Revision 1 (Manuscript #7609)

Online Materials

Behavior of incompatible trace elements in molybdenite: Layered PbS precipitates within molybdenite

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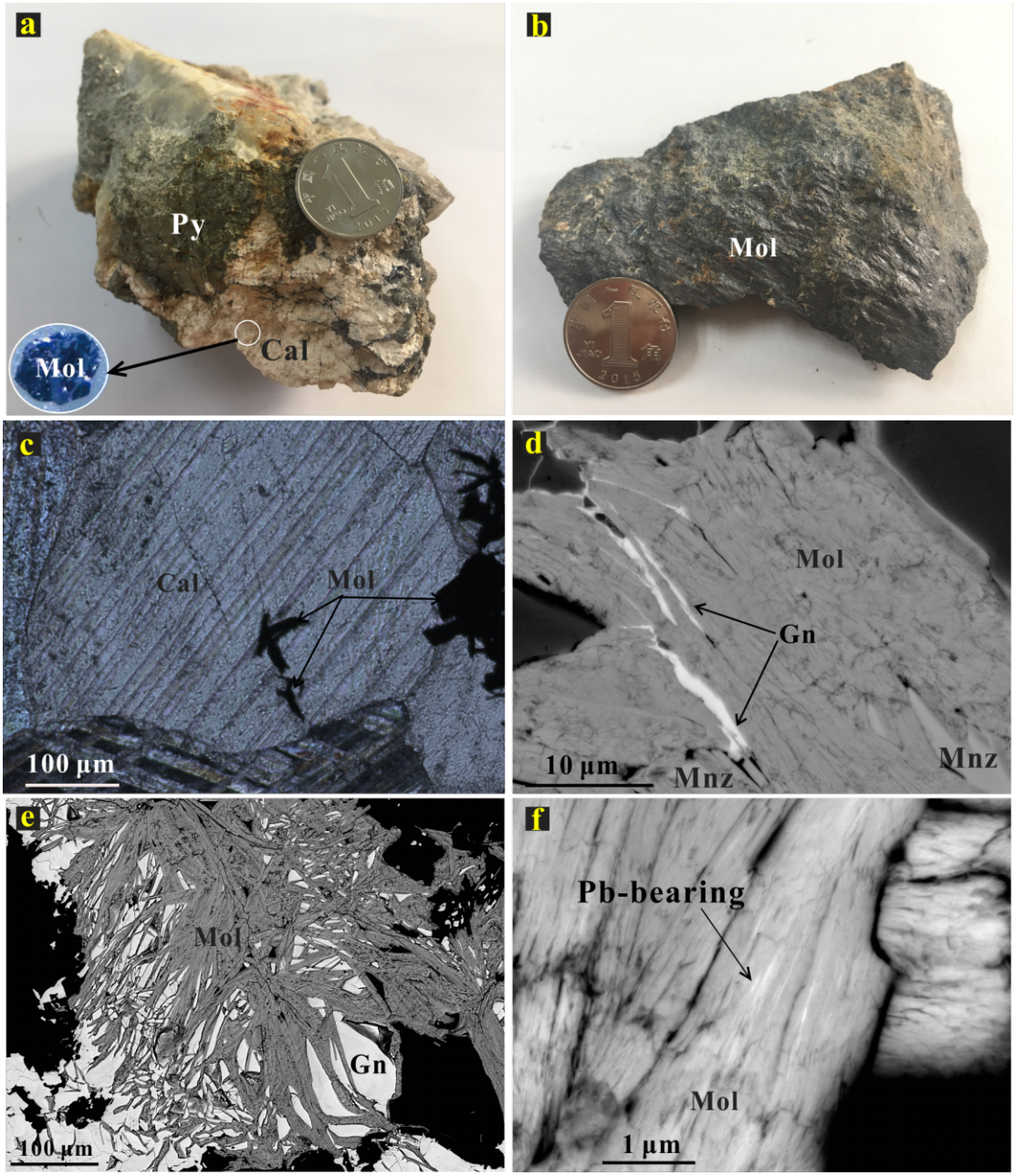

Figure OM1. The occurrence of Pb-bearing molybdenite. (**a**) Sparsely disseminated and speckled molybdenite in calcite and quartz vein. (**b**) Densely distributed molybdenite in small strips of calcite clusters. (**c**) Transmitted light photomicrograph shows molybdenite inclusions hosted by calcite. Backscattered electron images show micrometer-sized galena crystals coexisting with molybdenite (**d-e**) and nanometer-sized Pb-bearing domains within the host molybdenite (**f**). Cal, calcite; Mol, molybdenite; Mnz, monazite; Py, pyrite; Gn, galena.

