

THERMOLUMINESCENCE OF THE EUCRITE ASSOCIATION METEORITES; J. David Batchelor and Derek W. G. Sears, Cosmochemistry Group, Department of Chemistry and Biochemistry, University of Arkansas, Fayetteville, AR 72701 USA.

The meteorites of the eucrite-association present perhaps the most complete glimpse available of planetesimal structure and thermal history, as all seem to be derived from the eucrite parent body (EPB). Thermoluminescence (TL) peak shape parameters are sensitive to the thermal history of feldspathic rock (Guimon *et al.*, 1985) and show promise of further aiding our understanding of this parent body.

Preliminary results of TL studies of eight eucrite-association meteorites are reported below. TL sensitivity trends are consistent with feldspar being the dominant phosphor. The eucrites display the highest sensitivity, the diogenites, the lowest, and the howardites lie between the two. The TL sensitivity of the howardites should prove a ready measure of the amount of eucritic material present. From previous work (Guimon *et al.*, 1985), we know that peak temperatures of 140 C and 220 C correspond to low form and high form feldspar, respectively. Peak temperatures for the eucrites show one sample of each, while the peaks of diogenites are too small to make accurate structural assessments from. All the howardites show a low form peak, although Bholghati also shows a high form peak, indicating either clasts of different thermal histories or intermediate material. The mesosiderites show low form peaks, consistent with a long period of annealing below 500 C. Further TL studies of eucrite-association meteorites are underway.

Sample	TL Sensitivity*	Peak T (C)	Peak Width (C)
Eucrites			
Lew85303,86	554 +/- 83	209 +/- 15	188 +/- 3.5
EET79004,102	685 +/- 150	140 +/- 8	151 +/- 14
Diogenites			
ALHA84001,31	0.80 +/- 0.60	185 +/- 20	180 +/- 24
EETA79002,84	0.60 +/- 0.29	185 +/- 25	180 +/- 30
Mesosiderites			
EET87500,11	22.3 +/- 1.7	131 +/- 5.0	129 +/- 11.7
QUE86900,27	52.5 +/- 2.7	82.9 +/- 10.1	80.0 +/- 16.1
Howardites			
EET87503,3	588 +/- 150	133 +/- 15	145 +/- 14
Bholghati,28#	229 +/- 3.8	141 +/- 7	-
		220 +/- 18	-
Bholghati,29#	254 +/- 4.4	142 +/- 7.1	-
		213 +/- 19	-

* Dhajala = 1000

Uncertainties are for repeated measurements of a single aliquot.

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