

Supplementary Table T5. Mineral hardness & cleavage (data from Okrusch and Matthes, 2009).

Mineral	Composition	Hardness	Cleavage
Xenotime	YPO₄	4.5	2 perfect
Monazite	(REE, Th)PO₄	5 -5.5	2 good/poor
Sphene	CaTiSiO₅	5 -5.5	2 poor
Ilmenite	FeTiO₃	5-6	none
Magnetite	Fe₂O₄	5.5-6.5	none
Columbite	Fe₂Nb₂O₆	6	1
Rutile	TiO₂	6-6.5	1
Cassiterite	SnO₂	6-7	2 good
Quartz	SiO₂	7	none
Zircon	ZrSiO₄	7.5	none