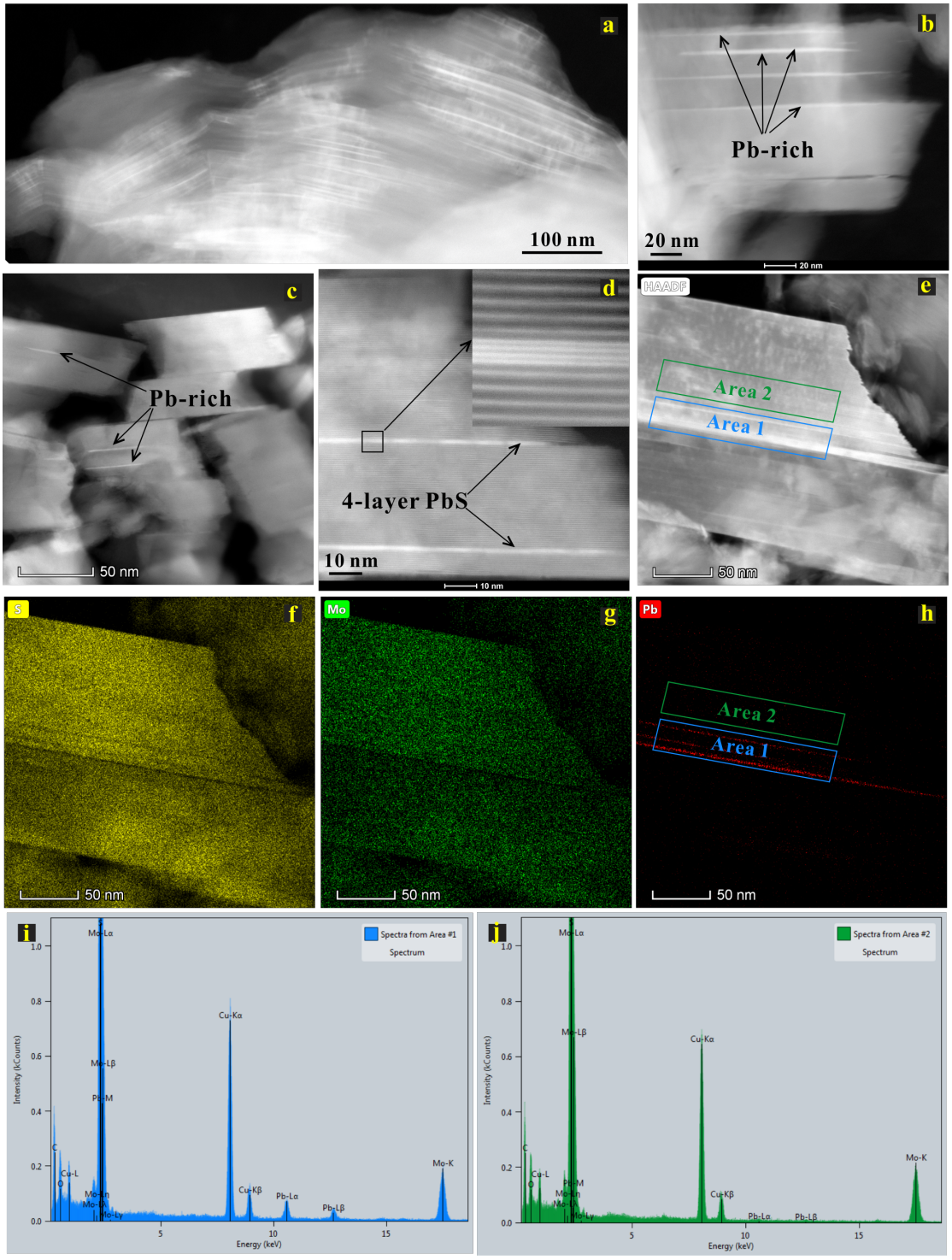

Figure OM2. High-angle annular dark-field scanning transmission electron microscopy (HAADF-STEM) images and corresponding STEM–energy-dispersive spectroscopy (STEM-EDS) maps/spectra of molybdenite crystals. (**a-e**) Pb-rich band (bright band in STEM images) distributed in different parts of the molybdenite crystals. (**f-h**) STEM-EDS maps of the distribution of S, Mo, and Pb, respectively, in the molybdenite in (**e**). (**i, j**) EDS spectra of the selected areas in (**e**) show that the bright bands have higher peak Pb intensities than the neighboring molybdenite.