

RADIOACTIVITY OF DENGLI METEORITE. Alexeev V.A. and Gorin V.D. *V.I. Vernadsky Inst. of Geochem. and Analyt. Chem., Russian Academy of Sciences, Moscow, Russia.*

Contents of radionuclides in the Dengli H3.8 chondrite are : Na-22 = 2.3 ± 2.2 dpm/kg; Al-26 = 30 ± 6 dpm/kg; Th = $(5 \pm 1)E-5$ wt %.

The Dengli H3.8 meteorite was found in the Karakum desert in 1976. It is individual fragment with fusion crust, its mass is equal to 243 grams. The meteorite is highly weathered. Mineralogy, phase composition and petrographic descriptions are given in [1].

For determination of contents of cosmogenic and natural radionuclides the meteorite sample no. 15741 (215 grams) was measured on low-level scintillation gamma-spectrometer consisting of two NaI(Tl) crystals, a plastic phosphor of anticoincidence shield, and passive shield (50 tons). A high sensitivity for coincident γ -quanta was achieved by a γ - γ -coincidence method with a dynamic gate [2].

Content of Na-22 ($T_{1/2} = 2.6$ yr) was found equal to 2.3 ± 2.2 dpm/kg, that is Na-22 is almost completely disintegrated at the moment of measurement (April, 1994).

Content of Al-26 ($T_{1/2} = 0.705$ Myr) was found equal to 30 ± 6 dpm/kg. This value is two times as low as the average content of Al-26 in H chondrites: 59 ± 1 [3] (see Fig). Such low content of Al-26 can be stipulated by considerable depth of meteorite position in the preatmospheric body and (or) non-saturated radioactivity because of small cosmic-ray exposure age ($T \sim 1$ Myr). The Al-26 content is decreased during presence of meteorite on the earth. However, relatively small terrestrial ages of finds in deserts (usually less 40,000 yr [4]) cannot significantly reduce content of this radionuclide.

Slight decreasing of Al-26 content may also result from weathering [5]. We have found the Th content in this meteorite of $(5 \pm 1) \cdot 10^{-5}$ wt.%. This content is approximately ten times as high as average Th content in chondrites and is certain to result from terrestrial admixture during weathering.

References:

- [1] Ivanova M.A. et al. Meteoritika (in Russian), 1993, v.50, 15
- [2] Lavrukhina A.K. et al. Low-level radiometry. Moscow. Nauka. 1992. 260 p.
- [3] Alexeev V.A. LPS XXII, 1991, 7
- [4] Benoit P.H. et al. LPS XXIII, 1992, 89.
- [5] Herzog G.F., Cressy P.J., Jr. Meteoritics, 1976, v.11, 59

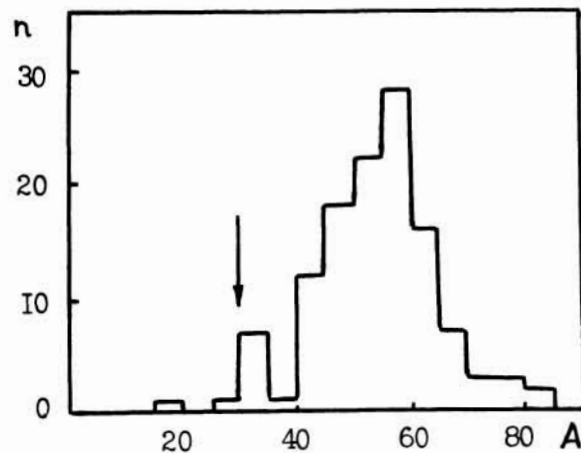


Fig. Distribution of Al-26 content (A, dpm/kg) in 119 non-Antarctic H chondrites. Arrow shows the measured content of Al-26 in Dengli chondrite.