

ON THE CONTENT OF VOLATILE ELEMENTS IN MARE
FECUNDITATIS, MARE TRANQUILLITATIS AND OCEANUS PROCELLARUM

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ABSTRACT

The new atomic-fluorescence method is described and data on mercury and thallium are reported for a number of core samples of regolith returned by Luna 16, Apollo 11 and 12 missions.

Atomizer is graphite crucible (furnace) with powdered sample heated by electric current in argon atmosphere. Electrodeless high-frequency discharge lamps are used as excitation sources. Analytical signal is amplitude of fluorescence impulse of mercury and thallium vapour distilled from the sample to be analysed. The limits of detection are 0,8 ppb for mercury and 3 ppb for thallium. The precision is 15% for 10 ppb of mercury and thallium.

Consideration regarding the volatilization of mercury from lunar surface, mercury migration during lunar day-time and the condensation of mercury during lunar night-time are presented.

The results of thallium determination are discussed.