

APPENDIX : analytical conditions for chevkinite				
Element	Line	Crystal	Standard	Approx. detection limit (wt.%)
Al	K $\alpha$	TAP	orthoclase	0.008
Ba	L $\alpha$	LiF	barite	0.114
Ca	K $\alpha$	PET	CaSiO <sub>3</sub>	0.008
Ce	K $\alpha$	PET	CeP <sub>5</sub> O <sub>14</sub>	0.053
Dy	L $\beta$	LiF	REE1	0.312
Eu	L $\beta$	LiF	REE2	0.263
Fe	K $\alpha$	LiF	hematite	0.034
Gd	L $\beta$	LiF	GdP <sub>5</sub> O <sub>14</sub>	0.126
Hf	M $\alpha$	TAP	Hf-SPI	0.033
La	L $\alpha$	PET	LaB <sub>6</sub>	0.052
Mg	K $\alpha$	TAP	diopside	0.006
Mn	K $\alpha$	LiF	rhodonite	0.036
Na	K $\alpha$	TAP	albite	0.012
Nb	L $\alpha$	PET	Nb metal	0.054
Nd	L $\beta$	LiF	NdP <sub>5</sub> O <sub>14</sub>	0.121
P	K $\alpha$	PET	Apatite Jap2	0.014
Pr	L $\beta$	LiF	PrP <sub>5</sub> O <sub>14</sub>	0.119
Sc	K $\alpha$	PET	Sc metal	0.010
Si	K $\alpha$	TAP	CaSiO <sub>3</sub>	0.006
Sm	L $\beta$	LiF	SmP <sub>5</sub> O <sub>14</sub>	
Sr	L $\alpha$	TAP	SrTiO <sub>3</sub>	0.027
Ta	M $\alpha$	TAP	Ta metal	0.036
Tb	L $\alpha$	LiF	REE4	0.144
Th	M $\alpha$	PET	ThO <sub>2</sub> synthetic	0.086
Ti	K $\alpha$	PET	rutile	0.016
U	M $\beta$	PET	vorlanite	0.077
Y	L $\alpha$	TAP	Y <sub>3</sub> Al <sub>5</sub> O <sub>12</sub>	0.028
Yb	L $\alpha$	LiF	REE3	0.136
Zr	L $\alpha$	PET	Zircon ED2	0.051

REE1 to 4: glasses with REE (Jaresowich, E. and Boatner, L. (1991) Rare-earth element reference samples for electron microprobe analysis. *Geostandards Newsletter*, **15**, 397-399.