Table 1
Deviations, in parts in 10^4, from the standard compositions of terrestrial Ti normalized to $^{46}Ti/^{48}Ti$. Ti concentration in ppm, except where percent is marked.

Sample [class]	Weight [mg]	Ti conc.	Normalized to $^{46}Ti/^{48}Ti$		
			$\epsilon 47$	$\epsilon 49$	$\epsilon 50$
Coolidge [CV4]	93	792	$0.1 \pm .05$	-0.4 ± 0.8	3.6 ± 0.7
Kainsaz [CO3]	103	—	0.9 ± 0.6	0.3 ± 0.8	4.9 ± 0.9
Ornans [CO3]	99	661	0.4 ± 0.8	0.5 ± 0.9	5.6 ± 1.2
Parnallee [LL3]	97	564	0.5 ± 0.6	-0.2 ± 0.9	0.8 ± 0.8
Parsa [E4]	103	407	0.9 ± 0.9	-0.4 ± 0.9	0.6 ± 1.2
Shergotty [Sh]	49	0.43%	0.6 ± 0.4	0.2 ± 0.5	0.8 ± 0.8

AN ANNEALING STUDY OF DHAJALA, AN H3.8 CHONDRITE, AND APPLICATION TO THE PALAEOTHERMOMETRY OF METEORITES

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The thermoluminescence emission characteristics of a meteorite are strongly dependent on the metamorphism it has suffered (Sears and Weeks, 1983). When the temperature of the maximum emission (peak temperature) is plotted against the width of the peak at half maximum emission (Fig. 1), two clusters are produced and it is possible to move a meteorite normally plotting in the lower cluster into the higher by annealing above 700°C (Guimon *et al.*, 1984). Similar behavior is displayed by terrestrial albite in which these changes were associated with the order-disorder transformation (Pasternak, 1978). Individual chondrules also plot in two clusters, bright chondrules have TL curves with narrow peaks at 100°C and dull chondrules produce TL curves with broad peaks at 200°C (Sears *et al.*, 1984).

In the present work we annealed Dhajala, a meteorite which naturally plots in the lower right hand corner of the high temperature cluster, to determine the effect of annealing above the transformation temperature. The meteorite was annealed for 10 hours at various temperatures in nitrogen at atmospheric pressure. The peak temperature increased steadily while the peak width increased abruptly after the annealing treatments so that the annealed samples moved to the upper right extreme of the high temperature cluster. We conclude that a lower temperature component of the Dhajala phosphor still makes a significant contribution even though this meteorite plots in the high temperature cluster. We suggest that Dhajala cooled sufficiently slowly for some crystallization to occur below the transformation temperature and that the low temperature component is located in the bright chondrules which are also higher in Ca and were probably able to equilibrate to lower temperatures than the dull chondrules.