

AM-88-373

Cd. lot 1

Crystal chemistry of double-ring silicates: Structural, chemical, and optical  
variation in osumilites

Thomas Armbruster, Roland Oberhansli

For deposit: Table 3, 4, 5

American Mineralogist, 73, 5-6, 585-594.

pp. (1) 1-25 (2)

for deposit

Table 3 (25 pages)

Observed and calculated structure factors of 8 natural  
osumilites. Structure factors flagged "LR" are smaller  
6 sigma ( $F_{obs.}$ ) and were rejected.

OSUMILITE ANTARCTIS SAMPLE K DONATED BY E. GREW												STRUCTURE FACTORS											
H	K	L	F(OBS)	F(CALC)	H	K	L	F(OBS)	F(CALC)	H	K	L	F(OBS)	F(CALC)	H	K	L	F(OBS)	F(CALC)	PAGE 1			
0	2	121.25	122.17	135.10	37.71	114.74	113.04	42.35	42.40	134.70	3.0	13.80	12.90	17.77	11.20	1.20	1.20	18.22	18.22	1.20			
0	2	205.93	216.34	64.82	38.52	35.45	35.45	114.71	114.71	66.36	3.3	4.4	4.4	4.4	3.0	3.0	3.0	6.95	6.95	7.04			
0	0	6	27.07	33.47	267.31	168.46	167.36	31.50	31.50	153.70	3.3	3.3	3.3	3.3	3.3	3.3	3.3	6.45	6.45	7.04			
0	0	0	8	10	98.70	100.24	105.70	76.14	76.14	153.70	3.3	3.3	3.3	3.3	3.3	3.3	3.3	6.45	6.45	7.04			
0	0	0	12	43.47	47.66	47.66	154.28	154.28	40.36	39.03	39.03	10	10	10	10	10	10	10	6.45	6.45	7.04		
0	0	0	14	189.67	186.83	186.83	154.28	154.28	26.29	27.19	27.19	12	12	12	12	12	12	12	6.45	6.45	7.04		
0	0	0	16	96.00	97.59	97.59	55.47	55.47	26.29	27.19	27.19	14	14	14	14	14	14	14	6.45	6.45	7.04		
0	0	0	18	59.24	58.99	58.99	5.29	5.29	26.29	27.19	27.19	16	16	16	16	16	16	16	6.45	6.45	7.04		
0	0	0	20	59.37	55.60	55.60	78.19	78.19	78.19	78.19	78.19	16	16	16	16	16	16	16	6.45	6.45	7.04		
0	0	1	2	9.53	8.05	8.05	13.71	13.71	13.99	13.99	13.99	18	18	18	18	18	18	18	6.45	6.45	7.04		
0	0	1	4	36.96	37.53	37.53	57.07	57.07	55.47	55.47	55.47	0	0	0	0	0	0	0	6.45	6.45	7.04		
0	0	0	14	70.22	68.87	68.87	5.29	5.29	6.95	6.95	6.95	22	22	22	22	22	22	22	6.45	6.45	7.04		
0	0	0	16	31.85	29.01	29.01	7.31	7.31	5.89	5.89	5.89	14	14	14	14	14	14	14	6.45	6.45	7.04		
0	0	0	18	43.90	43.54	43.54	76.71	76.71	77.21	77.21	77.21	16	16	16	16	16	16	16	6.45	6.45	7.04		
0	0	0	20	42.00	42.04	42.04	10	10	4.70	4.70	4.70	12	12	12	12	12	12	12	6.45	6.45	7.04		
0	0	1	2	41.19	41.19	41.19	4.88	4.88	4.88	4.88	4.88	12	12	12	12	12	12	12	6.45	6.45	7.04		
0	0	0	14	12.37	13.23	13.23	19.90	19.90	18.82	18.82	18.82	14	14	14	14	14	14	14	6.45	6.45	7.04		
0	0	0	16	3.76	4.65	4.65	0	0	0	0	0	16	16	16	16	16	16	16	6.45	6.45	7.04		
0	0	0	18	4.06	1.52	1.52	12.79	12.79	11.37	11.37	11.37	18	18	18	18	18	18	18	6.45	6.45	7.04		
0	0	1	20	129.28	131.48	131.48	77.08	77.08	74.90	74.90	74.90	18	18	18	18	18	18	18	6.45	6.45	7.04		
0	0	1	22	81.20	82.06	82.06	113.16	113.16	113.16	113.16	113.16	5	5	5	5	5	5	5	6.45	6.45	7.04		
0	0	1	24	81.20	82.06	82.06	119.86	119.86	120.50	120.50	120.50	6	6	6	6	6	6	6	6.45	6.45	7.04		
0	0	1	26	94.11	151.66	151.66	151.09	151.09	151.09	151.09	151.09	14	14	14	14	14	14	14	6.45	6.45	7.04		
0	0	1	28	8.20	8.64	8.64	70.89	70.89	64.15	64.15	64.15	18	18	18	18	18	18	18	6.45	6.45	7.04		
0	0	1	30	8.20	58.99	58.99	80.75	80.75	78.36	78.36	78.36	18	18	18	18	18	18	18	6.45	6.45	7.04		
0	0	1	32	9.16	151.66	151.66	151.66	151.66	151.66	151.66	151.66	14	14	14	14	14	14	14	6.45	6.45	7.04		
0	0	1	34	6.30	67.12	67.12	67.12	67.12	67.12	67.12	67.12	10	10	10	10	10	10	10	6.45	6.45	7.04		
0	0	1	36	118.18	118.18	118.18	118.18	118.18	118.18	118.18	18	18	18	18	18	18	18	6.45	6.45	7.04			
0	0	1	38	41.04	41.04	41.04	18.72	18.72	21.57	21.57	21.57	18	18	18	18	18	18	18	6.45	6.45	7.04		
0	0	1	40	6.30	6.30	6.30	112.16	112.16	112.16	112.16	112.16	16	16	16	16	16	16	16	6.45	6.45	7.04		
0	0	1	42	20.14	20.14	20.14	40.97	40.97	41.04	41.04	41.04	11	11	11	11	11	11	11	6.45	6.45	7.04		
0	0	1	44	5.69	5.69	5.69	30.75	30.75	30.35	30.35	30.35	8	8	8	8	8	8	8	6.45	6.45	7.04		
0	0	1	46	43.81	43.81	43.81	0	0	0	0	0	16	16	16	16	16	16	16	6.45	6.45	7.04		
0	0	1	48	6.30	6.30	6.30	113.94	113.94	112.85	112.85	112.85	16	16	16	16	16	16	16	6.45	6.45	7.04		
0	0	1	50	23.22	22.79	22.79	45.27	45.27	45.89	45.89	45.89	13	13	13	13	13	13	13	6.45	6.45	7.04		
0	0	1	52	47.15	46.86	46.86	12.61	12.61	12.52	12.52	12.52	14	14	14	14	14	14	14	6.45	6.45	7.04		
0	0	1	54	81.20	82.13	82.13	56.06	56.06	56.46	56.46	56.46	15	15	15	15	15	15	15	6.45	6.45	7.04		
0	0	1	56	64.93	65.77	65.77	6.41	6.41	6.41	6.41	6.41	11	11	11	11	11	11	11	6.45	6.45	7.04		
0	0	1	58	23.22	22.14	22.14	11.71	11.71	11.71	11.71	11.71	17	17	17	17	17	17	17	6.45	6.45	7.04		
0	0	1	60	50.11	49.42	49.42	13.79	13.79	13.79	13.79	13.79	18	18	18	18	18	18	18	6.45	6.45	7.04		
0	0	1	62	144.26	142.44	142.44	22.32	22.32	22.32	22.32	22.32	1	1	1	1	1	1	1	6.45	6.45	7.04		
0	0	1	64	52.87	53.16	53.16	3.11	3.11	3.11	3.11	3.11	2	2	2	2	2	2	2	6.45	6.45	7.04		
0	0	1	66	4.56	6.06	6.06	2.23	2.23	1.85	1.85	1.85	3	3	3	3	3	3	3	6.45	6.45	7.04		
0	0	1	68	12.91	6.14	6.14	1.34	1.34	1.34	1.34	1.34	5	5	5	5	5	5	5	6.45	6.45	7.04		
0	0	1	70	11.53	11.45	11.45	9.32	9.32	7.30	7.30	7.30	6	6	6	6	6	6	6	6.45	6.45	7.04		
0	0	1	72	5.55	3.72	3.72	4.97	4.97	4.97	4.97	4.97	8	8	8	8	8	8	8	6.45	6.45	7.04		
0	0	1	74	1.23	43.98	43.98	15.70	15.70	15.70	15.70	15.70	9	9	9	9	9	9	9	6.45	6.45	7.04		
0	0	1	76	12.46	15.92	15.92	15.60	15.60	15.60	15.60	15.60	10	10	10	10	10	10	10	6.45	6.45	7.04		
0	0	1	78	12.15	40.51	40.51	20.36	20.36	20.36	20.36	20.36	11	11	11	11	11	11	11	6.45	6.45	7.04		
0	0	1	80	7.21	6.72	6.72	5.31	5.31	5.31	5.31	5.31	12	12	12	12	12	12	12	6.45	6.45	7.04		
0	0	1	82	34.27	34.20	34.20	17.38	17.38	17.38	17.38	17.38	13	13	13	13	13	13	13	6.45	6.45	7.04		



OSMOLILITE ANTARKTIS SAMPLE K DONATED BY E. GREW												STRUCTURE FACTORS																					
H K L			F(OBS)			H K L			F(OBS)			H K L			F(OBS)			H K L			F(OBS)			H K L			F(OBS)			PAGE 3			
H K L			F(CALC)			H K L			F(CALC)			H K L			F(CALC)			H K L			F(CALC)			H K L			F(CALC)			H K L			
8 8 8	41.47	42.17	45.93	LR	3.95	6.17	LR	5.03	8 8 8	53.63	54.52	45.39	LR	47.25	17.65	LR	18.05	8 8 8	12.12	30.12	97.14	5.31	0.00	LR	0.16	0.10	8 8 8	1.14	0.00	LR	0.78	0.78	37.94
0 0 0	8 8 8	95.97	97.14	5.86	4.31	LR	0.22	0 0 0	0.00	5.86	5.87	0.00	LR	0.22	0.10	0	11.63	0 0 0	1.14	0.00	17.08	1.14	0.00	LR	1.10	0	11.69						
1 1 1	8 8 8	37.54	37.09	5.87	0.00	LR	1.52	1 1 1	17.19	17.50	17.19	1.52	0.00	LR	1.52	1.10	1	45.47	1 1 1	7.3	13.73	1.23	0.00	LR	2.25	2	44.17						
2 2 2	8 8 8	13.62	11.42	6.82	2.76	LR	4.70	2 2 2	29.69	29.54	29.69	2.76	0.00	LR	4.70	1.10	5	35.23	2 2 2	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	3	25.44						
3 3 3	8 8 8	11.48	38.96	5.81	3.76	LR	28.88	3 3 3	59.38	58.54	59.38	3.76	0.00	LR	28.88	1.10	6	17.22	3 3 3	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	7	34.76						
4 4 4	8 8 8	37.88	57.52	6.80	0.99	0 0 0	0 0 0	4 4 4	29.69	29.54	29.69	0.99	0.00	LR	29.54	1.10	4	20.66	4 4 4	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	10	20.66						
5 5 5	8 8 8	58.40	21.30	6.80	0 0 0	0 0 0	0 0 0	5 5 5	59.38	58.54	59.38	0 0 0	0.00	LR	58.54	1.10	5	15.15	5 5 5	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	15	15.34						
6 6 6	8 8 8	21.26	20.89	5.76	0 0 0	0 0 0	0 0 0	6 6 6	28.88	28.59	28.59	0 0 0	0.00	LR	28.59	1.10	6	8.97	6 6 6	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	7	9.67						
7 7 7	8 8 8	4.90	2.07	5.06	0 0 0	0 0 0	0 0 0	7 7 7	64.08	44.68	44.68	0 0 0	0.00	LR	44.68	1.10	9	20.56	7 7 7	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	10	20.17						
8 8 8	8 8 8	0.00	LR	50.14	50.14	50.14	0 0 0	8 8 8	50.19	29.15	29.15	0 0 0	0.00	LR	29.15	1.10	10	18.51	8 8 8	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	10	19.48						
9 9 9	8 8 8	23.54	23.37	23.37	0 0 0	0 0 0	0 0 0	9 9 9	23.56	22.76	22.76	0 0 0	0.00	LR	22.76	1.10	12	7.03	9 9 9	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	13	13.36						
0 0 0	8 8 8	4.30	12.21	12.21	0 0 0	0 0 0	0 0 0	0 0 0	3.56	2.13	2.13	0 0 0	0.00	LR	2.13	1.10	9	19.61	0 0 0	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	12	18.61						
1 1 1	8 8 8	21.69	22.15	22.15	0 0 0	0 0 0	0 0 0	1 1 1	1.65	0.16	0.16	0 0 0	0.00	LR	0.16	1.10	2	14.83	1 1 1	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	13	15.61						
2 2 2	8 8 8	13.96	14.56	14.56	0 0 0	0 0 0	0 0 0	2 2 2	1.69	1.19	1.19	0 0 0	0.00	LR	1.19	1.10	3	8.51	2 2 2	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	14	10.07						
3 3 3	8 8 8	23.37	22.91	22.91	0 0 0	0 0 0	0 0 0	3 3 3	20.28	19.81	19.81	0 0 0	0.00	LR	19.81	1.10	10	20.70	3 3 3	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	15	19.73						
4 4 4	8 8 8	12.21	13.13	13.13	0 0 0	0 0 0	0 0 0	4 4 4	3.64	3.55	3.55	0 0 0	0.00	LR	3.55	2.10	6	30.82	4 4 4	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	16	31.42						
5 5 5	8 8 8	50.53	51.65	51.65	0 0 0	0 0 0	0 0 0	5 5 5	36.78	36.29	36.29	0 0 0	0.00	LR	36.29	2.10	7	6.60	5 5 5	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	17	2.30						
6 6 6	8 8 8	19.52	20.26	20.26	0 0 0	0 0 0	0 0 0	7 7 7	15.93	15.89	15.89	0 0 0	0.00	LR	15.89	2.10	8	29.82	6 6 6	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	18	29.84						
7 7 7	8 8 8	76.26	76.55	76.55	0 0 0	0 0 0	0 0 0	8 8 8	28.86	27.87	27.87	0 0 0	0.00	LR	27.87	3.10	10	13.05	7 7 7	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	19	11.88						
8 8 8	8 8 8	27.58	27.49	27.49	0 0 0	0 0 0	0 0 0	9 9 9	3.64	3.55	3.55	0 0 0	0.00	LR	3.55	3.10	10	32.70	8 8 8	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	20	31.90						
9 9 9	8 8 8	36.53	38.38	38.38	0 0 0	0 0 0	0 0 0	1 1 1	16.39	16.34	16.34	0 0 0	0.00	LR	16.34	3.10	12	2.80	9 9 9	8 8 8	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	21	31.08					
0 0 0	8 8 8	12.21	12.21	12.21	0 0 0	0 0 0	0 0 0	1 1 1	18.09	17.12	17.12	0 0 0	0.00	LR	17.12	3.10	10	30.83	0 0 0	8 8 8	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	22	21.38					
1 1 1	8 8 8	5.95	7.51	7.51	0 0 0	0 0 0	0 0 0	1 1 1	35.74	35.74	35.74	0 0 0	0.00	LR	35.74	1.10	12	21.97	1 1 1	8 8 8	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	23	20.63					
2 2 2	8 8 8	2.07	13.18	13.18	0 0 0	0 0 0	0 0 0	2 2 2	13.18	13.18	13.18	0 0 0	0.00	LR	13.18	1.10	12	12.91	2 2 2	8 8 8	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	24	15.09					
3 3 3	8 8 8	35.23	35.74	35.74	0 0 0	0 0 0	0 0 0	3 3 3	8.34	8.34	8.34	0 0 0	0.00	LR	8.34	1.10	12	17.66	3 3 3	8 8 8	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	25	16.77					
4 4 4	8 8 8	14.20	13.56	13.56	0 0 0	0 0 0	0 0 0	4 4 4	20.79	20.79	20.79	0 0 0	0.00	LR	20.79	1.10	12	17.53	4 4 4	8 8 8	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	26	27.15					
5 5 5	8 8 8	55.69	55.33	55.33	0 0 0	0 0 0	0 0 0	5 5 5	3.40	3.40	3.40	0 0 0	0.00	LR	3.40	1.10	12	12.91	5 5 5	8 8 8	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	27	20.91					
6 6 6	8 8 8	6.65	6.82	6.82	0 0 0	0 0 0	0 0 0	6 6 6	17.77	18.61	18.61	0 0 0	0.00	LR	18.61	1.10	12	18.81	6 6 6	8 8 8	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	28	17.04					
7 7 7	8 8 8	38.90	39.02	39.02	0 0 0	0 0 0	0 0 0	7 7 7	6.51	6.51	6.51	0 0 0	0.00	LR	6.51	1.10	12	10.32	7 7 7	8 8 8	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	29	10.32					
8 8 8	8 8 8	30.21	30.80	30.80	0 0 0	0 0 0	0 0 0	8 8 8	14.90	15.19	15.19	0 0 0	0.00	LR	15.19	1.10	12	11.11	8 8 8	8 8 8	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	30	13.48					
9 9 9	8 8 8	26.87	27.25	27.25	0 0 0	0 0 0	0 0 0	9 9 9	15.02	15.20	15.20	0 0 0	0.00	LR	15.20	1.10	12	22.11	9 9 9	8 8 8	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	31	22.39					
0 0 0	8 8 8	49.08	48.66	48.66	0 0 0	0 0 0	0 0 0	0 0 0	17.40	22.40	22.40	0 0 0	0.00	LR	22.40	1.10	12	4.91	0 0 0	8 8 8	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	32	24.49					
1 1 1	8 8 8	14.25	14.72	14.72	0 0 0	0 0 0	0 0 0	1 1 1	21.07	21.09	21.09	0 0 0	0.00	LR	21.09	1.10	12	65.57	1 1 1	8 8 8	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	33	63.90					
2 2 2	8 8 8	2.07	7.04	7.04	0 0 0	0 0 0	0 0 0	2 2 2	30.80	29.99	29.99	0 0 0	0.00	LR	29.99	1.10	12	4.93	2 2 2	8 8 8	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	34	4.77					
3 3 3	8 8 8	30.21	30.80	30.80	0 0 0	0 0 0	0 0 0	3 3 3	44.43	44.97	44.97	0 0 0	0.00	LR	44.97	1.10	12	10.52	3 3 3	8 8 8	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	35	9.94					
4 4 4	8 8 8	8.95	9.23	9.23	0 0 0	0 0 0	0 0 0	4 4 4	33.79	34.11	34.11	0 0 0	0.00	LR	34.11	1.10	12	2.22	4 4 4	8 8 8	8 8 8	8 8 8	0 0 0	0 0 0	0 0 0	2.25	36	3.57					
5 5 5	8 8 8	8.9	10	10	0 0 0	0 0 0</																											

