

## Gold in massive sulfides of the Iberian Pyrite Belt

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The Iberian Pyrite Belt's (IPB) original resources have been evaluated of about 920 t of Au and 49,400 t of Ag from 1700 Mt of massive sulphides. Gold grade in the massive sulphide ores ranges from 0.2 g/t to 9 g/t. In spite of the high grade, gold in the IPB has been considered as not recoverable refractory-gold included in pyrite and/or arsenopyrite. However, recent research on the massive sulphide ores from several IPB deposits has yielded economical concentrations of free gold.

Gold-rich concentrates have been obtained by hydroseparation techniques (<http://www.hslab-barcelona.com/>) on ores from seven recent exploration areas. Gold grain size ranges from a few microns to 250 microns. EPMA analyses show a heterogeneous fineness ranging from 542 to 1000, most being >750. The main impurities are up to 35.9% Ag and up to 10.8% Hg. Native gold was found unevenly distributed throughout the deposits. Three different mineral assemblages have been identified: (1) High fineness gold inclusions in pyrite and associated with native Ag, Au-sulphides, cobaltite, native Bi, Bi-sulphosalts and Te-sulphides. This assemblage has been identified in both Cu-rich ores and stockworks; (2) high fineness gold associated with electrum and Ag-rich tetrahedrite has been recognized as interstitial in Cu-rich ores; (3) gold included in late chalcopyrite veinlets has been found in Cu-rich ores; (4) gold has also been found filling interstices in sphalerite and galena in polymetallic mineralization; and (5) gold inclusions in recrystallized pyrite have been identified in pyritic ores.

The observed features indicate that gold varies between ore types, and is controlled by physico-chemical factors during deposition. Nevertheless, the common pattern in all the recent exploration examples is the high content in recoverable gold, enhancing the significant potential for gold in the IPB.

This research was funded by the project CGL2016-79204-R.