

## 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 reasonable 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 and possibly enstatite chondrites, by "anomalous fading". We suggest meteorites with NTL >100 krad are candidates for unusual orbital/thermal histories (Benoit and Sears, 1993, EPSL 120, 463-471).

Sample	Class	NTL [krad at 250 deg. C]	Sample	Class	NTL [krad at 250 deg. C]
LON94101	C2	0.0 ± 0.1	LEW93800	L5	9.9 ± 0.1
LON94102	C2	0.0 ± 0.1	QUE93020	L5	11.6 ± 0.1
LON94100	E6	2.4 ± 0.2	QUE93021	L5	161 ± 1
QUE94200	HOW	2.3 ± 0.4	QUE93197	L5	2.1 ± 0.5
QUE93069	LUN	0.0 ± 0.1	QUE93216	L5	12.7 ± 0.1
QUE94281	LUN	0.21 ± 0.01	QUE93231	L5	3.5 ± 0.5
ALHA77009	H4	30 ± 1	QUE93245	L5	6.0 ± 0.1
ALHA77208	H4	27.9 ± 0.1	QUE93247	L5	0.35 ± 0.04
ALHA77232	H4	33.1 ± 0.2	QUE93251	L5	8.2 ± 0.1
ALHA78134	H4	64.8 ± 0.2	QUE93307	L5	10.2 ± 0.1
ALHA77182	H5	1.0 ± 0.1	QUE93330	L5	1.2 ± 0.1
ALHA77268	H5	1.2 ± 0.4	QUE93370	L5	6.5 ± 0.1
ALHA78128	H5	4.4 ± 0.2	QUE93600	L5	0.71 ± 0.02
ALHA78194	H5	42.5 ± 0.3	QUE93683	L5	10.6 ± 0.1
ALHA79025	H5	0.33 ± 0.07	QUE93696	L5	13.7 ± 0.1
LEW93802	H5	12.1 ± 0.1	QUE93697	L5	1.8 ± 0.1
QUE93013	H5	3.1 ± 0.3	QUE93699	L5	5.2 ± 0.4
ALHA76006	H6	0.4 ± 0.1	QUE93706	L5	15.3 ± 0.1
ALHA77285	H6	31.2 ± 0.1	QUE93707	L5	3.9 ± 0.7
QUE93014	H6	33.9 ± 0.9	QUE93015	L6	4.8 ± 0.2
			QUE93019	L6	25.9 ± 0.1
			QUE93080	L6	1.3 ± 0.1
			QUE93410	L6	1.5 ± 0.8

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

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

Benoit P.H. and Sears D. (1996b) Natural thermoluminescence (NTL) data for antarctic meteorites. *Antarctic Meteorite Newsletter* **19(1)**, 20-21. Johnson Space Center, Houston TX.

**QUE93015 (L6) and QUE93410 (L6) may be heavily shocked.**

**QUE94200 (HOW) has a TL sensitivity similar to Kapoeta and Binda (GCA 55, 3831-3844).**

**1. Pairings (Confirmations of pairings):**

**L5: QUE93020 with QUE90207 group (AMN 18:1 and 15:2).**

**H4: ALHA77208 and ALHA77232 with ALHA77004 group (Meteoritics 29, 100-143)**

**2. Additional pairings suggested by TL data:**

**H4: ALHA78134 may be paired with ALHA77262 (Meteoritics 29, 100-143)**

**H5: ALHA78047 and ALH88028 with ALHA77268 (AMN 17:1; JGR 98, 1875-1888)**

**H5: ALH86601 with ALHA78128 (Meteoritics 29, 100-143).**

**H5: LEW93802 may be paired with LEW85464 (JGR 97, 4629- 4647).**

**H5: QUE93013 with QUE93028 group (AMN 18:2).**

**H6: QUE93014 with QUE90223 group (AMN 18:1).**

**L5: LEW93800 may be paired with LEW85385.**

**L5: QUE93197, QUE93231, QUE93247, QUE93330, QUE93600, QUE93697, QUE93699, and QUE93707 with QUE90205 group (AMN 15:2).**

**L5: QUE93020, QUE93245, QUE93251, QUE93307, QUE93370, QUE93683 and QUE93696 with QUE90207 group (AMN 15:2).**

**L5: QUE93216 with QUE93706, and possibly with QUE90207 group (AMN 15:2).**

**L6: QUE93015 is possibly paired with QUE87400.**