OSOMMILITE EIFEL B93 (DONATED BY HENCHEL)									
H	K	L	F(OBS)	F(CALC)	H	K	L	H	K
0	2	147.68	150.14						
0	4	179.14	187.43						
0	6	51.82	57.46						
0	8	280.81	281.23						
0	10	78.88	80.66						
0	12	63.19	65.47						
0	14	196.73	192.79						
0	16	100.59	100.18						
0	18	145.30	145.26						
0	20	65.81	62.65						
0	22	50.05	47.53						
0	24	5.17	LR						
1	1	75.09	73.39						
1	2	5.52	LR						
1	3	98.08	97.56						
1	4	5.63	LR						
1	5	9.34	LR						
1	6	2.29	LR						
1	7	21.08	19.79						
1	8	21.92	LR						
1	9	23.76	21.42						
1	10	3.68	LR						
1	11	53.80	53.47						
1	12	29.55	29.11						
1	13	8.84	8.00						
1	14	14.30	13.16						
1	15	8.53	7.38						
1	16	23.53	23.03						
1	17	6.51	LR						
1	18	11.41	11.82						
1	19	8.84	LR						
1	20	8.53	7.38						
1	21	11.02	10.95						
1	22	165.80	167.92						
1	23	24.05	24.43						
1	24	43.41	43.28						
1	25	90.73	91.45						
1	26	53.01	52.59						
1	27	1.41	LR						
1	28	13.54	17.58						
1	29	49.03	47.31						
1	30	96.75	95.98						
1	31	0.00	LR						
1	32	92.96	89.27						
1	33	6.54	LR						
1	34	7.63	146.88						
1	35	7.46	LR						
1	36	4.36	5.49						
1	37	0.00	LR						
1	38	60.15	60.99						
1	39	5.00	LR						
1	40	68.75	68.51						
1	41	4.00	LR						
1	42	51.24	50.36						
1	43	14.77	LR						
1	44	10.16	6.10						
1	45	1.98	0.00						
1	46	13.51	13.66						
1	47	6.79	LR						
1	48	38.77	36.62						

U.S. MILITIA EIFFEL B93 (DONATED BY HENCHEL)

STRUCTURE FACTORS									
F(OBS)	F(CALC)	H	K	L	F(OBS)	F(CALC)			
7.81	LR	0	0.00		109.34	113.59			
22.29		21.84			37.09	35.86			
141.49		139.08			38.73	39.50			
72.94	LR	72.19			33.53	33.03			
49.93		50.16			41.38	43.29			
33.23		35.67			3.90	LR			
11.99	LR	5.90			53.08	52.54			
34.80		33.43			9.28	LR	11.24		
8.75	LR	10.13			15.71	LR	15.90		
12.16	LR	13.34			16.30		16.71		
57.72		59.90			89.13	88.63			
73.27		75.46			65.03		63.85		
80.96		84.29			11.74	LR	13.20		
7.95	LR	12.13			7.65	LR	6.42		
41.32		41.60			5.19	LR	3.22		
5.72	LR	3.69			5.56	LR	1.46		
38.22		37.97			11.74	LR	13.20		
14.89	LR	14.58			54.35		54.21		
43.91		45.08			24.97		25.89		
40.08		39.02			64.40		66.04		
33.76		33.36			8.48	LR	13.37		
160.47		159.93			12.32	LR	12.61		
83.85		85.23			17.68	LR	21.15		
55.57		54.40			11.36	LR	15.03		
188.81		186.09			9.56	LR	9.27		
172.02		170.23			39.38		37.47		
48.99		50.07			15.03	LR	17.75		
38.31		38.40			13.01	LR	11.85		
82.58		80.87			8.01	LR	5.68		
38.00		38.46			10.06	LR	8.02		
16.87	LR	19.57			101.14		97.82		
74.54		73.30			55.02		54.46		
7.57	LR	0.00			123.54		123.84		
30.29		29.42			23.48		26.60		
2.92	LR	0.00			3.8		18.12		
22.13		21.55			10	84.59	83.54		
33.46	LR	0.00			12	35.60	34.71		
88.10		88.45			14	25.25	22.20		
4.33	LR	0.00			16	9.80	LR	8.95	
88.91		89.23			18		45.76		
5.89	LR	0.00			0	26.52	25.74		
25.50		25.68			1	0.00	LR	0.00	
6.29	LR	0.00			2	48.83	47.65		
9.80	LR	13.41			3	5.13	LR	0.00	
6.11	LR	0.00			4	27.73	28.84		
26.66		25.83			5	3.29	LR	0.00	
10.44	LR	0.00			6	27.09	24.85		
10.36	LR	13.18			7	2.02	LR	0.00	
0.00	LR	0.00			8	25.93	24.36		
11.77	LR	11.50			9	6.85	LR	0.00	
17.07	LR	0.00			10	74.79	76.50		
50.32		47.06			11	5.52	LR	0.00	
32.79		37.29			12	6.32	LR	1.44	
13.07	LR	15.63			13	8.50	LR	0.00	
71.86		64.70			14	22.71	23.10		
105.48		102.30			15	6.61	LR	0.00	
111.31		113.39			16	12.78	9.77		
42.12		42.97			17	2.23	LR	0.00	
29.80		30.76			18	4.18	37.81	IP	
19.72					19	0	0		

## STRUCTURE FACTORS

PAGE	1	K	L	F(OBS)	F(CALC)
11	4	0	87.11	84.88	84.88
11	4	1	88.88	85.99	85.99
11	4	2	61.20	59.99	59.99
11	4	3	3.64	6.86	5.04
11	4	4	68.89	67.94	57.04
11	4	5	58.72	57.04	46.51
11	4	6	8.10	6.89	2.16
11	4	7	45.35	44.82	18.65
11	4	8	17.38	17.72	33.22
11	4	9	72.00	72.60	10.82
11	4	10	33.03	33.73	15.43
11	4	11	5.45	5.26	14.73
11	4	12	42.98	44.46	33.93
11	4	13	11.11	11.73	12.15
11	4	14	14.53	14.53	10.92
11	4	15	8.26	8.26	12.15
11	4	16	34.64	34.64	12.15
11	4	17	11.73	11.73	12.15
11	4	18	11.87	11.79	12.15
11	4	19	73.05	71.22	21.45
11	4	20	21.82	21.82	25.85
11	4	21	13.34	13.34	12.98
11	4	22	25.90	25.90	12.29
11	4	23	17.59	17.59	15.97
11	4	24	5.64	5.64	58.80
11	4	25	41.90	41.90	41.69
11	4	26	11.82	11.82	12.29
11	4	27	5.82	5.82	59.64
11	4	28	32.20	32.20	32.23
11	4	29	22.46	22.46	24.92
11	4	30	7.41	7.41	7.83
11	4	31	17.60	17.60	19.02
11	4	32	2.98	2.98	29.91
11	4	33	25.08	25.08	26.28
11	4	34	23.90	23.90	26.85
11	4	35	8.92	8.92	8.89
11	4	36	5.19	5.19	5.72
11	4	37	13.59	13.59	15.92
11	4	38	34.08	34.08	34.36
11	4	39	5.19	5.19	31.58
11	4	40	31.49	31.49	51.27
11	4	41	7.082	7.082	21.32
11	4	42	1.51	1.51	53.88
11	4	43	5.19	5.19	59.97
11	4	44	8.95	8.95	12.29
11	4	45	11.96	11.96	21.94
11	4	46	16.84	16.84	9.39
11	4	47	12.02	12.02	8.52
11	4	48	8.43	8.43	8.77
11	4	49	5.11	5.11	1.11
11	4	50	6.40	6.40	11.44
11	4	51	9.83	9.83	13.06
11	4	52	8.20	8.20	13.72
11	4	53	15.31	15.31	79.65
11	4	54	15.79	15.79	149.74

OSUMILITE EIFEL B93 (DONATED BY HENCHEL)					
H	K	L	F(OBS)	F(CALC)	H K
4 4 8	38.37	38.05			
4 4 10	97.58	97.38			
4 4 12	60.85	61.95			
4 4 14	6.18	LR	2.41		
4 4 16	33.56	33.92			
4 5 0	141.36	137.61			
4 5 1	5.96	LR	0.00		
4 5 2	34.93	34.28			
4 5 3	5.19	LR	0.00		
4 5 4	26.54	25.52			
4 5 5	4.86	LR	0.00		
4 5 6	16.66	LR	19.16		
4 5 7	33.14	LR	0.00		
4 5 8	42.29	43.70			
4 5 9	0.00	LR	0.00		
4 5 10	9.75	LR	14.46		
4 5 11	14.64	LR	18.10		
4 5 12	8.61	LR	0.00		
4 5 13	47.14	47.63			
4 5 14	3.68	LR	0.00		
4 5 15	19.34	LR	22.47		
4 5 16	7.24	LR	0.00		
4 5 17	10.33	LR	6.19		
4 5 18	4.39	LR	2.40		
4 5 19	67.67	67.40			
4 5 20	63.93	62.71			
4 5 21	49.74	49.53			
4 5 22	63.72	63.95			
4 5 23	67.67	67.40			
4 5 24	10.96	LR	15.18		
4 5 25	11.54	LR	0.98		
4 5 26	8.62	LR	10.83		
4 5 27	51.89	52.89			
4 5 28	65.16	65.93			
4 5 29	31.77	32.49			
4 5 30	29.08	29.75			
4 5 31	44.64	45.29			
4 5 32	7.29	LR	9.12		
4 5 33	36.21	35.62			
4 5 34	20.54	LR	24.85		
4 5 35	169.99	169.78			
4 5 36	181.56	180.71			
4 5 37	27.45	26.96			
4 5 38	54.74	55.98			
4 5 39	69.47	71.47			
4 5 40	36.77	35.50			
4 5 41	91.50	89.74			
4 5 42	26.85	28.24			
4 5 43	98.99	100.06			
4 5 44	42.17	41.29			
4 5 45	31.90	30.77			
4 5 46	16.96	LR	19.24		
4 5 47	15.91	LR	11.86		
4 5 48	26.80	26.62			
4 5 49	79.68	78.87			
4 5 50	10.77	LR	11.13		
4 5 51	12.07	LR	14.81		
4 5 52	19.99	LR	22.61		

