LASER ABLATION ICPMS CHARACTERIZATION OF ELEMENTAL CHEMISTRY OF GALKHAITE, A HG-CS-TL SULFOSALT FROM GETCHELL, USA

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Carlin-type mineral deposits contain an abundance of rare minerals having a relative abundance of Tl and Cs. Galkhaite is one of these minerals and forms cubic crystals up to several mm on a side in the zone of intense vuggy silicification at Getchell, Nevada, USA. In addition to Tl and Cs, galkhaite contains Hg, Cu, Zn, Sb, As, and S. Some of the crystals of galhakite from Getchell are compositionally zoned in terms of major elements as determined by microprobe analysis, whereas others show very little zoning. In addition to the elements described above, we have documented the presence of a wide variety of other elements using spot analysis by Laser Ablation ICPMS. These elements include ultra-trace to significant amounts of W, Te, Cd, Sn, Rb, Se, Fe, and Ti. The presence of significant Rb but virtually no Sr in galkhaite is considered important in that it may form a robust, single-mineral geochronometer that is insensitive to initial Sr isotope ratios. Experiments are underway to date the age of formation of the mineral, and by inference, the timing of mineralization at Getchell.