AlO(OH) IS A MAJOR CONSTITUENT OF THE CAI "BLUE MOON" FROM THE RENAZZO (CV3) CHONDRITE.

G. Kurat[1], M. E. Varela[2], and E. Zinner[3]; [1]Department of Lithospheric Sciences, University of Vienna, Vienna, Austria (gero.kurat@univie.ac.at); [2]CASLEO/CONICET, San Juan, Argentina; [3]Laboroatory of Space Sciences and Dept. Physics, Washington University, St. Louis, MO, USA.

Water- and (OH)-bearing phases in Ca-Al-rich inclusions (CAIs) are known from CM chondrites [e.g., 1] as well as from micrometeorites and IDPs [e.g., 2-6]. They are widely believed to be parent body alteration products of former non-hydrous phases and comprise typically Fe, Mg phyllosilicates, which take the place of, e.g., diopside, that commonly covers spinel + melilite + perovskite intergrowths [7]. Here we report on the first occurrence of AlO(OH) as a major constituent in a CAI.

Blue Moon is a large (~ 3 mm), bright blue colored CAI from a Renazzo sample of the NHM in Vienna. It has an irregular, elongated shape and consists of complex intergrowths of refractory minerals of varying grain sizes, forming two distinct lithologies, which differ in texture and mineral abundances. The principal units appear to be AlO(OH) (up to ~100 µm) enveloped by hibonite laths (up to ~50 µm long) embedded in spinel, which form an amoeboid, fluffy network that is incompletely rimmed by gehlenite and embedded in anorthite (+/-gehlenite+/-spinel+/-diopside+/-forsterite). Wollastonite, nepheline, and calcite are rare interstitial phases.

AlO(OH) commonly encloses small elongated, rounded perovskites. AlO(OH) is optically isotropic and Raman-amorphous [8] and fairly pure with (EMP analysis) 85 wt% Al_2O_3 and low Na_2O (~0.1), SiO_2 (~0.5), CaO (~0.5), and TiO_2 (~0.1 wt%) contents. Hibonite contains some TiO_2 (1-4 wt%); spinel, diopside and forsterite are very poor in FeO (0.1, 0.1 and 0.4 wt%, respectively) and anorthite is free of Na. Refractory trace element (RTE) contents (as determined by SIMS) are ~200-350 x CI in perovskite, 3-20 x CI in all other phases, except AlO(OH) and calcite (~1-2 x CI). Ubiquitous are negative abundance anomalies of Yb, Eu and Ce in most phases, except AlO(OH), and calcite, which have only an Yb deficiency. AlO(OH) contains excess ^{26}Mg with an initial $^{26}Al/^{27}Al$ of (5.24+/-0.14) x 10^{-5}.

Because AlO(OH) cannot be a primary phase condensed from solar nebula gas it had to have a precursor that was Al-rich and RTE-poor, perhaps AlN, or Al_4C_3, or ? Such a phase, however, will need a gas that was more reducing than the solar nebula [e.g., 9]. The abundant negative abundance anomalies of Yb and Eu point into the same direction. However, the small but also common Ce(-) anomaly (not present in perovskite!) demonstrates the highly refractory nature of the assembly for condensation conditions close to those predicted for the solar nebula [9].

Acknowledgements: Supported by FWF (Austria) and NASA.

References: [1] MacPherson G. J. et al. 1983. *Geochimica et Cosmochimica Acta* 47, 823. [2] Lindstrom D. J. and Klöck A. O. 1992. *Meteoritics* 27, 243. [3] Kurat G. et al. 1994. Abstract #763. 25th Lunar & Planetary Science Conference. [4] Hoppe P. et al. 1995. Abstract #623. 26th Lunar & Planetary Science Conference. [5] Zolensky M. E. 1987. *Science* 237, 1466. [6] McKeegan K. D. 1987. *Science* 237, 1468. [7] Kurat G. 1970. *Earth and Planetary Science Letters* 9, 225. [8] B. Wopenka 2005. pers. comm.. [9] Lodders K. and Fegley B., Jr. 1993. *Earth and Planetary Science Letters* 117, 125.