	0.44	61.72	6.02	53.40
9500	6700	8100	0.40	0.04	0.44	94.14	9.19	47.37
6700	5600	6150	0.00	0.00	0.40	44.94	4.39	38.19
5600	4750	5175	0.00	0.00	0.40	37.18	3.63	33.80
4750	3350	4050	0.00	0.00	0.40	64.56	6.30	30.17
3350	1180	2265	1.02	0.10	0.40	123.87	12.09	23.87
1180	850	1015	0.87	0.09	0.30	24.92	2.43	11.78
850	335	592.5	0.66	0.07	0.21	42.16	4.11	9.35
335	180	257.5	0.42	0.04	0.14	21.84	2.13	5.23
180	75	127.5	0.65	0.06	0.10	13.60	1.33	3.10
75	0	37.5	0.38	0.04	0.04	18.17	1.77	1.77
			1003.03			1024.57		

APPENDIX D: SLAKE DURABILITY DATA

Sample Name	Slake Durability Id-1	Slake Durability Id-2	Slake Durability Id-3	Slake Durability Id-4
Venetia-Red Distilled Water	52.3	19.2	8.3	5
L732 T109 D9 Distilled Water	78.6	49.2	37.6	32.9
L732 T109 D13 Distilled Water	91.7	86.9	82.9	80.2
717L T66N Distilled Water	94.64	87.17	79.83	73.76
Venetia Hypabassal Distilled Water	99.32	99.08	98.99	98.90
Venetia-Red Potassium	51.6	26.4	20.2	18.5
L732 T109 D9 Potassium	87.8	77	70.1	64.8