Chapter S1: Mapping and sample preparation, SEM-EDS and XRDP methods.

Supplementary Material 2

METHODS

Mapping and Sample Preparation

Geological mapping was performed at surface and subsurface using the free App *FieldMOVE* for tablets (version 1.5.2, © Petex Limited, Salford, England). Mapping of mining tunnels was carried out importing in FieldMOVE the maps of the underground works georeferenced as mbtiles files using the software MapTiler Desktop (© MapTiler AG; Unterägeri, Switzerland).

Polished thin sections and mounts, as well as large, polished slabs of ore and host rock samples were prepared in the laboratories of Istituto di Geoscienze e Georisorse - CNR (Pisa, Italy) using a RotoPol-31 polishing machine (Struers, Copenhagen, Denmark).

SEM-EDS

The scanning electron microscope used was a Zeiss EVO MA15 with W filament (MEMA Service Center of the Florence University, Florence, Italy), equipped with an analytical system for energy-dispersive spectroscopy SDD Oxford UltimMax 40 (40 mm² with resolution 127 eV @5.9 keV). The measurements were performed on samples previously sputter-coated with 30-nm-thick carbon film. The following operating conditions were used: acceleration potential of 15 kV, 500 pA beam current, working distance comprised between 9 and 8.5 mm; 20 s live time as acquisition rate useful to archive at least 600,000 cts on Co standard. Oxford Aztec Software Package (5.0-SP1, Oxford Instruments NanoAnalysis, High Wycombe, UK) was used for semi-quantitative/quantitative microanalyses and elemental map acquisition.

XRDP

Mineralogical semi-quantitative characterizations were conducted with X-ray diffraction (XRPD) on bulk powder samples, using a diffractometer Philips PW 1030 coupled with Philips X'Pert PRO for data acquisition and interpretation system (IGG-CNR, Pisa, Italy). The operating conditions were: 40 kV-20 mA, Cu-Kα radiation and 0.5°2θ/min goniometry speed in 5–70° 2θ range.