STRUCTURE FACTORS			PAGE 2		
H	K	L	F(OBS)	F(CALC)	F(CALC)
1	2	2.48	LR	2.02	2.02
2	24.11	9.09	LR	23.99	24.12
3	6	6	6	19.04	22.90
4	23.61	5	6	20.38	22.39
5	6	6	6	2.39	27.73
6	18.80	5	6	27.03	11.04
7	27.93	6	6	9.67	6.49
8	11.04	6	6	9.67	9.19
9	10	6	6	4.81	2.18
10	5.60	5	6	6.66	22.98
11	22.98	5	6	25.03	6.13
12	9.19	6	6	2.30	24.63
13	6.14	6	6	25.85	13.95
14	6.15	6	6	2.56	40.16
15	6.16	6	6	17.30	36.05
16	6.16	6	6	41.85	43.20
17	6.16	6	6	35.08	43.50
18	6.16	6	6	43.50	31.54
19	6.16	6	6	22.80	31.54
20	6.16	6	6	4.58	34.05
21	6.16	6	6	33.98	8.39
22	6.16	6	6	11.57	6.30
23	6.16	6	6	3.26	8.79
24	6.16	6	6	7.27	31.54
25	6.16	6	6	31.60	35.36
26	6.16	6	6	37.41	14.73
27	6.16	6	6	19.30	5.96
28	6.16	6	6	2.02	24.88
29	6.16	6	6	26.23	4.09
30	6.16	6	6	21.03	14.41
31	6.16	6	6	19.83	18.36
32	6.16	6	6	19.20	37.86
33	6.16	6	6	37.09	36.40
34	6.16	6	6	20.35	19.99
35	6.16	6	6	4.22	35.47
36	6.16	6	6	35.97	40.63
37	6.16	6	6	40.44	23.95
38	6.16	6	6	2.32	8.15
39	6.16	6	6	0.44	43.17
40	6.16	6	6	43.69	25.96
41	6.16	6	6	25.76	17.96
42	6.16	6	6	2.55	23.17
43	6.16	6	6	11.00	11.51
44	6.16	6	6	19.10	11.96
45	6.16	6	6	30.61	29.49
46	6.16	6	6	7.19	7.41
47	6.16	6	6	1.65	17.96
48	6.16	6	6	23.05	23.59
49	6.16	6	6	45.28	45.10
50	6.16	6	6	1.65	4.66
51	6.16	6	6	2.95	2.83
52	6.16	6	6	14.91	12.20
53	6.16	6	6	6.88	6.24
54	6.16	6	6	48.79	47.53
55	6.16	6	6	1.97	9.47
56	6.16	6	6	32.47	32.65
57	6.16	6	6	49.43	48.23
58	6.16	6	6	13.75	10.22
59	6.16	6	6	4.00	1.00
60	6.16	6	6	15.86	15.15
61	6.16	6	6	11.87	9.09
62	6.16	6	6	8.79	9.45
63	6.16	6	6	1.59	3.65
64	6.16	6	6	11.59	10.39
65	6.16	6	6	6.45	10.06
66	6.16	6	6	6.85	11.33
67	6.16	6	6	11.22	11.22
68	6.16	6	6	1.22	1.22
69	6.16	6	6	13.86	13.86
70	6.16	6	6	6.16	6.16
71	6.16	6	6	8.79	8.79
72	6.16	6	6	5.61	5.61
73	6.16	6	6	77.17	77.17
74	6.16	6	6	49.50	49.50
75	6.16	6	6	36.45	36.45
76	6.16	6	6	22.48	22.48
77	6.16	6	6	47.45	47.45
78	6.16	6	6	37.32	37.32
79	6.16	6	6	6.84	6.84
80	6.16	6	6	95.94	95.94
81	6.16	6	6	5.66	5.66
82	6.16	6	6	42.39	42.39
83	6.16	6	6	4.28	4.28
84	6.16	6	6	66.90	66.90
85	6.16	6	6	6.43	6.43
86	6.16	6	6	0.00	0.00
87	6.16	6	6	49.11	49.11
88	6.16	6	6	4.42	4.42
89	6.16	6	6	32.97	32.97
90	6.16	6	6	6.60	6.60
91	6.16	6	6	5.19	5.19
92	6.16	6	6	4.52	4.52
93	6.16	6	6	11.52	11.52
94	6.16	6	6	9.31	9.31
95	6.16	6	6	5.94	5.94
96	6.16	6	6	6.67	6.67
97	6.16	6	6	0.00	0.00
98	6.16	6	6	5.64	5.64
99	6.16	6	6	0.00	0.00
100	6.16	6	6	9.46	9.46
101	6.16	6	6	32.90	32.90
102	6.16	6	6	0.00	0.00
103	6.16	6	6	47.77	47.77
104	6.16	6	6	0.00	0.00
105	6.16	6	6	32.90	32.90
106	6.16	6	6	0.00	0.00
107	6.16	6	6	5.64	5.64
108	6.16	6	6	0.00	0.00
109	6.16	6	6	59.35	59.35
110	6.16	6	6	0.00	0.00
111	6.16	6	6	5.64	5.64
112	6.16	6	6	0.00	0.00
113	6.16	6	6	28.02	28.02
114	6.16	6	6	27.33	27.33
115	6.16	6	6	1.78	1.78
116	6.16	6	6	22.55	22.55
117	6.16	6	6	20.59	20.59
118	6.16	6	6	40.81	40.81
119	6.16	6	6	1.69	1.69
120	6.16	6	6	21.74	21.74
121	6.16	6	6	3.69	3.69
122	6.16	6	6	4.89	4.89
123	6.16	6	6	1.06	1.06
124	6.16	6	6	53.29	53.29
125	6.16	6	6	1.74	1.74
126	6.16	6	6	19.83	19.83
127	6.16	6	6	4.21	4.21





OSMOLITE NICKENICH (EIFFEL) FROM NAT.HIST.			MUSEUM BERN			STRUCTURE FACTORS		
H	K	L	F(OBS)	H	K	L	F(CALC)	
0	2	122.27	120.28	36.14	135.52	120.75	9.60	7.96
0	4	212.85	217.49	34.13	62.24	36.32	16.40	16.68
0	6	27.65	267.36	99.53	35.86	109.16	5.37	4.10
0	8	98.85	169.01	18.17	153.95	7.70	9.03	71.13
0	10	44.72	48.08	2.22	10	35.81	3.33	31.08
0	12	187.77	186.71	2.22	2	25.97	4.44	31.59
0	14	92.55	95.52	2.22	12	25.34	5.45	19.25
0	16	61.04	60.23	2.22	14	21.15	6.46	49.39
0	18	58.42	54.17	2.22	2	29.68	7.47	61.88
0	20	19.96	18.26	2.22	16	12.59	8.47	5.37
0	22	49.07	48.08	2.22	18	12.59	9.47	18.49
0	24	49.07	48.08	2.22	10	46.74	10.47	4.77
0	26	45.96	45.80	2.22	12	4.21	11.59	23.59
0	28	79.48	77.06	2.22	14	2.56	12.64	23.58
0	30	25.58	22.52	2.22	16	0.00	13.73	36.58
0	32	38.75	37.51	2.22	18	70.54	14.70	4.70
0	34	10.24	8.89	2.22	10	0.00	15.73	39.90
0	36	45.96	45.80	2.22	12	0.00	16.70	41.10
0	38	21.75	22.78	2.22	14	4.03	17.75	90.25
0	40	14.52	15.17	2.22	16	16.21	18.75	4.74
0	42	7.64	6.91	2.22	18	3.93	19.75	47.73
0	44	0.00	2.83	2.22	10	0.00	20.75	48.60
0	46	139.19	141.10	2.22	12	69.68	21.75	66.30
0	48	85.74	82.73	2.22	14	87.57	22.75	87.77
0	50	141.86	141.94	2.22	16	34.64	23.75	87.39
0	52	13.97	13.97	2.22	18	71.15	24.75	40.28
0	54	64.74	65.08	2.22	10	87.57	25.75	45.42
0	56	77.84	77.04	2.22	12	111.61	26.75	59.10
0	58	41.23	39.62	2.22	14	114.02	27.75	57.88
0	60	21.32	21.09	2.22	16	34.03	28.75	40.50
0	62	39.52	35.59	2.22	18	71.15	29.75	44.93
0	64	115.78	113.74	2.22	10	39.73	30.75	31.33
0	66	70.93	70.61	2.22	12	126.71	41.75	11.73
0	68	169.80	169.68	2.22	14	40.51	42.75	72.95
0	70	17.53	13.71	2.22	16	25.21	43.75	74.23
0	72	48.09	46.64	2.22	18	46.03	44.75	0.00
0	74	82.96	83.09	2.22	10	5.85	45.60	4.14
0	76	64.44	64.61	2.22	12	54.56	46.62	4.15
0	78	41.38	41.45	2.22	14	0.00	47.56	4.16
0	80	22.58	21.43	2.22	16	115.78	48.01	23.95
0	82	46.22	45.83	2.22	18	11.73	49.17	24.01
0	84	41.38	41.45	2.22	10	15.90	50.17	12.43
0	86	142.65	141.41	2.22	12	15.90	51.17	12.88
0	88	50.87	50.10	2.22	14	20.79	52.17	92.05
0	90	51.68	53.05	2.22	16	16.73	53.17	91.79
0	92	12.37	13.72	2.22	18	68.71	54.21	26.91
0	94	11.81	11.81	2.22	10	69.73	55.21	4.28
0	96	18.85	16.88	2.22	12	14.16	56.21	4.33
0	98	2.50	1.84	2.22	14	63.29	57.21	3.78
1	0	22.18	22.18	2.22	16	1.07	58.21	27.83
1	2	3.83	3.83	2.22	18	0.00	59.21	28.98
1	4	58.79	60.33	2.22	10	1.75	60.21	33.66
1	6	63.71	65.05	2.22	12	3.46	61.40	63.64
1	8	1.81	1.81	2.22	14	9.00	62.40	58.76
1	10	63.71	62.62	2.22	16	12.86	63.40	58.76
1	12	40.10	40.29	2.22	18	10.61	64.40	4.00
1	14	9.96	8.84	2.22	10	19.99	65.40	6.82
1	16	46.88	48.20	2.22	12	0.00	66.40	9.94
1	18	34.73	35.30	2.22	14	16.35	67.32	26.32

OSUMILITE NICKENICH (EIFEL) FROM NAT. HIST.			MUSEUM BERN			STRUCTURE FACTORS			PAGE 2			
H	K	L	F(OBS)	F(CALC)	H	K	L	F(OBS)	F(CALC)	H	K	L
28.73	86.40	88.44	38.81	44.79	38.70	45.71	5.27	LR	1.62	55.10	9.68	29.87
42.20	50.88	43.55	44.79	55.10	45.71	0.00	0.00	LR	3.04	55.10	1.72	1.76
5.7 8	10 19.22	20.00	50.35	11.62	11.62	16.94	16.31	LR	16.31	16.31	1.72	1.72
2 2 5 10	2 2 5 11	17.11	17.27	0.00	0.00	0.00	0.00	LR	3.66	2 2 7 12	2 2 7 12	2 2 7 12
2 2 5 12	2 2 5 13	27.82	27.44	4.4	4.4	3.9	4.0	0.03	3.66	2 2 7 13	18.63	17.40
2 2 5 14	2 2 5 15	72.52	72.01	12.20	12.05	11.41	11.41	0.00	3.65	2 2 7 14	38.00	37.99
2 2 5 16	2 2 5 17	6.43	6.46	14.63	14.68	17.98	18.49	0.00	3.65	2 2 7 14	16.94	17.10
3 5 0	3 5 1	13.86	13.14	11.11	11.11	11.16	11.09	0.00	3.65	3 7 0	37.81	37.99
3 5 1	3 5 2	36.98	37.96	24.75	25.22	6.7	6.7	0.00	3.65	3 7 1	16.74	17.01
3 5 2	3 5 3	62.18	63.11	11.11	11.11	6.13	6.13	0.00	3.65	3 7 2	26.49	26.59
3 5 3	3 5 4	22.34	21.48	11.11	11.11	6.14	6.14	0.00	3.65	3 7 3	28.59	28.66
3 5 4	3 5 5	53.98	54.28	11.11	11.11	6.15	6.15	0.00	3.65	3 7 4	9.03	9.04
3 5 5	3 5 6	17.25	17.12	11.11	11.11	6.17	6.17	0.00	3.65	3 7 5	16.94	17.10
3 5 6	3 5 7	5.65	5.65	0.00	0.00	0.00	0.00	0.00	3.65	3 7 6	10.61	11.12
3 5 7	3 5 8	21.72	20.72	2.13	2.13	1.91	1.91	0.00	3.65	3 7 7	37.81	37.99
3 5 8	3 5 9	20.59	19.61	37.36	37.36	2.22	2.22	0.00	3.65	3 7 8	16.03	16.07
3 5 9	3 5 10	36.05	36.05	22.86	22.79	2.22	2.22	0.00	3.65	3 7 9	33.25	33.92
3 5 10	3 5 11	22.86	21.11	20.29	20.29	2.22	2.22	0.00	3.65	3 7 10	20.63	21.43
3 5 11	3 5 12	20.59	20.59	17.12	17.12	2.13	2.13	0.00	3.65	3 7 11	37.74	37.90
3 5 12	3 5 13	36.05	36.05	11.11	11.11	2.22	2.22	0.00	3.65	3 7 12	6.38	20.87
3 5 13	3 5 14	10.51	10.51	15.30	15.30	2.22	2.22	0.00	3.65	3 7 13	20.66	21.43
3 5 14	3 5 15	15.30	15.30	12.85	12.85	2.22	2.22	0.00	3.65	3 7 14	4.77	22.59
3 5 15	3 5 16	0.00	0.00	12.85	13.09	2.22	2.22	0.00	3.65	3 7 15	0.00	22.90
3 5 16	3 5 17	53.52	52.65	45.05	45.05	2.22	2.22	0.00	3.65	3 7 16	4.77	4.28
3 5 17	3 5 18	10.13	10.13	4.52	4.52	2.22	2.22	0.00	3.65	3 7 17	54.93	54.26
3 5 18	3 5 19	15.30	15.30	15.30	15.30	2.22	2.22	0.00	3.65	3 7 18	18.42	18.95
3 5 19	3 5 20	12.85	12.85	12.85	12.85	2.22	2.22	0.00	3.65	3 7 19	0.00	3.21
3 5 20	3 5 21	53.52	52.65	45.05	45.05	2.22	2.22	0.00	3.65	3 7 20	34.60	45.17
3 5 21	3 5 22	10.51	10.51	15.30	15.30	2.22	2.22	0.00	3.65	3 7 21	1.87	1.87
3 5 22	3 5 23	10.13	10.13	4.52	4.52	2.22	2.22	0.00	3.65	3 7 22	36.25	36.25
3 5 23	3 5 24	15.30	15.30	15.30	15.30	2.22	2.22	0.00	3.65	3 7 23	9.65	9.65
3 5 24	3 5 25	15.30	15.30	12.85	12.85	2.22	2.22	0.00	3.65	3 7 24	0.85	0.85
3 5 25	3 5 26	26.06	26.06	12.85	12.85	2.22	2.22	0.00	3.65	3 7 25	21.67	20.61
3 5 26	3 5 27	52.94	52.02	45.05	45.05	2.22	2.22	0.00	3.65	3 7 26	9.77	9.77
3 5 27	3 5 28	18.46	18.53	25.84	25.84	2.22	2.22	0.00	3.65	3 7 27	32.30	32.76
3 5 28	3 5 29	6.45	6.45	15.09	15.09	2.22	2.22	0.00	3.65	3 7 28	6.91	6.67
3 5 29	3 5 30	6.45	6.45	4.52	4.52	2.22	2.22	0.00	3.65	3 7 29	31.09	31.48
3 5 30	3 5 31	26.33	26.06	12.85	12.85	2.22	2.22	0.00	3.65	3 7 30	12.91	12.91
3 5 31	3 5 32	15.30	15.30	4.52	4.52	2.22	2.22	0.00	3.65	3 7 31	31.09	31.48
3 5 32	3 5 33	15.30	15.30	12.85	12.85	2.22	2.22	0.00	3.65	3 7 32	6.37	6.37
3 5 33	3 5 34	15.30	15.30	12.85	12.85	2.22	2.22	0.00	3.65	3 7 33	11.88	11.88
3 5 34	3 5 35	15.30	15.30	12.85	12.85	2.22	2.22	0.00	3.65	3 7 35	39.59	39.33
3 5 35	3 5 36	10.36	10.36	6.45	6.45	2.22	2.22	0.00	3.65	3 7 36	59.76	59.76
3 5 36	3 5 37	6.45	6.45	4.52	4.52	2.22	2.22	0.00	3.65	3 7 37	14.04	14.04
3 5 37	3 5 38	25.63	25.63	12.85	12.85	2.22	2.22	0.00	3.65	3 7 38	30.90	30.90
3 5 38	3 5 39	25.63	25.63	12.85	12.85	2.22	2.22	0.00	3.65	3 7 39	17.52	17.52
3 5 39	3 5 40	25.63	25.63	12.85	12.85	2.22	2.22	0.00	3.65	3 7 40	22.66	22.66
3 5 40	3 5 41	25.63	25.63	12.85	12.85	2.22	2.22	0.00	3.65	3 7 41	36.46	36.46
3 5 41	3 5 42	25.63	25.63	12.85	12.85	2.22	2.22	0.00	3.65	3 7 42	9.82	9.82
3 5 42	3 5 43	25.63	25.63	12.85	12.85	2.22	2.22	0.00	3.65	3 7 43	14.74	14.74
3 5 43	3 5 44	25.63	25.63	12.85	12.85	2.22	2.22	0.00	3.65	3 7 44	0.00	0.00
3 5 44	3 5 45	25.63	25.63	12.85	12.85	2.22	2.22	0.00	3.65	3 7 45	14.74	14.74
3 5 45	3 5 46	25.63	25.63	12.85	12.85	2.22	2.22	0.00	3.65	3 7 46	0.00	0.00
3 5 46	3 5 47	25.63	25.63	12.85	12.85	2.22	2.22	0.00	3.65	3 7 47	22.18	22.18
3 5 47	3 5 48	25.63	25.63	12.85	12.85	2.22	2.22	0.00	3.65	3 7 48	55.57	55.46

