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APPENDIX

Appendix I

JCPDS-Diffraction Data

04-0802 — Wavelength= 1.54056

Pt

Platinum

Platinum, syn

Rad.: CuKa1 λ: 1.5405 Filter: Ni Beta□M d-sp:

Cut off: Int.: Diffract. I/Icor.:

Ref: Swanson, Tatge, Natl. Bur. Stand. (U.S.), Circ. 539, I, 31 953)

Sys.: Cubic S.G.: Fm3m (225)

a: 3.9231 b: c: A: C:

α: β: γ: Z: 4 mp:

Ref: Ibid.

Dx: 21.461 Dm: 21.370 SS/FOM F=143(.0070, 9)

Color: Light gray metallic
Pattern taken at 26 C. CAS #: 7440-06-4. Sample prepared at NBS, Gaithersburg, MD, USA, and estimated to be more than 99.99% pure. Opaque mineral optical data on specimen from unspecified locality: RR2Re=70.3, Disp.=16, VHN50=122-129, Color values=.318, .324, 70.7, Ref.: IMA Commission on Ore Microscopy QDF. Cu type. Gold group, gold subgroup. PSC: cF4. Mwt: 195.09. Volume[CD]: 60.38.

2θ	Int	h	k	l
39.763	100	1	1	1
46.243	53	2	0	0
67.454	31	2	2	0
81.286	33	3	1	1
85.712	12	2	2	2
103.508	6	4	0	0
117.711	22	3	3	1
122.807	20	4	2	0
148.262	29	4	2	2

33-0784 — Wavelength= 1.5418

Pb(Zr0.52Ti0.48)O3

Lead Zirconium Titanium Oxide

Rad.: CuKa λ: 1.5418 Filter: Ni Beta□M d-sp: Diffractometer

Cut off: Int.: Diffract. I/Icor.:

Ref: Kakegawa, K. et al., Solid State Commun., 24, 769 (1977)

Sys.: Tetragonal S.G.:

a: 4.036 b: c: 4.146 A: C: 1.0273

α: β: γ: Z: 1 mp:

Ref: Ibid.

Dx: 8.006 Dm: SS/FOM3(C)=15(.060, 34)

Color: Light yellow
No composition fluctuation. Silicon used as an internal stand. Mwt: 325.62. Volume[CD]: 67.54.

2θ	Int	h	k	l
21.432*	9	0	0	1
22.023	12	1	0	0
30.942	100	1	0	1
31.387	100	1	1	0
38.283	15	1	1	1
43.663*	9	0	0	2
44.917	16	2	0	0
49.424*	5	1	0	2
50.417*	6	2	0	1
50.417*	6	2	1	0
53.390*	5			
54.734	12	1	1	2
55.524	24	2	1	1
64.434*	9	0	2	2
65.398*	5	2	2	0
67.810*	2	0	0	3
69.002*	6	2	1	2
69.645*	6	2	2	1
69.645*	6	3	0	0
72.225*	6	1	0	3
74.065*	9	3	0	1
74.065*	9	3	1	0
76.588*	2	1	1	3

26-0142 Wavelength= 1.54056

Pb2Ti2O6

Lead Titanium Oxide

Rad.: λ: Filter: d-sp:

Cut off: Int.: Diffract. I/Icor.:

Ref: Martin, Phys. Chem. Glasses, 6, 143 (1965)

Sys.: Cubic S.G.: Fd3m (227)

a: 10.40 b: c: A: C:

α: β: γ: Z: 8 mp:

Ref: Ibid., Phys. Chem. Glasses

Dx: 7.159 Dm: SS/FOM$_{17}$=9(.087, 17)

Color: Yellow
Metastable modification. Pyrochlore type, oxygen deficient.
PSC: cF80. To replace 20-601. Mwt: 606.20. Volume[CD]: 1124.86.

2θ	Int	h	k	l
14.605‘	25	1	1	1
28.309‘	50	3	1	1
29.554	100	2	2	2
34.330‘	55	4	0	0
37.603‘	40	3	3	1
45.162‘	20	5	1	1
49.496‘	55	4	4	0
51.973‘	20	5	3	1
58.033*	8	5	3	3
58.763‘	45	6	2	2
61.752‘	14	4	4	4
63.832*	6	5	5	1
69.229*	8	7	3	1

Appendix II

The energy of the K, L and M lines of the elements.

Element	Atomic number (Z)	$K\alpha_1$	$K\alpha_2$	$K\beta_1$	$K\beta_2$	$L\beta_2$	$L\alpha_1$	$L\beta_1$	$L\gamma_1$	$M\alpha_1$	$M\beta_2$
Pb	82	74.96	72.79	84.92	87.3	12.6	12.6	12.61	14.76	2.35	2.44
Zr	40	15.77	15.69	17.67	18	2.22	2.04	2.12	2.3		
Ti	22	4.51	4.5	4.93			0.45	0.46			
O	8	0.52	0.53								
Pt	78	66.82	65.11	75.74	77.9	11.3	9.44	11.07	12.94	2.05	2.13
Si	14	1.74	1.74								
C	6	0.28	0.28								

BIOGRAPHY

Miss Nuntaporn Kongkajun was born on March 26, 1975 in Bangkok. She obtained a Bachelor of Science degree with a second class honours in Materials Science in 1997 from Chulalongkorn University. She was granted a scholarship from National Science and Technology Development Agency (NSTDA) to further her education at Chulalongkorn University in ceramic technology.