

Identification of surface processes in individual minerals of a complex ore through the analysis of polished sections using polarization microscopy and X-ray photoelectron spectroscopy (XPS)

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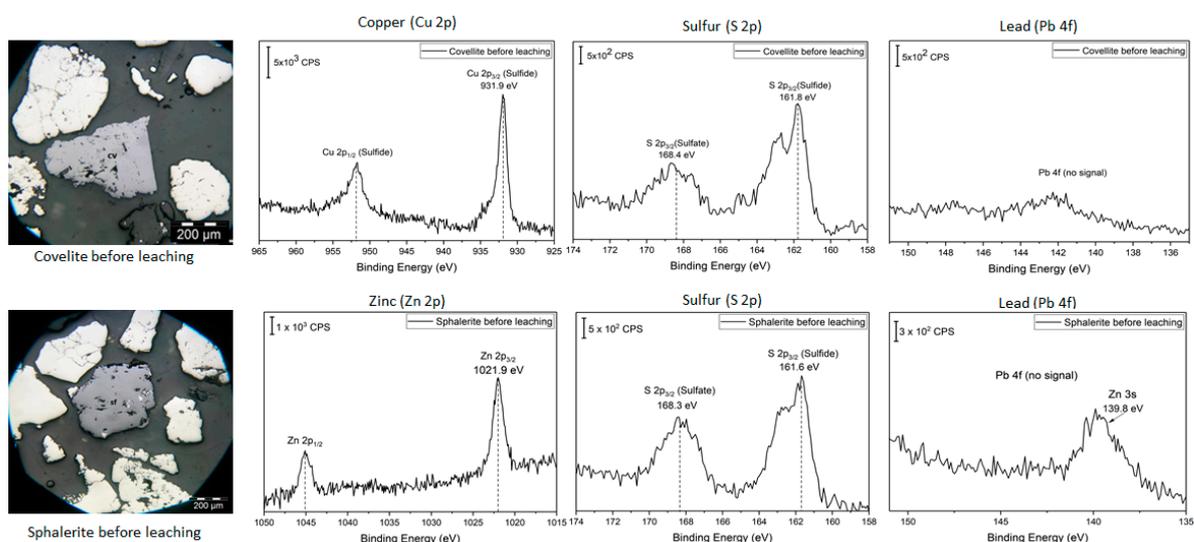


Figure S1. Identification of covellite and sphalerite with Polarization Microscopy (left panels) and XPS (right panels) before leaching.

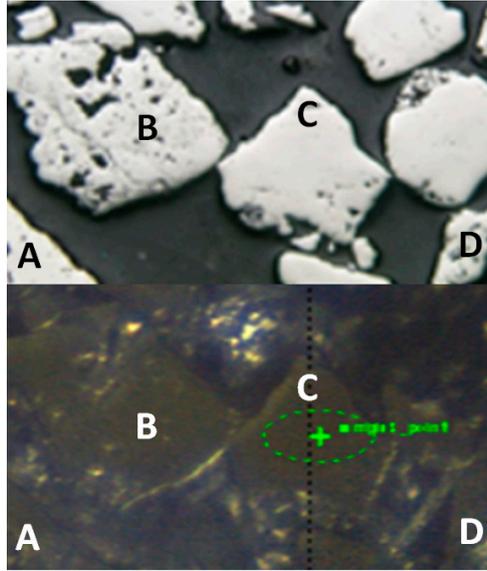


Figure S2. Comparison of micrographs obtained with polarization microscopy (top) and a camera coupled to the XPS system employed (bottom). It can be seen that the minerals can be identified once the sample has been introduced into the XPS system (grains A – D are observed in both micrographs). The area within the green dotted line in the bottom corresponds to the area chosen to do the XPS analysis, which was ~300 μm of diameter.

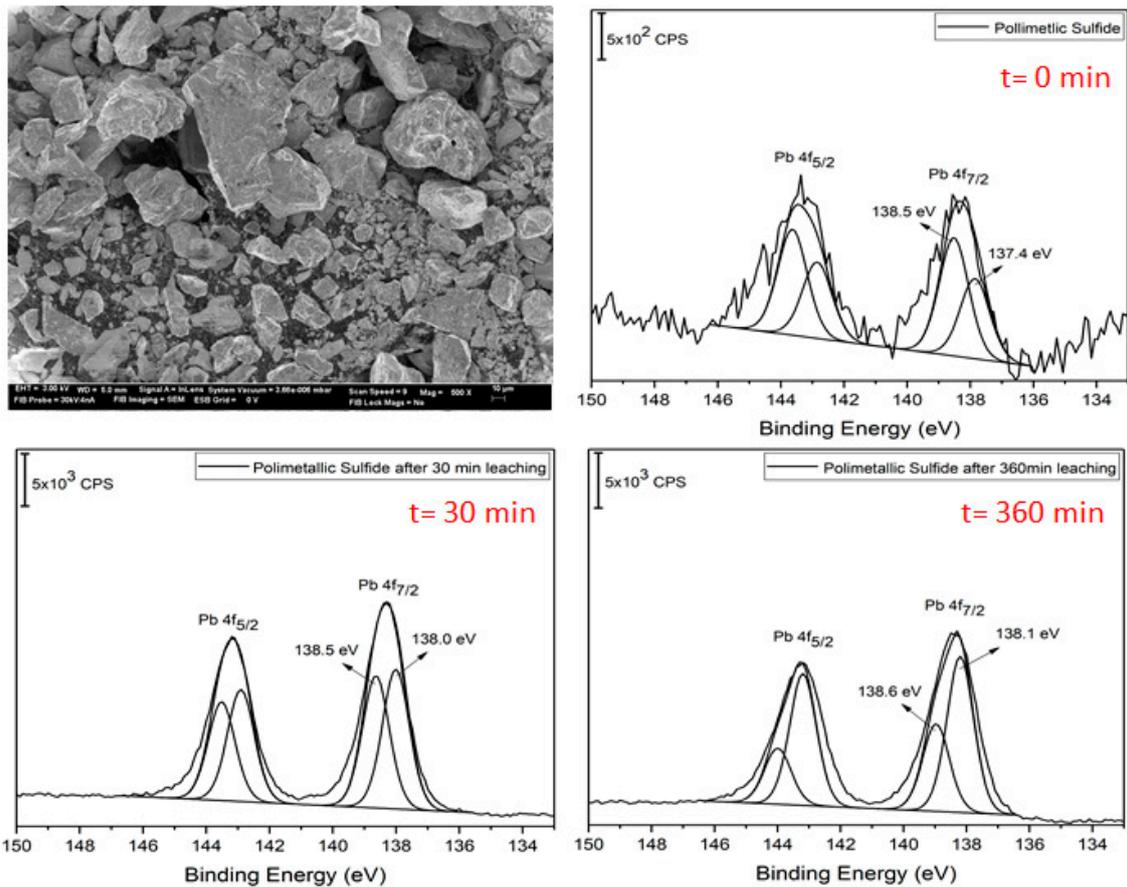


Figure S3. Micrograph of ore sample in free form (not embedded, top left) and Pb 4f XPS spectra of this sample before leaching ($t=0$ min, top right) and after 120 and 180 min of leaching (bottom left and bottom right, respectively). The

initial amount of lead can be attributed to small amounts of surface galena. The increase of surface lead during leaching is observed. A more complete study of these findings is in preparation.