OSUMILITE NICKENICH (EIFEL) FROM NAT.HIST. MUSEUM BERN						STRUCTURE FACTORS						PAGE 3			
H	K	L	F(OBS)	F(CALC)	H	K	L	F(OBS)	F(CALC)	H	K	L	F(OBS)	F(CALC)	
0	8	12	27.88	28.04	6	12	LR	0.58	0.58	0	10	10	36.08	35.64	
0	9	14	92.49	92.23	3	4.46	34.77	14.86	14.62	0	10	0	9.99	9.33	
1	1	8	3.15	3.15	16.75	16.84	6	8	9.41	0	10	10	45.28	43.38	
1	1	8	3	9.11	9.32	6	8	2	27.36	26.42	1	10	2	22.11	22.24
1	1	8	4	41.43	41.47	0	9	0	57.76	58.43	1	10	3	33.48	33.25
1	1	8	5	55.86	55.13	0	9	2	30.40	29.21	1	10	4	16.25	18.25
1	1	8	6	17.57	17.30	0	9	12	27.70	27.0	1	10	5	15.35	15.17
1	1	8	7	6.34	4.69	0	9	4	31.54	31.24	1	10	6	12.02	11.94
1	1	8	8	0.00	LR	0	9	6	60.61	59.44	1	10	7	17.02	16.91
1	1	8	9	48.81	48.47	0	9	8	44.92	44.17	1	10	8	11.23	10.27
1	1	8	10	26.96	25.89	0	9	10	30.40	29.21	1	10	9	20.15	20.21
1	1	8	11	5.51	LR	0	9	12	38.51	38.62	1	10	10	16.13	17.32
1	1	8	12	21.63	21.85	1	1	12	0.00	0.18	2	10	2	12.36	12.82
1	1	8	13	20.39	20.91	1	1	13	0.00	0.18	2	10	3	3.44	LR
1	1	8	14	11.89	12.52	1	1	14	10.84	11.15	2	10	4	1.73	LR
1	1	8	15	19.21	17.63	1	1	15	14.81	15.19	2	10	5	19.81	18.87
1	1	8	16	12.98	12.59	1	1	16	14.81	15.19	2	10	6	18.43	18.84
1	1	8	17	48.18	48.16	1	1	17	38.62	38.62	2	10	7	0.00	LR
1	1	8	18	19.62	19.88	1	1	18	38.15	38.86	2	10	8	0.07	8.07
1	1	8	19	74.07	74.93	1	1	19	15.05	16.12	2	10	9	28.73	28.40
1	1	8	20	25.34	26.09	1	1	20	30.29	30.26	3	10	0	9.57	9.92
1	1	8	21	34.21	35.68	1	1	21	0.00	0.18	3	10	1	34.29	33.01
1	1	8	22	6.43	LR	1	1	22	13.61	13.18	3	10	2	0.00	LR
1	1	8	23	6.43	6.59	1	1	23	17.99	17.44	3	10	3	29.55	29.39
1	1	8	24	32.69	33.29	1	1	24	10.00	10.45	3	10	4	0.00	LR
1	1	8	25	11.14	11.91	1	1	25	11.70	11.42	3	10	5	21.66	21.95
1	1	8	26	54.05	54.09	1	1	26	12.93	12.60	0	11	0	11.54	11.35
1	1	8	27	36.91	44.10	1	1	27	12.90	12.90	1	1	1	16.05	16.10
1	1	8	28	36.65	36.65	1	1	28	6.30	6.03	1	1	2	33.49	32.39
1	1	8	29	19.10	19.10	1	1	29	1.60	1.60	1	1	3	24.38	24.45
1	1	8	30	10.65	9.90	1	1	30	0.00	0.00	1	1	4	16.15	14.26
1	1	8	31	32.50	32.54	1	1	31	1.91	1.95	1	1	5	1.79	LR
1	1	8	32	32.27	22.41	1	1	32	14.32	15.78	1	1	6	40.90	38.67
1	1	8	33	30.07	30.14	1	1	33	14.32	14.32	1	1	7	16.07	16.25
1	1	8	34	28.00	27.99	1	1	34	0.00	0.00	1	1	8	23.29	22.66
1	1	8	35	48.70	48.70	1	1	35	0.00	0.00	1	1	9	3.96	26.41
1	1	8	36	11.17	11.45	1	1	36	21.25	20.95	1	1	10	62.51	63.00
1	1	8	37	6.56	6.58	1	1	37	15.71	15.24	1	1	11	4.16	LR
1	1	8	38	4.55	LR	1	1	38	4.32	4.34	1	1	12	5.17	7.53
1	1	8	39	32.44	34.55	1	1	39	5.42	5.42	1	1	13	2.92	3.81
1	1	8	40	34.80	34.52	1	1	40	30.43	30.43	1	1	14	10.13	11.22
1	1	8	41	14.22	12.86	1	1	41	17.90	18.37	1	1	15	9.59	9.77
1	1	8	42	6.19	5.76	1	1	42	24.53	24.53	1	1	16	4.16	LR
1	1	8	43	8.84	9.64	1	1	43	4.53	4.53	1	1	17	5.17	7.53
1	1	8	44	18.29	18.13	1	1	44	26.16	26.16	1	1	18	2.92	LR
1	1	8	45	0.00	LR	1	1	45	50.48	49.45	1	1	19	54.09	52.28
1	1	8	46	37.15	37.23	1	1	46	4.66	4.66	1	1	20	8.46	8.20
1	1	8	47	5.83	LR	1	1	47	3.69	3.69	1	1	21	19.59	19.70
1	1	8	48	14.83	15.55	1	1	48	0.00	0.00	1	1	22	5.17	5.17
1	1	8	49	7.40	7.16	1	1	49	4.99	4.99	1	1	23	4.16	4.16
1	1	8	50	0.00	LR	1	1	50	0.00	0.00	1	1	24	55.35	56.06
1	1	8	51	13.05	13.65	1	1	51	17.68	17.98	1	1	25	3.69	3.69
1	1	8	52	21.87	20.74	1	1	52	18.63	18.48	1	1	26	0.00	LR
1	1	8	53	36.99	36.88	1	1	53	0.00	0.00	1	1	27	15.56	15.06
1	1	8	54	7.68	6.27	1	1	54	14.28	14.28	1	1	28	14.23	14.23
1	1	8	55	11.31	12.65	1	1	55	0.00	0.00	1	1	29	5.35	5.66
1	1	8	56	13.30	15.05	1	1	56	0.00	0.00	1	1	30	15.87	14.95

## OSUMILITE NORTH SISTER MOUNTAINS OREGON NAT. HIST MUSEUM BERN

## STRUCTURE FACTORS

## PAGE 1

H	K	L	F(COBS)	H	K	L	F(COBS)	H	K	L	F(CALC)	H	K	L	F(COBS)	H	K	L	F(CALC)
1	146.5	8	185.1	145.96	192.31	59.10	159.6	192.0	154.96	187.13	87.13	36.02	105.01	102.99	1.57	1.09	LR	19.92	
1	2	4	0	2	2	6	0	2	2	4	2	19	56.32	53.95	19.92	20.18	10.6	9.78	
1	2	2	2	2	2	2	8	2	2	2	2	19	124.86	123.58	65.00	64.57	64.57	65.00	
1	2	2	2	2	2	2	10	2	2	2	2	19	124.53	125.71	39.40	39.13	39.13	39.40	
1	2	2	2	2	2	2	12	2	2	2	2	19	22.26	21.76	18.09	17.73	17.73	18.09	
1	2	2	2	2	2	2	14	2	2	2	2	19	85.25	85.41	58.83	57.37	57.37	58.83	
1	2	2	2	2	2	2	16	2	2	2	2	19	85.47	84.47	54.72	53.65	53.65	54.72	
1	2	2	2	2	2	2	18	2	2	2	2	19	87.01	86.34	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	20	2	2	2	2	19	87.13	86.54	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	22	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	24	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	26	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	28	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	30	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	32	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	34	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	36	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	38	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	40	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	42	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	44	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	46	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	48	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	50	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	52	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	54	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	56	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	58	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	60	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	62	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	64	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	66	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	68	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	70	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	72	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	74	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	76	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	78	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	80	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	82	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	84	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	86	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	88	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	90	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	92	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	94	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	96	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	98	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	100	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	102	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	104	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	106	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	108	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	110	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	112	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	114	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	116	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	118	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	120	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	122	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	124	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	126	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	128	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	130	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	132	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	134	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	136	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	138	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	140	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	142	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	144	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	146	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	148	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	150	2	2	2	2	19	87.55	87.07	54.72	53.98	53.98	54.72	
1	2	2	2	2	2	2	152	2	2	2	2	19							

OSUMILITE			NORTH SISTER MOUNTAINS			OREGON NAT.HIST MUSEUM BERN			
H	K	L	F(OBS)	F(CALC)	H	K	L	F(OBS)	F(CALC)
2	2	5	29.68	29.87	1	6	0	44.15	42.83
			102.55	103.80	1	6	1	5.96	4.98
			41.19	41.38	1	6	2	18.93	18.74
			43.35	42.70	1	6	3	0.00	LR
			18.41	18.32	1	6	4	24.02	23.64
			2.94	2.70	1	6	5	27.22	28.18
			25.33	25.54	1	6	6	15.70	15.64
			81.85	81.97	1	6	7	3.58	2.88
			9.39	9.28	1	6	8	23.45	23.37
			10.50	11.16	1	6	9	15.47	15.15
			23.78	24.04	1	6	10	8.56	7.45
			21.79	21.95	1	6	11	10.38	10.72
			21.40	21.15	1	6	12	23.09	23.68
			30.88	31.09	1	6	13	4.60	4.97
			57.35	58.62	1	6	14	19.18	19.09
			28.54	27.31	1	6	15	3.69	2.72
			55.14	54.88	1	6	16	15.10	14.84
			22.63	21.56	1	6	17	2.66	LR
			4.50	2.15	2	6	0	58.08	60.41
			3.19	3.20	2	6	1	45.83	45.71
			22.70	22.64	2	6	2	51.42	53.18
			12.50	12.30	2	6	3	35.14	34.33
			13.91	11.46	2	6	4	4.24	4.24
			24.68	24.75	2	6	5	37.28	36.83
			36.41	36.91	2	6	6	0.00	LR
			26.75	27.24	2	6	7	0.00	LR
			21.45	21.11	2	6	8	18.57	19.07
			21.45	21.11	2	6	9	35.68	35.55
			9.38	9.38	2	6	10	42.39	42.05
			20.02	20.98	2	6	11	22.21	22.97
			50.33	49.94	2	6	12	22.89	LR
			18.58	18.73	2	6	13	33.08	4.83
			11.40	10.56	2	6	14	32.85	32.85
			11.14	10.56	2	6	15	10.52	10.13
			8.60	8.12	2	6	16	21.70	22.07
			45.62	44.29	2	6	17	27.08	27.37
			6.61	20.30	2	6	18	29.51	29.26
			6.59	6.59	3	6	0	35.13	34.82
			29.69	29.81	3	6	1	35.61	32.85
			52.23	52.81	3	6	2	10.52	10.13
			23.88	23.86	3	6	3	41.10	41.81
			23.22	23.10	3	6	4	34.33	34.22
			2.90	2.70	3	6	5	33.71	33.85
			4.514	4.515	3	6	6	6.91	16.89
			4.515	4.515	3	6	7	21.34	20.93
			2.90	2.70	3	6	8	0.00	LR
			20.77	20.40	3	6	9	0.50	0.50
			58.90	58.36	3	6	10	35.09	35.85
			39.36	39.47	3	6	11	19.58	20.02
			5.02	5.12	3	6	12	28.11	27.39
			4.53	4.53	3	6	13	3.78	LR
			5.6	5.6	3	6	14	19.84	19.84
			26.40	26.40	3	6	15	15.72	15.23
			4.514	4.514	3	6	16	11.69	11.69
			4.514	4.514	3	6	17	28.94	29.59
			17.79	17.51	3	6	18	3.78	LR
			51.82	50.70	3	6	19	19.84	18.96
			18.24	18.24	3	6	20	27.40	27.40
			88.96	88.59	3	6	21	5.26	5.26
			54.18	54.18	4	6	22	7.04	7.04
			46.65	46.65	4	6	23	7.61	8.68
			98.96	98.22	4	6	24	48.83	55.55
			87.21	88.59	4	6	25	7.31	7.31
			53.32	54.18	4	6	26	7.31	7.31
			47.37	46.65	4	6	27	37.31	36.96
			0	0	5	6	28	7.61	8.68

