THE ADSORPTION OF ATMOSPHERIC XENON AND INERT GAS MEASUREMENTS IN SIZE SEPARATES OF THE ALLENDE METEORITE

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ABSTRACT

Powdered and solid piece samples of the Allende meteorite were heated in various temperature steps to analyze their xenon compositions mass spectrometrically. The samples were then exposed to the atmosphere for three days. The samples were reheated to test for possible adsorption of atmospheric xenon and its release temperature.

Similar samples were exposed to a xenon gas which was strongly enriched in the light isotopes. With this unusual isotopic composition, adsorption and mass fractionation effects may easily be seen.

All of the inert gases, helium, neon, argon, krypton, and xenon, were measured mass spectrometrically from totally fused Allende samples which had been prepared by crushing and sieving into size fractions. The objective was to examine possible correlations of gas concentration and compositions with grain size.

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