

**Are There Carlin-Type Gold Deposits in China?
Similarities and Differences Between Deposits of Guizhou, China, and Nevada, USA**

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Classic Nevada Carlin-type deposits exhibit consistent characteristics, including ionic Au in visible low-relief/fuzzy, trace element-rich pyrite rims and crystals; C- and pyrite-rich silty limestone host rocks; strong structural and stratigraphic control; location proximal to coeval igneous rocks; characteristic decalcification, silicification, and argillization; aqueous ore fluids; and “passive” low-pressure (P) and -temperature (T) ore fluids.

Southwest Guizhou Province, China, contains deposits described as Carlin type, and the tectonic history of Guizhou is similar to that of northern Nevada, though the district lacks proximal igneous rocks. Further, ore, alteration, and ore-related fluid inclusions and P-T formation conditions are described as similar to Nevada deposits.

Ore and alteration minerals from Jinfeng and Shuiyindong, the typical China Carlin-type deposits, were examined. All pyrites have high relief and lack typical Nevada “fuzzy” pyrite textures. Ore pyrites cannot be distinguished using microscopy, and require backscatter electron imaging or microanalysis for identification. Au-bearing zones are irregular, locally crosscutting, and variably overgrown by Au-free pyrite. Gold-free arsenopyrite is common and is disseminated or rims pyrite. Common alteration minerals include jasperoid after calcite, dolomite after Fe dolomite, and variable illite. Decreasing Fe dolomite corresponds with increasing ore pyrite abundance and Au grade, and Fe-free dolomite.

This study indicates that formation conditions for China deposits differed from those for Nevada deposits. Published fluid inclusion studies for Guizhou describe CO₂-bearing fluids requiring temperature and pressure conditions as much as 100°C and 0.5 kb greater than for Nevada deposits. Collectively, Guizhou deposits mineralogy, alteration, and fluid chemistry indicate formation conditions more similar to higher P-T orogenic systems than to Nevada’s Carlin deposits.