## STRUCTURE FACTORS

## PAGE 2

H	K	L	F(OBS)	F(CALC)	H	K	L	F(OBS)	F(CALC)
6	6	10	58.09	58.01	6	6	11	3.71	4.80
4	4	11	17.76	17.56	4	4	12	18.54	18.94
4	4	13	20.52	20.62	4	4	14	42.93	42.16
4	4	14	3.38	3.06	4	4	15	3.06	3.80
4	4	15	3.38	3.03	4	4	16	5.03	6.42
4	4	17	10.19	10.07	4	4	18	14.93	14.81
4	4	19	29.29	29.29	4	4	20	20.98	21.86
4	4	20	9.41	9.41	4	4	21	15.52	15.60
4	4	22	18.94	18.94	4	4	23	16.40	15.65
4	4	24	10.07	10.22	4	4	25	9.20	8.87
4	4	26	16.62	16.62	4	4	27	18.02	18.02
4	4	28	3.37	3.37	4	4	29	3.37	3.37
4	4	30	29.32	29.32	4	4	31	3.37	3.37
4	4	32	12.15	12.06	4	4	33	8.07	7.25
4	4	34	7.31	7.31	4	4	35	20.28	20.28
4	4	36	49.55	49.37	4	4	37	27.74	27.55
4	4	38	44.10	44.10	4	4	39	20.45	20.67
4	4	40	42.20	42.20	4	4	41	31.9	31.51
4	4	42	23.87	23.87	4	4	43	4.15	LR
4	4	44	24.03	24.03	4	4	45	4.15	LR
4	4	46	52.87	52.87	4	4	47	9	9.47
4	4	48	52.97	52.97	4	4	49	15.54	14.86
4	4	50	41.43	41.79	4	4	51	41.91	49.65
4	4	52	100.90	100.90	4	4	53	26.28	26.49
4	4	54	39.10	39.10	4	4	55	31.76	31.89
4	4	56	73.93	73.93	4	4	57	9.47	9.23
4	4	58	49.57	49.57	4	4	59	41.27	40.45
4	4	60	39.74	39.74	4	4	61	13.44	12.81
4	4	62	39.02	39.02	4	4	63	8.08	1.97
4	4	64	10.18	10.18	4	4	65	32.03	21.53
4	4	66	11.52	11.52	4	4	67	5.77	5.99
4	4	68	12.06	12.06	4	4	69	16.75	16.87
4	4	70	6.18	6.18	4	4	71	9.52	9.23
4	4	72	9.90	9.90	4	4	73	5.77	5.77
4	4	74	7.03	7.03	4	4	75	13.44	12.81
4	4	76	7.03	7.03	4	4	77	2.12	1.97
4	4	78	31.95	31.95	4	4	79	21.75	21.53
4	4	80	10.43	10.43	4	4	81	8.50	8.76
4	4	82	11.24	11.24	4	4	83	6.20	5.99
4	4	84	11.52	11.52	4	4	85	16.75	16.87
4	4	86	11.52	11.52	4	4	87	9.52	9.23
4	4	88	11.52	11.52	4	4	89	39.47	39.47
4	4	90	11.52	11.52	4	4	91	13.44	12.81
4	4	92	11.52	11.52	4	4	93	40.35	39.99
4	4	94	11.52	11.52	4	4	95	20.98	20.98
4	4	96	11.52	11.52	4	4	97	5.77	5.77
4	4	98	11.52	11.52	4	4	99	19.00	19.00
4	4	100	11.52	11.52	4	4	101	5.77	5.77
4	4	102	11.52	11.52	4	4	103	19.00	19.00
4	4	104	11.52	11.52	4	4	105	5.77	5.77
4	4	106	11.52	11.52	4	4	107	19.00	19.00
4	4	108	11.52	11.52	4	4	109	5.77	5.77
4	4	110	11.52	11.52	4	4	111	19.00	19.00
4	4	112	11.52	11.52	4	4	113	5.77	5.77
4	4	114	11.52	11.52	4	4	115	19.00	19.00
4	4	116	11.52	11.52	4	4	117	5.77	5.77
4	4	118	11.52	11.52	4	4	119	19.00	19.00
4	4	120	11.52	11.52	4	4	121	5.77	5.77
4	4	122	11.52	11.52	4	4	123	19.00	19.00
4	4	124	11.52	11.52	4	4	125	5.77	5.77
4	4	126	11.52	11.52	4	4	127	19.00	19.00
4	4	128	11.52	11.52	4	4	129	5.77	5.77
4	4	130	11.52	11.52	4	4	131	19.00	19.00
4	4	132	11.52	11.52	4	4	133	5.77	5.77
4	4	134	11.52	11.52	4	4	135	19.00	19.00
4	4	136	11.52	11.52	4	4	137	5.77	5.77
4	4	138	11.52	11.52	4	4	139	19.00	19.00
4	4	140	11.52	11.52	4	4	141	5.77	5.77
4	4	142	11.52	11.52	4	4	143	19.00	19.00</td

OSUMILITE			NORTH SISTER			MOUNTAINS			OREGON			NAT.HIST MUSEUM			BERN		
H	K	L	H	K	L	H	K	L	H	K	L	H	K	L	F(OBS)	F(CALC)	
0	8	10	54.42	52.72		51.89	52.59		52.80	50.80		51.91	13.91		14.13		
0	8	12	26.57	26.34		6.91	7.25		0.00	0.10		0.10	0		9.11		
0	8	14	83.92	83.88		4.70	LR		1.42	0.00		0.10	2		8.56	50.58	
0	8	16	9.80	8.75		12.26			12.43	0.00		0.10	4		50.08	50.08	
1	11	8	40.19	40.38		8.18			6.45	0.00		0.10	6		2.42	2.42	
1	11	8	22.86	22.68		21.99			21.46	0.00		0.10	8		14.02	14.02	
3	12	8	12.75	13.31		6.83			6.45	0.00		0.10	10		14.13	14.13	
7	13	8	48.89	47.01		6.83			21.46	0.00		0.10	0		31.59	31.59	
7	13	8	60.49	60.24		6.83			21.46	0.00		0.10	0		14.26	14.26	
7	13	8	13.36	13.44		0.00			21.46	0.00		0.10	0		14.31	14.31	
7	13	8	7.18	LR		0.00			21.46	0.00		0.10	0		40.85	40.85	
7	13	8	5.25	4.70		0.00			21.46	0.00		0.10	0		32.54	32.54	
7	13	8	52.83	52.77		0.00			21.46	0.00		0.10	0		32.86	32.86	
10	31	53	31.11	31.11		0.00			21.46	0.00		0.10	0		30.46	30.46	
11	6	6.82	6.11	6.11		0.00			21.46	0.00		0.10	0		12.58	12.58	
12	26	36	25.65	25.65		0.00			21.46	0.00		0.10	0		14.31	14.31	
13	23	8.3	23.83	24.84		0.00			21.46	0.00		0.10	0		17.03	17.03	
14	9	7.5	9.75	9.42		0.00			21.46	0.00		0.10	0		17.57	17.57	
14	0	33.26	33.78	33.78		0.00			21.46	0.00		0.10	0		17.66	17.66	
14	1	13.31	13.11	13.11		0.00			21.46	0.00		0.10	0		10.01	10.01	
14	2	57.77	59.47	59.47		0.00			21.46	0.00		0.10	0		6.63	6.63	
14	3	19.36	19.72	19.72		0.00			21.46	0.00		0.10	0		7.96	7.96	
14	4	80.47	80.47	80.85		0.00			21.46	0.00		0.10	0		18.41	18.41	
14	5	23.43	24.03	24.03		0.00			21.46	0.00		0.10	0		22.52	22.52	
14	6	47.35	47.05	47.05		0.00			21.46	0.00		0.10	0		4.17	4.17	
14	7	6.81	6.54	6.54		0.00			21.46	0.00		0.10	0		22.26	22.26	
14	8	43.66	42.87	42.87		0.00			21.46	0.00		0.10	0		7	7	
14	9	11.52	11.28	11.28		0.00			21.46	0.00		0.10	0		1.95	1.95	
14	10	60.71	60.05	60.05		0.00			21.46	0.00		0.10	0		17.87	17.87	
14	11	4.77	LR	5.96		0.00			21.46	0.00		0.10	0		6.01	6.01	
14	12	45.06	45.46	45.46		0.00			21.46	0.00		0.10	0		19.86	19.86	
14	13	18.46	18.68	18.68		0.00			21.46	0.00		0.10	0		8.75	8.75	
14	14	35.39	36.15	36.15		0.00			21.46	0.00		0.10	0		5.65	5.65	
14	15	27.84	27.99	27.99		0.00			21.46	0.00		0.10	0		24.70	24.70	
14	16	34.49	33.88	33.88		0.00			21.46	0.00		0.10	0		25.19	25.19	
14	17	32.87	33.02	33.02		0.00			21.46	0.00		0.10	0		22.16	22.16	
14	18	7.54	50.93	50.93		0.00			21.46	0.00		0.10	0		5.08	5.08	
14	19	7.87	7.29	7.29		0.00			21.46	0.00		0.10	0		9.76	9.76	
14	20	0.00	LR	0.00		0.00			21.46	0.00		0.10	0		20.58	20.58	
14	21	36.13	35.45	35.45		0.00			21.46	0.00		0.10	0		45.57	45.57	
14	22	7.56	6.64	6.64		0.00			21.46	0.00		0.10	0		40.65	40.65	
14	23	0.00	LR	2.50		0.00			21.46	0.00		0.10	0		29.08	29.08	
14	24	3.12	3.02	3.02		0.00			21.46	0.00		0.10	0		33.42	33.42	
14	25	3.41	4.00	4.00		0.00			21.46	0.00		0.10	0		4.55	4.55	
14	26	17.18	16.76	16.76		0.00			21.46	0.00		0.10	0		10.45	10.45	
14	27	13.22	13.69	13.69		0.00			21.46	0.00		0.10	0		62.66	62.66	
14	28	0.00	LR	7.28		0.00			21.46	0.00		0.10	0		10.19	10.19	
14	29	1.10	1.15	1.15		0.00			21.46	0.00		0.10	0		9.85	9.85	
14	30	1.32	1.22	1.22		0.00			21.46	0.00		0.10	0		36.18	36.18	
14	31	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		46.36	46.36	
14	32	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		5.16	5.16	
14	33	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		7.77	7.77	
14	34	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		24.03	24.03	
14	35	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		21.47	21.47	
14	36	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		11.13	11.13	
14	37	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		38.37	38.37	
14	38	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		11.84	11.84	
14	39	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		39.38	39.38	
14	40	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		11.84	11.84	
14	41	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		11.84	11.84	
14	42	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		38.37	38.37	
14	43	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		11.13	11.13	
14	44	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		11.13	11.13	
14	45	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		11.13	11.13	
14	46	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		11.13	11.13	
14	47	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		11.13	11.13	
14	48	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		11.13	11.13	
14	49	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		11.13	11.13	
14	50	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		11.13	11.13	
14	51	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		11.13	11.13	
14	52	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		11.13	11.13	
14	53	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		11.13	11.13	
14	54	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		11.13	11.13	
14	55	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		11.13	11.13	
14	56	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		11.13	11.13	
14	57	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		11.13	11.13	
14	58	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		11.13	11.13	
14	59	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		11.13	11.13	
14	60	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		11.13	11.13	
14	61	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		11.13	11.13	
14	62	3.88	3.88	3.88		0.00			21.46	0.00		0.10	0		11.13	11.13	
14	63	3.88															



STRUCTURE FACTORS		F(CALC)	F(OBS)	F(CALC)
H	K	L		
47.71	43.04	45.92	4.6	40.16
43.04	45.92	45.92	6	59.75
18.84	21.17	4.6	6	5.19
24.03	24.03	4.6	12	17.59
28.02	15.42	4.6	13	0.00
15.42	15.42	4.6	14	LR
24.64	24.64	5.6	0	42.98
15.73	15.73	5.6	12	31.98
9.22	11.10	5.6	14	32.55
11.10	24.57	5.6	5	45.62
4.50	4.50	5.6	7	21.42
18.88	18.88	5.6	8	2.61
2.03	2.03	5.6	9	LR
15.39	15.39	5.6	10	8.02
3.93	6.00	5.6	11	17.24
6.00	6.80	5.6	12	28.15
47.38	47.38	6.6	0	3.43
53.54	53.54	6.6	2	13.04
37.85	37.85	6.6	4	80.65
0.86	0.86	6.6	6	51.11
1.03	20.07	6.6	8	47.50
36.21	43.02	6.6	10	105.56
22.15	22.15	6.6	12	54.02
5.58	5.58	6.6	14	44.51
34.82	10.83	7.7	6	43.00
22.35	27.94	7.7	8	51.30
31.34	31.34	7.7	10	11.05
35.11	35.11	7.7	12	11.55
23.08	40.93	7.7	14	66.38
35.18	35.18	7.7	16	11.74
32.88	32.88	7.7	17	5.42
17.20	17.20	7.7	19	32.84
0.80	0.80	7.7	21	23.18
36.89	36.89	7.7	22	5.53
20.59	20.59	7.7	23	56.20
29.58	29.58	7.7	25	22.63
12.66	12.66	7.7	27	20.70
16.28	29.82	7.7	29	13.74
53.84	8.77	7.7	31	24.69
32.45	32.45	7.7	32	42.10
5.11	19.17	7.7	34	4.41
72.43	19.10	7.7	35	51.50
58.75	29.36	7.7	36	20.14
0.49	53.84	7.7	37	7.35
32.45	8.77	7.7	38	13.69
5.11	32.45	7.7	39	0.00
72.43	19.17	7.7	40	LR
58.75	29.36	7.7	41	5.68
0.49	53.84	7.7	42	1.01
32.45	8.77	7.7	43	51.07
5.11	32.45	7.7	44	6.04
72.43	19.17	7.7	45	39.92
58.75	29.36	7.7	46	38.67

PAGE	2	H	K	L	F(OBS)	F(CALC)
	9	8.72			9.16	
	23.77				23.07	
	2.24	LR			1.35	
2	10	2.24			9.27	
2	11	9.96			18.94	
2	12	18.95			45.24	
2	13	46.02			4.34	
2	14	3.71			7.09	
2	15	7.83			34.88	
	1	35.25			21.98	
	2	21.98			22.74	
	3	22.18			28.80	
	4	28.73			19.09	
	5	7.88			18.96	
	6	19.09			3.04	
	7	12.56	LR		15.35	
	8	14.62			16.05	
	9	16.13			33.79	
	10	16.13			36.25	
	11	36.74			7.89	
	12	20.11			20.11	
	13	28.97			28.88	
	0	20.13			20.52	
	1	31.46			31.60	
	2	2.14	LR		2.26	
	3	15.81			14.95	
	4	48.64			49.56	
	5	27.38			27.32	
	6	3.45			3.30	
	7	10.53			10.66	
	8	40.87			41.18	
	9	12.46			12.66	
	10	18.16			18.51	
	11	17.20			17.22	
	12	40.00			39.97	
	0	13.19			13.28	
	1	12.41	LR		12.07	
	2	22.42			21.79	
	3	7.71			7.26	
	4	5.55			6.61	
	5	5.55			41.67	
	6	41.14			8.75	
	7	8.61			39.69	
	8	39.22			3.12	
	9	3.52	LR		10.82	
	10	11.65			34.19	
	11	33.58			3.26	
	12	23.06	LR		23.03	
	13	0.00			1.73	
	4	65.32			65.79	
	5	23.95	LR		8.44	
	6	6.65			23.73	
	7	3.63			2.35	
	8	21.51			21.15	
	0	56.20			54.96	
	1	56.00	LR		51.29	
	2	124.35			122.37	
	3	120.28			120.57	
	4	32.04			31.95	
	5	0.00			39.37	
	6	40.33				

OSUMILITE SHI (JAPAN) NAT. HIST MUSEUM BERN

## STRUCTURE FACTORS

STRUCTURE FACTORS PAGE 3 F(CALC)





