

## HEAVY NITROGEN IN Y74191 (L3) CHONDRITE

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Isotopic anomaly in meteorites is a powerful tool for elucidating physical condition in the primitive solar nebula. The presence of large isotope anomalies indicates that presolar grains survived and hence the temperature of the primitive solar nebula did not rise to an extremely high temperature. Among light elements, oxygen isotopes are most extensively measured and are useful for classification of meteorites. But the oxygen isotopic data alone are not enough to reveal how the anomaly was created and/or preserved. To find out how presolar grains survived and distributed in the primitive solar nebula, we have started a systematic study of nitrogen isotope in ordinary chondrites. Our system for nitrogen isotope measurement is similar to that at Univ. of Minnesota(1), except for the use of a quadrupole mass spectrometer. Nitrogen in 15 chondrites has been measured so far by stepwise combustion, and a L3 chondrite (Y74191) showed a striking nitrogen isotope anomaly (Figure). The isotopic ratio rises to 200 permill at 700 C then rises to 700 permill at 1100 C.  $^{21}\text{Ne}$  and  $^{38}\text{Ar}$  are also measured to find out the contribution of cosmogenic component. It turned out that the contribution of the cosmogenic  $^{15}\text{N}$  is minor. It can be also shown that the anomaly is not due to mass dependent fractionation. The extreme isotopic composition (700 permill) is comparable to the anomaly in stony irons(2) and polymict ureilites(3). But, the release temperature of the heavy nitrogen from Y74191 is higher than those from stony irons or from ureilites. Thus, there seems to be at least two sources of heavy nitrogen in the early solar system. One is found in reduced meteorites (C2R, stony irons, E chondrite and ureilites) and Y74191 must be a first example of rather oxidizing chondrites which have heavy nitrogen. Since Y74191 is petrologic type 3, it is hopeful that the carrier may be found intact. References (1)U.Frick and R.O.Pepin, *EPSL*, 56, 64, (1981) (2)C.R.Prombo and R.N.Clayton, *Sci.*, 230, 935 (1985) (3) M.M.Grady and C.T.Pillinger, *Nature*, 331, 321 (1988)

