LOW ENERGY ALPHA ACTIVITIES IN LUNAR SAMPLES.

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The examination of the direct alpha-spectrum of several Lunar samples has shown a low activity in the range of 2-3 MeV hardly visible among the slowed-down alpha-rays originating from the uranium and thorium decay series.

After a chemical separation of rare earth elements from rock 14305,36 the existence of an alpha-peak close to 2.2 MeV has been revealed (Fig. 1). This peak corresponds to an activity of the order of 0.5×10^{-3} desintegrations per second per gram. Such a peak is tentatively attributed to $^{147}_{62}Sm$ (half-live 1.05×10^{11} years), in agreement with the Sm content of this sample (1).

It is interesting to note that in fines 15021,110 a very similar peak was observed directly at the surface of the sample (Fig. 2). This indicates the presence of very pure REE-grains in the regolith.

Reference :

(1) Wänke, H., Baddenhausen, H., Balacescu, A., Teschke, F., Spettez, B., Breibus, G. Palme, H., Quijano-Rico, M., Kruse, H. Wlotzka, F. and Begemann, F., Proceedings of the 3rd Lunar Science Conference (supplement 3, Geochimica et Cosmochimica Acta) Vol. 2, pp. 1251-1268 The M.I.T. Press, 1972.

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