Benoit P.H., Roth J., Sears H. and Sears D. (1994d) Natural thermoluminescence (NTL) data for antarctic meteorites. *Antarctic Meteorite Newsletter* **17(1)**, 23. Johnson Space Center, Houston TX.

Natural Thermoluminescence (NTL) Data for Antarctic Meteorites

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The measurement and data reduction methods were described by Hasan et al. (1987, Proc. 17th LPSC E703-E709; 1989, LPSC XX, 383-384). For meteorites whose TL lies between 5 and 100 krad the natural TL is related primarily to terrestrial history. Samples with NTL <5 krad have TL below that which can reasonably be ascribed to long terrestrial ages. Such meteorites have had their TL lowered by heating within the past million years or so (by close solar passage, shock heating, or atmospheric entry), exacerbated, in the case of certain achondrite classes, by "anomalous fading". We suggest that meteorites with NTL >100 krad are candidates for an unusual history involving high radiation doses and/or low temperatures.

Sample	Class	NTL [krad at 250 deg. C]
EET 92002	CK4	2.7 ± 0.4
EET 92042	CR2	22 ± 3
EET 92003	EUC	0.13 ± 0.04
EET 92004	EUC	0.21 ± 0.03
EET 92001	MESO	3 ± 1
EET 92033	H5	33.2 ± 0.1
EET 92035	H5	168 ± 1
EET 92040	H5	113 ± 3
EET 92044	H5	39.0 ± 0.1
EET 92045	H5	10.1 ± 0.1
EET 92041	L5	2.2 ± 0.4
PCA 91157	L5	7.5 ± 0.2
PCA 91169	L5	1.5 ± 0.1
RKP 92405	L5	0.08 ± 0.01
BEC 92601	L6	47.2 ± 0.3
EET 92030	L6	16.4 ± 0.2
EET 92031	L6	29.8 ± 0.5
EET 92032	L6	30.4 ± 0.3
EET 92034	L6	0.16 ± 0.03
EET 92036	L6	30.9 ± 0.1
EET 92037	L6	51.9 ± 0.4
EET 92043	L6	85 ± 1
EET 92046	L6	66.2 ± 0.8
PCA 91219	L6	74.8 ± 0.3
RKP 92404	LL6 3	0.6 ±0.6

The quoted uncertainties are the standard deviations shown by replicate measurements of a single aliquot.

COMMENTS: The following comments are based on natural TL data, TL sensitivity, the shape of the induced TL glow curve, classifications, and JSC and Arkansas group sample descriptions.

EET92003 (Eucrite) is petrologic type 5 (GCA 55, 3831-3844)
EET92004 (Eucrite) is probably shocked and has very similar induced TL properties to the LEW85303 group (GCA 55, 3831-3844).
PCA91157 (L5) may be shocked.

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1. Pairings (Confirmations of pairings suggested in AMN 16:2)

   CK4: EET92002 with EET87507 group.

2. TL data do not confirm pairings suggested in the Newsletter:

   MESO: EET92001 with EET87500 group (AMN 16:2).

3. Additional Pairings suggested by TL data:

   EUC: EET92003 and EET87542 (GCA 55, 3831-3844).
   L5: PCA91157 with PCA91028 group (AMN 16:2 and 17:1).
   L5: PCA91169 with PCA91027 group (AMN 17:1)
   L6: EET92030 is possibly paired with the EET87502 group (JGR 99, 2073-2085).
   L6: EET92032 with EET90156 group (AMN 16:1).
   L6: EET92036 with EET90204 group (AMN 16:1).
   L6: EET92043 with EET87549 group (JGR 99, 2073-2085).
   LL6: RKP92404 is possibly paired with RKP86704.