

# LITHIUM, BORON, AND MAGNESIUM ISOTOPES IN LUNAR SAMPLES

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Three crystalline rocks, one breccia, and fines returned by Apollo 11 and 12 have been analyzed by means of a sputtering ion source mass spectrometer. Li, B and Mg isotopic abundances were obtained by direct bombardment of surface and interior parts of rocks with a very low intensity 10 keV Cs beam. The Li and B distribution at the surface of a breccia sample was studied and no isotopic variations caused by an admixture of solar wind Li trapped at Li poor sites were found. Leaching experiments for the possible extraction of solar wind trapped Li from the surface layers of lunar dust grains yielded terrestrial Li isotopic ratios, indicating that the proportion of solar Li is too low to be detected. Rock and dust samples were dissolved and the elemental and the relative isotopic abundances were measured without preceding chemical separation of the elements. The possibilities of the application of the ion microprobe technique for cosmochemical and cosmochronological studies are discussed.