^{182}Hf-^{182}W AGES OF METAL-RICH CHONDRITES AND THE TIMING OF EARLY METAL FORMATION IN THE SOLAR SYSTEM. G. Quitté[1]. [1]Laboratoire de Sciences de la Terre, CNRS - ENS Lyon - Université de Lyon, France. E-mail: Ghylaine.Quitte@ens-lyon.fr

Introduction: The metal-rich CB and CR chondrites are among the most pristine early solar system materials. As such, they are interesting for two main reasons: (1) they can serve as anchors for the intercalibration of short-lived radiochronometers and (2) they allow us to better understand the earliest stages of metal formation. These meteorites contain indeed abundant free metal in the form of iron-nickel assemblages and iron sulfides. CRs are primitive chondrites that largely escaped thermal processing in the asteroidal setting but were subjected to aqueous alteration as evidenced by a highly oxidized matrix. On the contrary, CBs are not altered but they experienced thermal processing, likely due to their impact-induced melting origin in a planetary environment [1]. CR and CB chondrites share many compositional and isotopic characteristics, including similar oxygen isotope compositions. The metal content of CR chondrites is however much lower than that of CB chondrites, with respectively 7 vol.% and 0 to 70 vol.% metal [2].

Samples and analytical procedure: Three CRs (among them Renazzo and NWA 801) and two CBs (Gujba and MIL 05082) were selected for the present study. After crushing, a bulk sample, a metal-rich fraction and 1 to 3 less- or non magnetic (i.e. silicate rich) fractions were prepared. The metal-rich phase was separated using a hand magnet. As CBs show large metal-sulfide nodules it was relatively easy to mechanically separate metal and silicates in these samples. After digestion, W was separated and purified following the technique described earlier [3]. Tungsten isotope measurements were performed on a Nu 1700 MC-ICPMS taking advantage of the high sensitivity of this instrument.

Results and Discusssion: Assuming Renazzo (CR2) and Gujba (CBa) formed from a carbonaceous chondrite reservoir, metal segregated in both meteorites almost contemporaneously 6-7 Ma after the start of the solar system. Hf and W are rather insensitive to aqueous alteration so that the ^{182}Hf-^{182}W chronometer should not have been disturbed. The data however do not confirm the early formation age of Renazzo chondrules proposed by [4-5] but are compatible with the equilibrium age for CR2 chondrites inferred from Mn-Cr systematics [6]. Noteworthy, the Hf-W age of Gujba is in agreement with its Pb-Pb age [1]. As chondrules and metal are thought to have formed or been reset at the same time, a meaningful isochron can also theoretically be defined. The first data obtained on Renazzo indicate a late metal-silicate separation or re-equilibration: silicates show no significant enrichment in radiogenic ^{182}W despite the relatively high Hf/W ratio (> 50) of this phase. To better understand the timing of CR2 formation, data for other samples including NWA 801 and the third selected CR (provisional name: NWA 721) are required.

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