

BSE, CL AND RAMAN SPECTROSCOPY STUDY OF PHOSPATES AND MASKELENYTE IN THE H6 CANGAS DE ONIS REGOLITH BRECCIA. A. Rubio-Ordóñez¹, V. Cárdenes¹, L. Rodríguez-Terente², L. Torro³, J. García-Guinea³. ¹Dpto de Geología, Univ. de Oviedo (arubio@geol.uniovi.es). ²Museo de Geología, Univ. de Oviedo. ³Museo Nacional de Ciencias Naturales, Madrid.

Historical settings of the Cangas de Onís meteorite: Fall of Cangas de Onís chondrite was held in the morning of December 6th of 1866. Several fragments of a flying body fell around the town of Cangas de Onís, in Asturias, NW Spain. The fall was seen by numerous locals, which collected over 22 kg of material. Most of the recovered meteorite was brought to the Oviedo University, where it was studied for the first time [1]. Fragments of the meteorite were sent to other research centers and museums [2, 3] for their study and classification. Throughout time, meteorite category changed according with the historical classifications in effect at the moment.

The H6 Cangas de Onis regolith breccia: According to previous works [4], it is formed by $60 \pm 5\%$ volume of H6 clasts with some H5 fragments, and $40 \pm 5\%$ of clastic matrix. Studied sample is composed by two main clasts and a clastic mesostasis with felspar-rich melts ($An_{13}Ab_{80}Or_6$) included, less recrystallized than the main clasts. All components are affected by an intense fracturation, filled by taenite-kamacite and troilite. Also, there are evidences of melting processes and reabsorption of the olivine, plagioclase and pyroxene by the Fe-Ni melts. These data agree with [4, 5], which assume at list two fracturation and gravitational accretion processes of the parental body. Differences in characteristics and cooling ratios are also agree with the primary structure (onion-shell) of the fragmented parental body [6-8].

Results: Maskelenite: A plagioclase representing one of the main components of the silicate melt formed during the shock metamorphism [9]. Punctual chemical analyses showed a slight range of variation for the Ab-An-Or proportions, with abundances of MgO up to 2,8 % for the more anortitic melts. CL specters from these silicate glasses showed small differences in the intensity of 430 and 460 peaks. Results obtained by EMP and CL suggest the occurrence of two melts of similar composition. These melts may be related with processes of secondary accretion.

Phosphates: Occurrence of phosphates in ordinary chondrites is quite common. In this chondrite, existence of anhedral crystals of calcium phosphates is documented in the clastic matrix. Chemical analyses are clearly different for these two minerals, with a relative higher content of REE+Y in the whitlockite than the chlorapatite. CL spectra showed this difference between the Cl-apatite and the whitlockite (Fig. 1). The whitlockite had several peaks of variable inten-

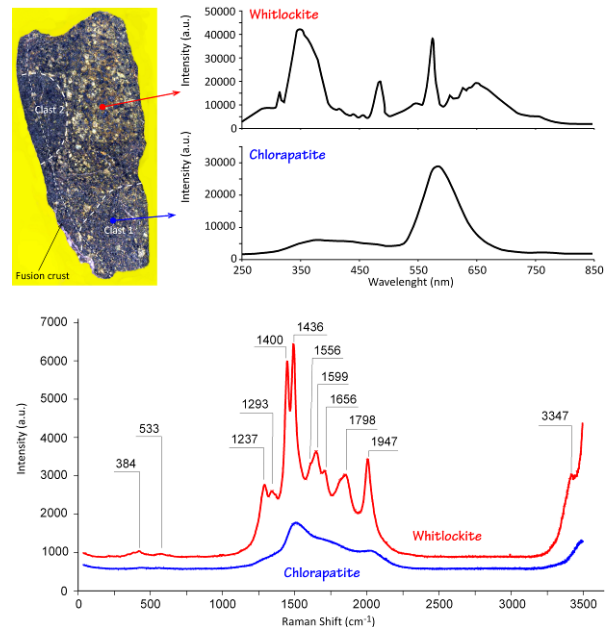


Figure 1: CL and Raman spectra of whitlockite (red) and chlorapatite (blue).

sity related with the REE abundance. Raman spectroscopy also showed substantial differences for the obtained spectra. Both spectra showed a common shape, with their distinctive peaks for the PO_4 in the interval $460 - 520 \text{ cm}^{-1}$, maximum intensity peak at 1450 cm^{-1} and a secondary intensity peak at 1900 cm^{-1} . Whitlockite spectrum is quite complex, probably due to the presence of REE in its structure, and partially coincident with the spectral bands for the monazite [10] (e.g. RUFF ID:R060925). O-H peaks were not observed, pointing out to the anhydrous character of both phosphates.

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