## OSMOLITE SARDINIA

H	K	L	F(OBS)	F(CALC)
0	8	8	35.18	35.51
0	8	10	54.26	52.89
0	8	12	28.05	27.85
0	8	14	86.80	86.71
0	8	14	5.84	6.94
1	8	0	5.84	LR
1	8	1	39.71	39.51
1	8	2	21.30	21.18
1	8	3	13.09	13.17
1	8	4	47.02	46.45
1	8	5	59.09	59.30
1	8	6	14.19	13.80
1	8	7	7.25	5.88
1	8	8	0.00	LR
1	8	9	52.47	52.49
1	8	10	30.36	30.66
1	8	11	0.00	LR
1	8	12	26.21	25.98
1	8	13	23.82	24.78
1	8	14	24.88	LR
1	8	15	31.20	30.99
1	8	16	5.16	12.18
1	8	17	58.57	59.10
1	8	18	18.82	18.22
1	8	19	81.59	81.27
1	8	20	22.80	23.22
1	8	21	46.37	46.10
1	8	22	5.36	LR
1	8	23	2.83	2.84
1	8	24	61.65	61.21
1	8	25	6.44	6.44
1	8	26	44.86	44.10
1	8	27	41.12	41.76
1	8	28	11.25	11.46
1	8	29	12.05	12.97
1	8	30	35.41	35.65
1	8	31	27.25	26.86
1	8	32	32.67	33.75
1	8	33	32.24	32.41
1	8	34	32.05	51.57
1	8	35	0.00	LR
1	8	36	6.82	7.50
1	8	37	0.00	LR
1	8	38	35.95	36.40
1	8	39	39.41	39.78
1	8	40	11.62	11.24
1	8	41	12.60	15.45
1	8	42	14.12	14.09
1	8	43	7.12	6.02
1	8	44	15.47	5.71
1	8	45	15.47	15.73
1	8	46	16.21	16.04
1	8	47	6.74	LR
1	8	48	32.86	5.96
1	8	49	0.00	LR
1	8	50	8.55	8.24
1	8	51	1.57	1.57
1	8	52	15.47	15.73
1	8	53	0.00	LR
1	8	54	4.83	4.83
1	8	55	4.83	4.83
1	8	56	4.83	4.83
1	8	57	4.83	4.83
1	8	58	13.94	14.29
1	8	59	18.34	18.10
1	8	60	31.24	31.85
1	8	61	3.72	LR
1	8	62	17.96	18.35

H	K	L	F(OBS)	F(CALC)
5	9	1	12.80	12.06
5	9	0	14.42	14.17
5	9	2	9.74	11.16
5	9	4	52.18	53.29
5	9	6	0.00	LR
5	9	8	13.57	0.37
5	9	10	33.41	14.05
5	9	12	14.93	33.04
5	9	14	14.93	13.26
5	9	16	42.02	41.62
5	9	18	30.45	30.47
5	9	20	32.78	32.51
5	9	22	29.15	29.15
5	9	24	14.45	13.09
5	9	26	42.02	41.62
5	9	28	18.14	17.80
5	9	30	0.00	LR
5	9	32	19.59	18.46
5	9	34	25.68	26.40
5	9	36	1.87	LR
5	9	38	7.35	7.75
5	9	40	11.10	11.10
5	9	42	6.59	6.59
5	9	44	11.10	11.10
5	9	46	14.45	13.09
5	9	48	14.93	13.26
5	9	50	42.02	41.62
5	9	52	30.45	30.47
5	9	54	32.78	32.51
5	9	56	29.15	29.15
5	9	58	14.45	13.09
5	9	60	42.02	41.62
5	9	62	18.14	17.80
5	9	64	0.00	LR
5	9	66	19.59	18.46
5	9	68	25.68	26.40
5	9	70	1.87	LR
5	9	72	7.35	7.75
5	9	74	11.10	11.10
5	9	76	6.59	6.59
5	9	78	11.10	11.10
5	9	80	14.45	13.09
5	9	82	42.02	41.62
5	9	84	30.45	30.47
5	9	86	32.78	32.51
5	9	88	29.15	29.15
5	9	90	14.45	13.09
5	9	92	42.02	41.62
5	9	94	30.45	30.47
5	9	96	32.78	32.51
5	9	98	29.15	29.15
5	9	100	14.45	13.09

H	K	L	F(OBS)	F(CALC)
8	8	3	12.06	12.06
8	8	5	14.42	14.42
8	8	7	9.74	9.74
8	8	9	52.18	53.29
8	8	11	0.00	LR
8	8	13	13.57	0.37
8	8	15	33.41	14.05
8	8	17	14.93	33.04
8	8	19	14.93	13.26
8	8	21	42.02	41.62
8	8	23	30.45	30.47
8	8	25	32.78	32.51
8	8	27	29.15	29.15
8	8	29	14.45	13.09
8	8	31	42.02	41.62
8	8	33	30.45	30.47
8	8	35	32.78	32.51
8	8	37	29.15	29.15
8	8	39	14.45	13.09
8	8	41	42.02	41.62
8	8	43	30.45	30.47
8	8	45	32.78	32.51
8	8	47	29.15	29.15
8	8	49	14.45	13.09
8	8	51	42.02	41.62
8	8	53	30.45	30.47
8	8	55	32.78	32.51
8	8	57	29.15	29.15
8	8	59	14.45	13.09
8	8	61	42.02	41.62
8	8	63	30.45	30.47
8	8	65	32.78	32.51
8	8	67	29.15	29.15
8	8	69	14.45	13.09
8	8	71	42.02	41.62
8	8	73	30.45	30.47
8	8	75	32.78	32.51
8	8	77	29.15	29.15
8	8	79	14.45	13.09
8	8	81	42.02	41.62
8	8	83	30.45	30.47
8	8	85	32.78	32.51
8	8	87	29.15	29.15
8	8	89	14.45	13.09
8	8	91	42.02	41.62
8	8	93	30.45	30.47
8	8	95	32.78	32.51
8	8	97	29.15	29.15
8	8	99	14.45	13.09
8	8	101	42.02	41.62
8	8	103	30.45	30.47
8	8	105	32.78	32.51
8	8	107	29.15	29.15
8	8	109	14.45	13.09
8	8	111	42.02	41.62
8	8	113	30.45	30.47
8	8	115	32.78	32.51
8	8	117	29.15	29.15
8	8	119	14.45	13.09
8	8	121	42.02	41.62
8	8	123	30.45	30.47
8	8	125	32.78	32.51
8	8	127	29.15	29.15
8	8	129	14.45	13.09
8	8	131	42.02	41.62
8	8	133	30.45	30.47
8	8	135	32.78	32.51
8	8	137	29.15	29.15
8	8	139	14.45	13.09
8	8	141	42.02	41.62
8	8	143	30.45	30.47
8	8	145	32.78	32.51
8	8	147	29.15	29.15
8	8	149	14.45	13.09
8	8	151	42.02	41.62
8	8	153	30.45	30.47
8	8	155	32.78	32.51
8	8	157	29.15	29.15
8	8	159	14.45	13.09
8	8	161	42.02	41.62
8	8	163	30.45	30.47
8	8	165	32.78	32.51
8	8	167	29.15	29.15
8	8	169	14.45	13.09
8	8	171	42.02	41.62
8	8	173	30.45	30.47
8	8	175	32.78	32.51
8	8	177	29.15	29.15
8	8	179	14.45	13.09
8	8	181	42.02	41.62
8	8	183	30.45	30.47
8	8	185	32.78	32.51
8	8	187	29.15	29.15
8	8	189	14.45	13.09
8	8	191	42.02	41.62
8	8	193	30.45	30.47
8	8	195	32.78	32.51
8	8	197	29.15	29.15
8	8	199	14.45	13.09
8	8	201	42.02	41.62
8	8	203	30.45	30.47
8	8	205	32.78	32.51
8	8	207	29.15	29.15
8	8	209	14.45	13.09
8	8	211	42.02	41.62
8	8	213	30.45	30.47
8	8	215	32.78	32.51
8	8	217	29.15	29.15
8	8	219	14.45	13.09
8	8	221	42.02	41.62
8	8	223	30.45	30.47
8	8	225	32.78	32.51
8	8	227	29.15	29.15
8	8	229	14.45	13.09
8	8	231	42.02	41.62
8	8	233	30.45	30.47
8	8	235	32.78	32.51
8	8	237	29.15	29.15
8	8	239	14.45	13.09
8	8	241	42.02	41.62
8	8	243	30.45	30.47
8	8	245	32.78	32.51
8	8	247	29.15	29.15
8	8	249	14.45	13.09
8	8	251	42.02	41.62
8	8	253	30.45	30.47
8	8	255	32.78	32.51
8	8	257	29.15	29.15
8	8	259	14.45	13.09
8	8	261	42.02	41.62
8	8	263	30.45	30.47
8	8	265	32.78	32.51
8	8	267	29.15	29.15
8	8	269	14.45	13.09
8	8	271	42.02	41.62
8	8	273	30.45	30.47
8	8	275	32.78	32.51
8	8	277	29.15	29.15
8	8	279	14.45	13.09
8	8	281	42.02	41.62

OSUMILITE HAYASAKI (JAPAN) SAMPLE FROM D.WONES									
H	K	L	F(OBS)	F(CALC)	H	K	L	F(OBS)	F(CALC)
0	2	153.24	154.01	154.01	1	2	19	37.61	36.74
0	0	180.23	188.26	188.26	1	2	19	161.10	163.51
0	0	50.25	59.30	59.30	1	2	22	91.57	92.07
0	0	285.10	291.84	291.84	1	2	22	4	61.57
0	0	77.90	80.94	80.94	1	2	22	6	184.83
0	0	12	59.77	60.99	1	2	22	8	172.41
0	0	0	200.83	202.37	1	2	22	10	56.63
0	0	16	109.01	109.87	1	2	22	12	41.65
0	0	18	51.96	51.63	1	2	22	14	40.60
0	0	20	67.03	64.58	1	2	22	16	43.03
0	0	12	27.05	25.24	1	2	22	18	42.59
0	0	2	61.2	61.36	1	2	22	20	23.30
0	0	16	92.35	92.08	1	2	22	22	80.88
0	0	6	13.77	11.15	1	2	22	24	25.02
0	0	8	31.30	30.06	1	2	22	26	26.31
0	0	10	19.49	17.93	1	2	22	28	93.28
0	0	2	54.09	53.21	1	2	22	30	92.97
0	0	14	92.35	92.08	1	2	22	32	10.04
0	0	6	11.12	8.18	1	2	22	34	11.77
0	0	8	0.18	0.18	1	2	22	36	12.41
0	0	20	0.01	0.01	1	2	22	38	13.00
0	0	12	0.00	0.00	1	2	22	40	13.66
0	0	16	0.00	0.00	1	2	22	42	14.32
0	0	4	0.00	0.00	1	2	22	44	14.98
0	0	18	0.00	0.00	1	2	22	46	15.64
0	0	20	0.00	0.00	1	2	22	48	16.30
0	0	12	0.00	0.00	1	2	22	50	16.95
0	0	16	0.00	0.00	1	2	22	52	17.61
0	0	4	0.00	0.00	1	2	22	54	18.27
0	0	8	0.00	0.00	1	2	22	56	18.92
0	0	12	0.00	0.00	1	2	22	58	19.57
0	0	16	0.00	0.00	1	2	22	60	20.23
0	0	4	0.00	0.00	1	2	22	62	20.88

STRUCTURE FACTORS									
H	K	L	F(OBS)	F(CALC)	H	K	L	F(OBS)	F(CALC)
3	0	100.56	99.55	99.55	3	4	2	5.50	0.97
3	2	55.96	57.24	57.24	3	4	3	21.20	21.68
3	4	128.30	128.24	128.24	3	4	4	9.75	9.93
3	6	28.23	28.96	28.96	3	4	5	62.88	62.93
3	8	20.26	19.69	19.69	3	4	6	39.64	40.02
3	10	88.07	87.59	87.59	3	4	7	17.64	18.16
3	12	37.20	37.16	37.16	3	4	8	58.68	60.54
3	14	27.14	26.22	26.22	3	4	9	54.92	55.21
3	16	2.59	LR	5.67	3	4	10	11.13	10.66
3	18	49.61	48.89	48.89	3	4	11	23.06	24.02
3	20	23.00	16.61	16.61	3	4	12	4.63	5.94
3	22	16.16	15.61	15.61	3	4	13	3.40	4.04
3	24	59.83	56.43	56.43	3	4	14	2.49	2.78
3	26	32.81	33.91	33.91	3	4	15	4.46	4.71
3	28	40.92	40.40	40.40	3	4	16	13.40	12.62
3	30	35.33	35.25	35.25	3	4	17	10.00	11.65
3	32	32.81	33.98	33.98	3	4	18	10.89	11.68
3	34	40.92	40.40	40.40	3	4	19	85.96	85.14
3	36	35.33	35.25	35.25	3	4	20	161.15	165.32
3	38	32.81	33.98	33.98	3	4	21	0.00	1.68
3	40	35.33	35.25	35.25	3	4	22	37.93	38.24
3	42	32.81	33.98	33.98	3	4	23	150.18	147.07
3	44	35.33	35.25	35.25	3	4	24	130.22	130.04
3	46	32.81	33.98	33.98	3	4	25	35.42	34.97
3	48	35.33	35.25	35.25	3	4	26	1.68	1.68
3	50	32.81	33.98	33.98	3	4	27	14.71	14.71
3	52	35.33	35.25	35.25	3	4	28	1.68	1.68
3	54	32.81	33.98	33.98	3	4	29	14.71	14.71
3	56	35.33	35.25	35.25	3	4	30	1.68	1.68
3	58	32.81	33.98	33.98	3	4	31	1.68	1.68
3	60	35.33	35.25	35.25	3	4	32	1.68	1.68
3	62	32.81	33.98	33.98	3	4	33	1.68	1.68
3	64	35.33	35.25	35.25	3	4	34	1.68	1.68
3	66	32.81	33.98	33.98	3	4	35	1.68	1.68
3	68	35.33	35.25	35.25	3	4	36	1.68	1.68
3	70	32.81	33.98	33.98	3	4	37	1.68	1.68
3	72	35.33	35.25	35.25	3	4	38	1.68	1.68
3	74	32.81	33.98	33.98	3	4	39	1.68	1.68
3	76	35.33	35.25	35.25	3	4	40	1.68	1.68
3	78	32.81	33.98	33.98	3	4	41	1.68	1.68
3	80	35.33	35.25	35.25	3	4	42	1.68	1.68
3	82	32.81	33.98	33.98	3	4	43	1.68	1.68
3	84	35.33	35.25	35.25	3	4	44	1.68	1.68
3	86	32.81	33.98	33.98	3	4	45	1.68	1.68
3	88	35.33	35.25	35.25	3	4	46	1.68	1.68
3	90	32.81	33.98	33.98	3	4	47	1.68	1.68
3	92	35.33	35.25	35.25	3	4	48	1.68	1.68
3	94	32.81	33.98	33.98	3	4	49	1.68	1.68
3	96	35.33	35.25	35.25	3	4	50	1.68	1.68
3	98	32.81	33.98	33.98	3	4	51	1.68	1.68
3	100	35.33	35.25	35.25	3	4	52	1.68	1.68
3	102	32.81	33.98	33.98	3	4	53	1.68	1.68
3	104	35.33	35.25	35.25	3	4	54	1.68	1.68
3	106	32.81	33.98	33.98	3	4	55	1.68	1.68
3	108	35.33	35.25	35.25	3	4	56	1.68	1.68
3	110	32.81	33.98	33.98	3	4	57	1.68	1.68
3	112	35.33	35.25	35.25	3	4	58	1.68	1.68
3	114	32.81	33.98	33.98	3	4	59	1.68	1.68
3	116	35.33	35.25	35.25	3	4	60	1.68	1.68
3	118	32.81	33.98	33.98	3	4	61	1.68	1.68
3	120	35.33	35.25	35.25	3	4	62	1.68	1.68
3	122	32.81	33.98	33.98	3	4	63	1.68	1.68
3	124	35.33	35.25	35.25	3	4	64	1.68	1.68
3	126	32.81	33.98	33.98	3	4	65	1.68	1.68
3	128	35.33	35.25	35.25	3	4	66	1.68	1.68
3	130	32.81	33.98	33.98	3	4	67	1.68	1.68
3	132	35.33	35.25	35.25	3	4	68	1.68	1.68
3	134	32.81	33.98	33.98	3	4	69	1.68	1.68
3	136	35.33	35.25	35.25	3	4	70	1.68	1.68
3	138	32.81	33.98	33.98	3	4	71	1.68	1.68
3	140	35.33	35.25	35.25	3	4	72	1.68	1.68
3	142	32.81	33.98	33.98	3	4	73	1.68	1.68
3	144	35.33	35.25	35.25	3	4	74	1.68	1.68
3	146	32.81	33.98	33.98	3	4	75	1.68	1.68
3	148	35.33	35.25	35.25	3	4	76	1.68	1.68
3	150	32.81	33.98	33.98	3	4	77	1.68	1.68
3	152	35.33	35.25	35.25	3	4	78	1.68	1.68
3	154	32.81	33.98	33.98	3	4	79	1.68	1.68
3	156	35.33	35.25	35.25	3	4	80	1.68	1.68
3	158	32.81	33.98	33.98	3	4	81	1.68	1.68
3	160	35.33	35.25	35.25	3	4	82	1.68	1.68
3	162	32.81	33.98	33.98	3	4	83	1.68	1.68
3	164	35.33	35.25	35.25	3	4	84	1.68	1.68
3	166	32.81	33.98	33.98	3	4	85	1.68	1.68
3	168	35.33	35.25	35.25	3	4	86	1.68	1.68
3	170	32.81	33.98	33.98	3	4	87	1.68	1.68
3	172	35.33	35.25	35.25	3	4	88	1.68	1.68
3	174	32.81	33.98	33.98	3	4	89	1.68	1.68
3	176	35.33	35.25	35.25	3	4	90	1.68	1.68
3	178	32.81	33.98	33.98	3	4	91	1.68	1.68
3	180	35.33	35.25	35.25	3	4	92	1.68	1.68
3	182	32.81	33.98	33.98	3	4	93	1.68	1.68
3	18								



