

Noble gases in CM chondrites: Effect of aqueous alteration and cosmic ray exposure (CRE) ages.

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Like most primitive carbonaceous chondrites (CCs), the CM chondrites experienced varying degrees of asteroidal aqueous alteration, which might have overprinted preaccretionary alteration [1]. For these CCs several classification schemes have been proposed ([2] and references therein). Based on these schemes, we found correlations between aqueous alteration and primordial noble gas contents. Amongst others, a still unknown Ar carrier seems susceptible to aqueous alteration [3]. Deviations from the trends of decreasing noble gas concentrations with decreasing petrologic types might be related to the fact that most CMs represent breccias of distinct lithologies [4], which is not considered in the alteration scales and/or, perhaps, parent body heating. The distribution of preliminarily determined ^{21}Ne -based CRE ages shows distinct peaks at ~ 0.25 Myr and $\sim 4-5$ Myr. For the solar wind-bearing sample of ALH 85013 we calculated a preliminary CRE age of ~ 12.5 Myr.

[1] Brearley, A.J. (2006) MESS II, 584-624. [2] Howard, K.T. et al. (2015) GCA 149, 206-222. [3] Weimer, D. et al. (2017) 80th MetSoc, #6300. [4] Bischoff, A. et al. (2017) 80th MetSoc, #6089.

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