

### THE DUMBBELL, LAYERED INTERNAL SCHLIEREN TEKTITE FROM CHINA

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**Introduction:** One of us (Norm Lerhman) was examining large bags of tektites from Guang Dong Province, China, and noticed one dumbbell shaped body in particular, measuring 68x26x22 mm and weighing 44g. This specimen showed obvious layering similar to Muong Nong-type tektites, but which is unusual for a splash form tektite.

**Results and Discussion:** This tektite was oriented while entering the Earth's atmosphere, with a bald spot on the anterior end. The specimen must have shifted during entry because there is a second bald spot separated from the first by a sharp dividing ridge. This splash form tektite came from the northwestern part of the Australasian strewn field. Splash form tektites are supposedly noted for being compositionally homogeneous across the entire strewn field [1]. However, while bulk analyses of these have been widely published there are very few published analyses of the compositional heterogeneity within individual splash form tektites. A thin section of this new tektite clearly shows significant layering at the optical scale, and EPMA analyses (by a JEOL SX100 at JSC) reveal surprising compositional heterogeneity (Table 1).

**Conclusions:** While it is tempting to conclude that this tektite is unusually heterogeneous for a splash form body there are in fact too few previous analyses at the sub-cm scale to support this speculation. We can conclude that knowledge of the fine-scale compositional heterogeneity of tektites is required to fully understand their genesis.



Figure 1. The dumbbell tektite, showing obvious layering due to differential dissolution of glass layers. Tektite is 68 mm long.

Table 1: Selected EPMA analyses of the tektite

	Na2O	SO2	P2O5	K2O	MgO	Al2O3	SiO2	CaO	TiO2	FeO	Cr2O3	MnO	NiO	Total
High Fe	1.05	0.01	0.01	2.13	2.27	13.81	71.73	2.21	0.80	4.95	0.02	0.10	0.01	99.10
Low Fe	0.92	0.00	0.01	2.30	1.61	11.19	77.11	1.68	0.74	3.67	0.01	0.09	0.00	99.33
High Ca	1.04	0.02	0.00	2.20	2.19	13.53	72.27	2.33	0.89	4.65	0.00	0.09	0.00	99.21
Low Ca	0.90	0.00	0.04	2.28	1.67	10.90	77.19	1.58	0.77	3.75	0.00	0.08	0.01	99.16

**References:** [1] McCall J. (2001) *Tektites in the Geological Record*. The Geological Society, London, UK, 256p.