OSUMILITE HAYASAKI (JAPAN) SAMPLE FROM D.WONES

STRUCTURE FACTORS						PAGE 3		
H	K	L	F(OBS)	F(CALC)	H K L F(OBS)	H	K	L F(OBS)
0 0 8 10 12 14	32.63	53.62	27.40	52.16	52.16	7.45	LR	1.52
0 0 8 10 12 14	82.66	84.93	8.65	27.53	55.70	55.43	17.99	11.19
0 1 1 8 10 12 14	10.12	43.10	42.32	42.35	0.00	LR	0.11	18.39
0 1 1 8 10 12 14	13.02	24.05	23.55	6.80	8.14	8.32	14.94	13.57
0 1 1 8 10 12 14	14.64	15.01	6.06	6.00	7.27	2.07	5.84	10.08
0 1 1 8 10 12 14	14.64	15.01	6.06	23.15	13.13	14.13	51.31	52.68
0 1 1 8 10 12 14	49.77	49.26	6.00	0.00	0.00	6.00	6.00	2.10
0 1 1 8 10 12 14	61.98	61.88	0.00	0.00	17.02	16.24	13.64	13.99
0 1 1 8 10 12 14	13.02	12.96	0.00	0.00	24.24	24.91	0.00	32.15
0 1 1 8 10 12 14	7.60	6.06	0.00	0.00	23.15	22.32	0.00	32.15
0 1 1 8 10 12 14	7.05	LR	5.00	6.00	11.76	11.48	14.41	14.84
0 1 1 8 10 12 14	54.25	54.76	0.00	0.00	77.97	76.33	41.55	41.81
0 1 1 8 10 12 14	33.13	32.82	0.00	0.00	17.02	16.24	34.48	34.46
0 1 1 8 10 12 14	34.76	LR	5.40	0.00	24.24	24.91	0.00	33.25
0 1 1 8 10 12 14	26.81	27.47	1.90	1.90	45.25	45.30	11.10	34.37
0 1 1 8 10 12 14	25.48	26.51	1.90	1.90	8.27	LR	11.10	11.19
0 1 1 8 10 12 14	7.77	LR	9.59	11.17	11.17	11.48	11.10	11.19
0 1 1 8 10 12 14	37.63	37.74	1.90	1.90	12.05	11.31	0.00	0.00
0 1 1 8 10 12 14	13.52	12.96	1.90	1.90	8.44	LR	11.10	11.10
0 1 1 8 10 12 14	62.74	64.31	1.90	1.90	7.87	8.50	14.58	14.41
0 1 1 8 10 12 14	17.53	18.52	1.90	1.90	36.75	37.38	11.10	11.10
0 1 1 8 10 12 14	82.96	84.87	1.90	1.90	14.20	12.40	10.00	10.00
0 1 1 8 10 12 14	23.41	22.99	1.90	1.90	31.72	31.54	2.10	2.10
0 1 1 8 10 12 14	49.18	50.88	1.90	1.90	0.00	LR	1.10	1.10
0 1 1 8 10 12 14	9.86	7.34	1.90	1.90	5.64	LR	1.10	1.10
0 1 1 8 10 12 14	46.18	45.78	1.90	1.90	14.20	14.27	2.10	2.10
0 1 1 8 10 12 14	11.02	11.79	1.90	1.90	11.17	11.81	10.00	10.00
0 1 1 8 10 12 14	64.29	63.96	1.90	1.90	7.87	8.50	2.10	2.10
0 1 1 8 10 12 14	8.29	LR	7.62	2.20	3.00	LR	1.10	1.10
0 1 1 8 10 12 14	49.80	48.43	1.90	1.90	3.40	LR	7.67	7.67
0 1 1 8 10 12 14	19.71	19.20	1.90	1.90	19.30	17.93	2.10	2.10
0 1 1 8 10 12 14	17.75	LR	6.93	1.90	8.63	LR	1.10	1.10
0 1 1 8 10 12 14	36.99	37.32	2.20	2.20	21.96	21.96	5.00	5.00
0 1 1 8 10 12 14	27.80	29.26	2.20	2.20	0.00	LR	2.20	2.20
0 1 1 8 10 12 14	49.80	35.81	2.20	2.20	3.40	LR	8.44	8.44
0 1 1 8 10 12 14	35.18	35.81	2.20	2.20	27.24	27.54	3.10	3.10
0 1 1 8 10 12 14	34.35	35.17	2.20	2.20	0.00	LR	5.48	5.48
0 1 1 8 10 12 14	52.15	54.26	2.20	2.20	23.70	24.51	0.00	0.00
0 1 1 8 10 12 14	6.03	LR	6.11	2.20	5.32	LR	6.10	6.10
0 1 1 8 10 12 14	5.60	LR	8.09	2.20	10.69	11.05	3.10	3.10
0 1 1 8 10 12 14	0.00	LR	1.94	2.20	21.65	21.26	0.00	0.00
0 1 1 8 10 12 14	37.84	37.80	1.94	1.94	49.24	47.84	0.00	0.00
0 1 1 8 10 12 14	10.42	42.35	2.20	2.20	8.56	8.56	4.00	4.00
0 1 1 8 10 12 14	16.63	16.56	2.20	2.20	27.95	28.77	9.56	9.56
0 1 1 8 10 12 14	16.01	15.55	3.00	3.00	8.85	LR	9.24	9.24
0 1 1 8 10 12 14	15.51	LR	6.14	3.00	64.39	63.15	3.10	3.10
0 1 1 8 10 12 14	7.81	LR	8.25	3.00	37.27	36.35	1.10	1.10
0 1 1 8 10 12 14	14.81	15.08	2.20	2.20	7.97	LR	14.31	14.31
0 1 1 8 10 12 14	17.90	LR	6.30	3.00	38.64	38.74	2.10	2.10
0 1 1 8 10 12 14	29.80	30.12	3.00	3.00	48.04	47.21	2.10	2.10
0 1 1 8 10 12 14	6.25	LR	8.39	4.00	6.43	LR	1.37	1.37
0 1 1 8 10 12 14	16.04	16.41	4.00	4.00	9.84	LR	10.85	10.85
0 1 1 8 10 12 14	8.30	LR	6.28	4.00	11.02	11.43	0.00	0.00
0 1 1 8 10 12 14	0.00	LR	5.46	4.00	3.00	LR	17.13	17.13
0 1 1 8 10 12 14	14.50	14.41	4.00	4.00	8.47	LR	8.91	8.91
0 1 1 8 10 12 14	16.25	16.75	4.00	4.00	26.13	26.18	2.10	2.10
0 1 1 8 10 12 14	30.28	30.74	4.00	4.00	22.73	23.25	0.00	0.00
0 1 1 8 10 12 14	0.00	LR	4.02	4.00	39.96	40.97	4.80	4.80
0 1 1 8 10 12 14	21.39	21.46	4.00	4.00	0.00	LR	4.00	4.00
0 1 1 8 10 12 14	5.8	5.8	4.00	4.00	0.00	LR	0.00	0.00



STRUCTURE FACTORS						PAGE 2		
H	K	L	F(OBS)	F(CALC)	H K L F(OBS) F(CALC)	H K L F(OBS) F(CALC)		
2	5	8	29.05	26.96	46.67	4.6 8 45.59	2 7 9 0.00 LR	9.60
2	5	9	98.99	98.99	41.05	4.6 9 56.84	2 7 10 24.03	27.09
2	5	10	41.43	45.77	50.70	4.6 10 50.80	2 7 11 0.00 LR	0.67
2	5	11	45.92	43.67	4.80 LR	4.6 11 1.03	2 7 12 0.00 LR	3.18
2	5	12	24.03	22.28	1.38	4.6 12 13.00	2 7 13 13.50	16.52
2	5	13	30.49	31.15	4.45 LR	4.6 13 17.28	2 7 14 34.67	39.36
2	5	14	76.88	75.37	10.62	4.6 14 37.34	2 7 15 35.94	3.48
2	5	15	15.00	15.38	27.24	4.6 15 39.27	2 7 15 34.67	17.91
2	5	16	10.44	17.62	1.34 LR	4.6 16 40.94	2 7 16 40.94	43.43
2	2	17	28.46	26.43	1.75	4.6 17 7.50	2 7 17 5.58	15.74
2	2	18	0.00	18.42	1.76	4.6 18 9.19	2 7 18 14.45	32.51
2	2	19	27.60	26.89	1.77	4.6 19 6.17	2 7 19 8.23	25.75
2	2	20	23.52	23.42	1.77	4.6 20 6.17	2 7 20 18.54	19.43
2	2	21	52.60	53.57	1.77	4.6 21 6.17	2 7 21 20.62	8.85
2	2	22	2.17	23.85	1.77	4.6 22 6.17	2 7 22 9.47	3.46
2	3	23	22.31	22.31	1.77	4.6 23 6.17	2 7 23 12.17	16.63
2	3	24	0.00	1.39	1.77	4.6 24 6.17	2 7 24 13.29	LR
2	3	25	19.00	12.00	1.77	4.6 25 6.17	2 7 25 14.45	LR
2	3	26	17.21	15.00	1.77	4.6 26 6.17	2 7 26 9.24	LR
2	3	27	17.80	15.77	1.77	4.6 27 6.17	2 7 27 9.24	LR
2	3	28	2.00	1.45	1.77	4.6 28 6.17	2 7 28 9.24	LR
2	3	29	51.37	46.75	1.77	4.6 29 6.17	2 7 29 9.24	LR
2	3	30	22.31	15.84	1.77	4.6 30 6.17	2 7 30 9.24	LR
2	3	31	0.00	1.12	1.77	4.6 31 6.17	2 7 31 9.24	LR
2	3	32	19.69	19.98	1.77	4.6 32 6.17	2 7 32 9.24	LR
2	3	33	34.56	33.24	1.77	4.6 33 6.17	2 7 33 9.24	LR
2	3	34	26.87	26.59	1.77	4.6 34 6.17	2 7 34 9.24	LR
2	3	35	22.48	20.89	1.77	4.6 35 6.17	2 7 35 9.24	LR
2	3	36	7.86	6.22	1.77	4.6 36 6.17	2 7 36 9.24	LR
2	3	37	8.89	7.90	1.77	4.6 37 6.17	2 7 37 9.24	LR
2	4	38	59.37	54.57	1.77	4.6 38 6.17	2 7 38 9.24	LR
2	4	39	59.59	15.75	1.77	4.6 39 6.17	2 7 39 9.24	LR
2	4	40	20.09	15.06	1.77	4.6 40 6.17	2 7 40 9.24	LR
2	4	41	4.51	4.51	1.77	4.6 41 6.17	2 7 41 9.24	LR
2	4	42	6.59	1.20	1.77	4.6 42 6.17	2 7 42 9.24	LR
2	4	43	20.09	15.06	1.77	4.6 43 6.17	2 7 43 9.24	LR
2	4	44	4.51	4.51	1.77	4.6 44 6.17	2 7 44 9.24	LR
2	4	45	9.89	9.58	1.77	4.6 45 6.17	2 7 45 9.24	LR
2	4	46	54.93	52.15	1.77	4.6 46 6.17	2 7 46 9.24	LR
2	4	47	11.20	11.27	1.77	4.6 47 6.17	2 7 47 9.24	LR
2	4	48	10.24	10.24	1.77	4.6 48 6.17	2 7 48 9.24	LR
2	4	49	22.22	24.44	1.77	4.6 49 6.17	2 7 49 9.24	LR
2	4	50	6.78	57.75	1.77	4.6 50 6.17	2 7 50 9.24	LR
2	4	51	16.32	23.63	1.77	4.6 51 6.17	2 7 51 9.24	LR
2	4	52	24.17	24.04	1.77	4.6 52 6.17	2 7 52 9.24	LR
2	4	53	0.00	1.82	1.77	4.6 53 6.17	2 7 53 9.24	LR
2	4	54	29.74	27.76	1.77	4.6 54 6.17	2 7 54 9.24	LR
2	4	55	4.513	4.513	1.77	4.6 55 6.17	2 7 55 9.24	LR
2	5	56	6.78	5.82	1.77	4.6 56 6.17	2 7 56 9.24	LR
2	5	57	22.22	22.22	1.77	4.6 57 6.17	2 7 57 9.24	LR
2	5	58	9.09	8.09	1.77	4.6 58 6.17	2 7 58 9.24	LR
2	5	59	40.00	40.00	1.77	4.6 59 6.17	2 7 59 9.24	LR
2	5	60	27.08	25.69	1.77	4.6 60 6.17	2 7 60 9.24	LR
2	5	61	4.51	4.51	1.77	4.6 61 6.17	2 7 61 9.24	LR
2	5	62	46.57	48.57	1.77	4.6 62 6.17	2 7 62 9.24	LR
2	5	63	34.43	33.90	1.77	4.6 63 6.17	2 7 63 9.24	LR
2	5	64	12.05	12.05	1.77	4.6 64 6.17	2 7 64 9.24	LR
2	5	65	45.04	41.97	1.77	4.6 65 6.17	2 7 65 9.24	LR
2	5	66	38.37	35.58	1.77	4.6 66 6.17	2 7 66 9.24	LR
2	5	67	0.00	143.42	1.77	4.6 67 6.17	2 7 67 9.24	145.76
2	5	68	137.00	136.71	1.77	4.6 68 6.17	2 7 68 9.24	145.76
2	6	69	21.09	24.85	1.77	4.6 69 6.17	2 7 69 9.24	145.76
2	6	70	100.10	94.55	1.77	4.6 70 6.17	2 7 70 9.24	145.76
2	6	71	87.03	85.29	1.77	4.6 71 6.17	2 7 71 9.24	145.76
2	6	72	46.06	47.70	1.77	4.6 72 6.17	2 7 72 9.24	145.76
2	6	73	6.14	6.14	1.77	4.6 73 6.17	2 7 73 9.24	145.76
2	6	74	35.88	35.88	1.77	4.6 74 6.17	2 7 74 9.24	145.76



Table 4. Fractional atomic coordinates, displacement parameters, and site occupancies (P).

	Antarctica	Norway	Eifel B93	Eifel Nick.	Japan Shimizu	Japan Hayasaki	Sardinia	Oregon
C	P(K) 0.91(1)	0.90(1)	0.48(1)	0.69(1)	0.74(1)	0.76(1)	0.75(1)	0.69(1)
x	0	0	0	0	0	0	0	0
y	0	0	0	0	0	0	0	0
z	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4
B <sub>eq.</sub>	2.37(3)	2.59(9)	2.50(9)	2.69(4)	2.78(2)	2.80(3)	2.89(4)	2.68(3)
U <sub>11</sub>	0.0255(7)	0.029(3)	0.029(3)	0.030(1)	0.0307(8)	0.031(1)	0.032(1)	0.030(1)
U <sub>22</sub>	0.0255	0.029	0.029	0.030	0.0307	0.031	0.032	0.030
U <sub>33</sub>	0.031(1)	0.031(4)	0.028(4)	0.033(2)	0.034(1)	0.034(1)	0.035(2)	0.032(1)
U <sub>12</sub>	0.0127	0.014	0.014	0.015	0.015	0.016	0.016	0.016
A	P(Fe) 0.01(1)	0.16(2)	0.67(1)	0.01(1)	0.56(1)	0.58(1)	0.41(1)	0.51(1)
x	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3
y	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3
z	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4
B <sub>eq.</sub>	0.61(2)	0.67(5)	0.69(2)	0.58(2)	0.699(7)	0.66(1)	0.66(1)	0.734(8)
U <sub>11</sub>	0.0054(6)	0.007(1)	0.0068(5)	0.0053(6)	0.0072(2)	0.0066(3)	0.0068(3)	0.0073(3)
U <sub>22</sub>	0.0054	0.007	0.0068	0.0053	0.0072	0.0066	0.0068	0.0073
U <sub>33</sub>	0.0107(8)	0.009(2)	0.0105(7)	0.0098(8)	0.0099(3)	0.0097(4)	0.0090(5)	0.0100(3)
U <sub>12</sub>	0.0027	0.0035	0.0034	0.0027	0.0036	0.0033	0.0034	0.0038
T1 Si, Al								
x	0.24821(6)	0.2501(2)	0.2466(1)	0.24734(6)	0.24750(4)	0.24738(6)	0.24725(7)	0.24775(6)
y	0.35359(6)	0.3554(2)	0.3538(1)	0.35333(7)	0.35074(5)	0.35055(6)	0.35136(7)	0.35119(6)
z	0.39206(4)	0.3921(1)	0.39217(5)	0.39204(4)	0.39191(3)	0.39187(4)	0.39189(4)	0.39208(3)
B <sub>eq.</sub>	0.756(9)	0.72(2)	1.03(1)	0.813(9)	0.769(8)	0.758(9)	0.80(1)	0.859(9)
U <sub>11</sub>	0.0086(3)	0.0084(8)	0.0113(5)	0.0094(3)	0.0088(2)	0.088(3)	0.0093(3)	0.0099(3)
U <sub>22</sub>	0.0099(3)	0.0100(8)	0.0137(5)	0.0107(3)	0.0105(2)	0.0105(3)	0.0115(3)	0.0118(3)
U <sub>33</sub>	0.0077(3)	0.0058(6)	0.0100(3)	0.0080(3)	0.0068(2)	0.0069(2)	0.0068(3)	0.0077(2)
U <sub>12</sub>	0.0055(2)	0.0046(6)	0.0063(4)	0.0060(2)	0.0055(2)	0.0056(2)	0.0060(2)	0.0062(2)
U <sub>13</sub>	0.0015(2)	0.0010(6)	0.0018(4)	0.0016(2)	0.0013(1)	0.0014(2)	0.0014(2)	0.0012(2)
U <sub>23</sub>	0.0017(2)	0.0010(6)	0.0006(5)	0.0017(2)	0.0013(1)	0.0014(2)	0.0015(2)	0.0011(2)
T2 P(Fe) 0.01(1)	0.03(1)	0.08(1)	0.08(1)	0.06(1)	0.07(1)	0.06(1)	0.06(1)	0.06(1)
x	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
y	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
z	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4
B <sub>eq.</sub>	0.70(1)	0.75(4)	1.91(3)	1.15(1)	0.753(8)	0.77(1)	0.82(1)	0.99(1)
U <sub>11</sub>	0.0091(5)	0.010(1)	0.029(1)	0.0163(5)	0.0102(3)	0.0105(5)	0.0116(4)	0.0139(4)
U <sub>22</sub>	0.0091	0.010	0.029	0.0163	0.0102	0.0105	0.0116	0.0139
U <sub>33</sub>	0.0068(5)	0.006(1)	0.0117(8)	0.0091(5)	0.0063(3)	0.0069(5)	0.0061(5)	0.0079(4)
U <sub>12</sub>	0.0072(5)	0.007(1)	0.026(1)	0.0137(5)	0.0073(5)	0.0080(4)	0.0089(5)	0.0107(4)
I1								
x	0.12229(3)	0.1238(8)	0.1252(4)	0.1237(3)	0.1198(2)	0.1198(3)	0.1207(3)	0.1204(3)
y	0.4079(3)	0.4090(7)	0.4085(4)	0.4071(3)	0.4044(2)	0.4041(3)	0.4049(3)	0.4061(3)
z	0	0	0	0	0	0	0	0
B <sub>eq.</sub>	1.63(4)	1.6(1)	1.86(6)	1.71(4)	1.75(3)	1.66(4)	1.69(5)	1.74(4)
U <sub>11</sub>	0.026(1)	0.025(4)	0.026(2)	0.027(1)	0.0278(9)	0.027(1)	0.027(1)	0.026(1)
U <sub>22</sub>	0.020(1)	0.017(3)	0.024(2)	0.022(1)	0.0214(9)	0.019(1)	0.021(1)	0.023(1)
U <sub>33</sub>	0.0072(9)	0.009(2)	0.010(1)	0.0079(9)	0.0086(6)	0.0080(9)	0.007(1)	0.0081(8)
U <sub>12</sub>	0.011(1)	0.004(3)	0.010(2)	0.012(1)	0.0118(7)	0.010(1)	0.010(1)	0.012(1)
2								
x	0.2166(2)	0.2196(6)	0.2208(4)	0.2176(2)	0.2145(2)	0.2144(2)	0.2152(2)	0.2159(2)
y	0.2847(2)	0.2911(6)	0.2878(3)	0.2851(2)	0.2833(2)	0.2830(2)	0.2833(2)	0.2851(2)
z	0.1320(1)	0.1327(3)	0.1323(2)	0.1318(1)	0.13159(9)	0.1319(1)	0.1316(1)	0.1313(1)
B <sub>eq.</sub>	2.35(3)	2.5(1)	2.69(5)	2.34(3)	2.28(2)	2.30(3)	2.33(4)	2.31(3)
U <sub>11</sub>	0.028(1)	0.029(3)	0.032(2)	0.027(1)	0.0261(7)	0.025(1)	0.027(1)	0.026(9)
U <sub>22</sub>	0.035(1)	0.043(3)	0.036(2)	0.033(1)	0.0336(7)	0.035(1)	0.035(2)	0.034(1)
U <sub>33</sub>	0.0228(9)	0.021(2)	0.029(1)	0.0245(9)	0.0228(6)	0.0233(9)	0.0223(9)	0.0236(8)
U <sub>12</sub>	0.0244(9)	0.030(3)	0.027(1)	0.0238(9)	0.0233(6)	0.0239(9)	0.0241(1)	0.0232(8)
U <sub>13</sub>	-0.0017(8)	-0.005(2)	0.006(1)	-0.0001(8)	-0.0011(5)	-0.0011(7)	-0.0015(8)	-0.0004(7)
U <sub>23</sub>	-0.0048(8)	-0.004(2)	0.001(1)	-0.0025(8)	-0.0036(6)	-0.0036(7)	-0.0035(8)	-0.0018(7)
3								
x	0.1398(2)	0.1383(5)	0.1416(3)	0.1410(2)	0.1373(1)	0.1371(2)	0.1383(2)	0.1375(2)
y	0.4934(2)	0.4936(5)	0.4949(3)	0.4937(2)	0.4904(1)	0.4905(2)	0.4913(2)	0.4909(2)
z	0.1790(1)	0.1789(3)	0.1790(1)	0.1787(1)	0.17887(8)	0.1789(1)	0.1787(1)	0.17918(9)
B <sub>eq.</sub>	1.18(2)	1.25(6)	1.68(4)	1.27(2)	1.32(2)	1.30(2)	1.34(3)	1.34(2)
U <sub>11</sub>	0.0138(7)	0.016(2)	0.022(1)	0.0153(7)	0.0164(5)	0.0159(7)	0.0163(8)	0.0160(7)
U <sub>22</sub>	0.0155(7)	0.016(2)	0.023(1)	0.0169(7)	0.0176(5)	0.0167(7)	0.0177(8)	0.0184(7)
U <sub>33</sub>	0.0117(7)	0.012(2)	0.0140(8)	0.0120(7)	0.0120(5)	0.0123(7)	0.0124(7)	0.0122(6)
U <sub>12</sub>	0.0087(6)	0.010(2)	0.015(1)	0.0102(6)	0.0106(4)	0.0098(6)	0.0102(7)	0.0105(6)
U <sub>13</sub>	-0.0037(6)	-0.003(2)	-0.002(1)	-0.0036(6)	-0.0028(4)	-0.0030(6)	-0.0034(7)	-0.0020(5)
U <sub>23</sub>	-0.0049(6)	-0.005(2)	-0.002(1)	-0.0048(6)	-0.0049(4)	-0.0048(6)	-0.0054(8)	-0.0041(5)

Note: Standard deviations are in parentheses. The displacement parameters are of the form:  
 $\exp(-2\pi^2(U_{11}h^2 + U_{22}k^2 + U_{33}l^2 + 2U_{12}hk + 2U_{13}hl + 2U_{23}kl))$

Table 5. Selected interatomic distances and angles

	Antarctica	Norway	Eifel B93	Eifel Nk.	Japan Shi.	Japan Hay.	Sardinia	Oregon
C-01 (12x)	3.099(2)	3.141(8)	3.120(4)	3.100(3)	3.099(2)	3.096(2)	3.097(3)	3.115(2)
<b>A (Mg,Fe,Al) octahedron</b>								
A-03 (6x)	2.118(2)	2.128(5)	2.100(3)	2.110(2)	2.151(2)	2.154(2)	2.142(2)	2.145(2)
03-03(3x)	2.553(3)	2.544(8)	2.542(5)	2.560(3)	2.579(2)	2.577(3)	2.577(3)	2.568(3)
03-03(3x)	2.964(3)	2.991(9)	2.945(5)	2.951(3)	2.987(2)	2.992(3)	2.980(4)	2.982(3)
03-03(6x)	3.219(2)	3.238(7)	3.185(4)	3.200(2)	3.285(2)	3.288(2)	3.262(4)	3.277(3)
<b>T1 (Si,Al) tetrahedron</b>								
T1-01	1.6197(7)	1.616(2)	1.617(1)	1.6171(9)	1.6185(7)	1.6182(9)	1.618(1)	1.6208(8)
T1-02	1.625(4)	1.622(12)	1.622(7)	1.620(4)	1.621(3)	1.624(4)	1.622(4)	1.620(4)
T1-02	1.635(3)	1.658(8)	1.626(4)	1.628(3)	1.630(2)	1.629(3)	1.628(3)	1.630(3)
T1-03	1.630(2)	1.621(4)	1.638(4)	1.627(2)	1.632(1)	1.635(2)	1.629(2)	1.636(2)
01-T1-02	111.4(2)	110.9(6)	111.3(3)	111.1(2)	111.3(1)	111.3(2)	111.2(2)	111.3(2)
01-T1-03	111.3(1)	111.7(3)	111.0(2)	111.3(2)	110.9(1)	110.9(1)	111.0(1)	110.9(1)
01-T1-02	112.1(2)	112.2(5)	112.2(3)	111.9(2)	111.6(2)	111.9(1)	111.6(3)	111.7(2)
02-T1-03	110.1(1)	109.1(4)	109.5(2)	110.1(1)	110.4(1)	110.4(1)	110.5(1)	110.0(1)
02-T1-02	105.6(1)	108.1(3)	107.9(2)	106.3(1)	106.0(1)	105.9(1)	105.9(1)	106.9(1)
03-T1-02	105.9(1)	104.6(4)	104.7(2)	106.0(1)	106.3(1)	106.2(4)	106.3(2)	105.8(1)
<b>T2 (Al,Mg,Fe) tetrahedron</b>								
T2-03 (4x)	1.767(3)	1.756(9)	1.772(5)	1.775(3)	1.766(2)	1.764(3)	1.769(3)	1.762(3)
03-03 (2x)	2.553(3)	2.544(8)	2.542(5)	2.560(3)	2.579(2)	2.577(3)	2.577(3)	2.568(3)
03-03 (2x)	2.889(3)	2.862(8)	2.905(5)	2.906(3)	2.888(2)	2.885(3)	2.893(3)	2.884(3)
03-03 (2x)	3.178(2)	3.162(6)	3.198(3)	3.195(2)	3.155(2)	3.153(2)	3.168(2)	3.152(2)
03-T2-03(2x)	92.5(1)	92.8(3)	91.6(2)	92.3(1)	93.81(7)	93.8(1)	93.5(1)	93.5(1)
03-T2-03(2x)	109.7(1)	109.2(3)	110.1(2)	109.9(1)	109.75(8)	109.7(1)	109.7(1)	109.8(1)
03-T2-03(2x)	128.2(1)	128.5(2)	128.9(1)	128.33(7)	126.56(4)	126.63(7)	127.08(7)	126.80(6)
T1-01-T1	145.2(2)	145.7(5)	145.0(3)	145.6(2)	145.3(1)	145.3(2)	145.5(2)	144.5(1)
T1-02-T1	153.3(1)	153.8(3)	153.8(2)	153.8(1)	154.0(1)	153.7(1)	153.9(1)	154.4(1)
T1-03-T2	124.3(1)	124.8(2)	123.9(1)	124.0(1)	125.05(6)	125.07(8)	124.8(1)	125.0(2)

Note: standard deviations are in parentheses.