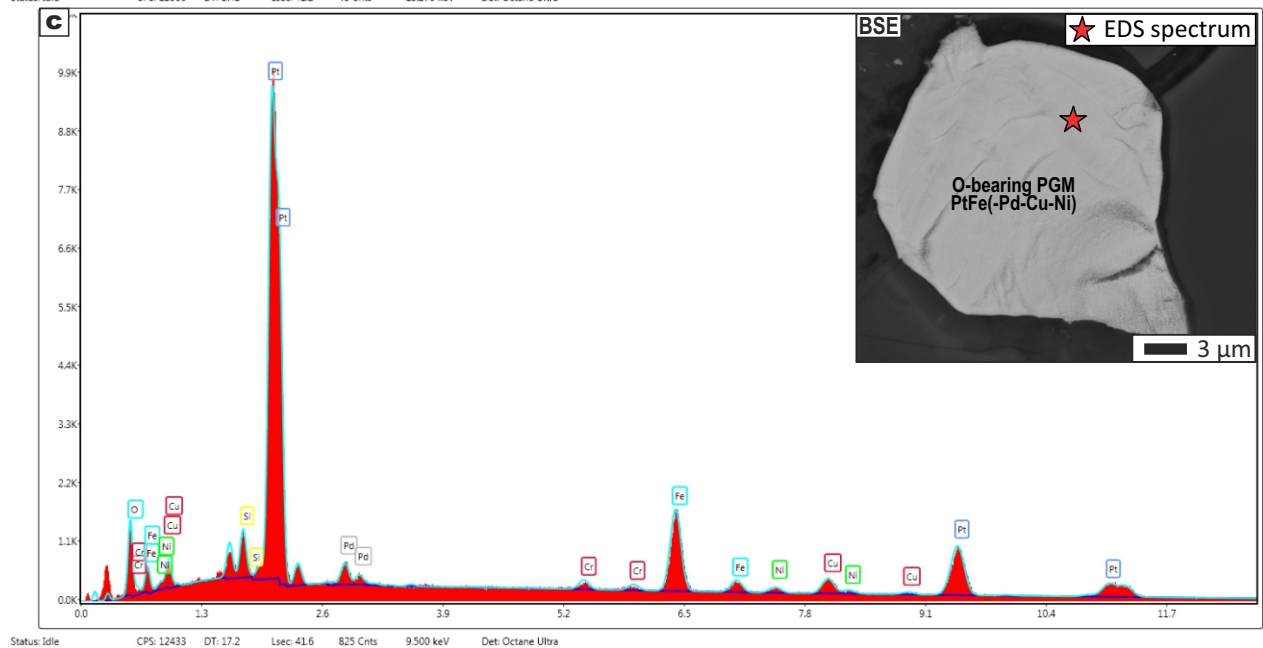
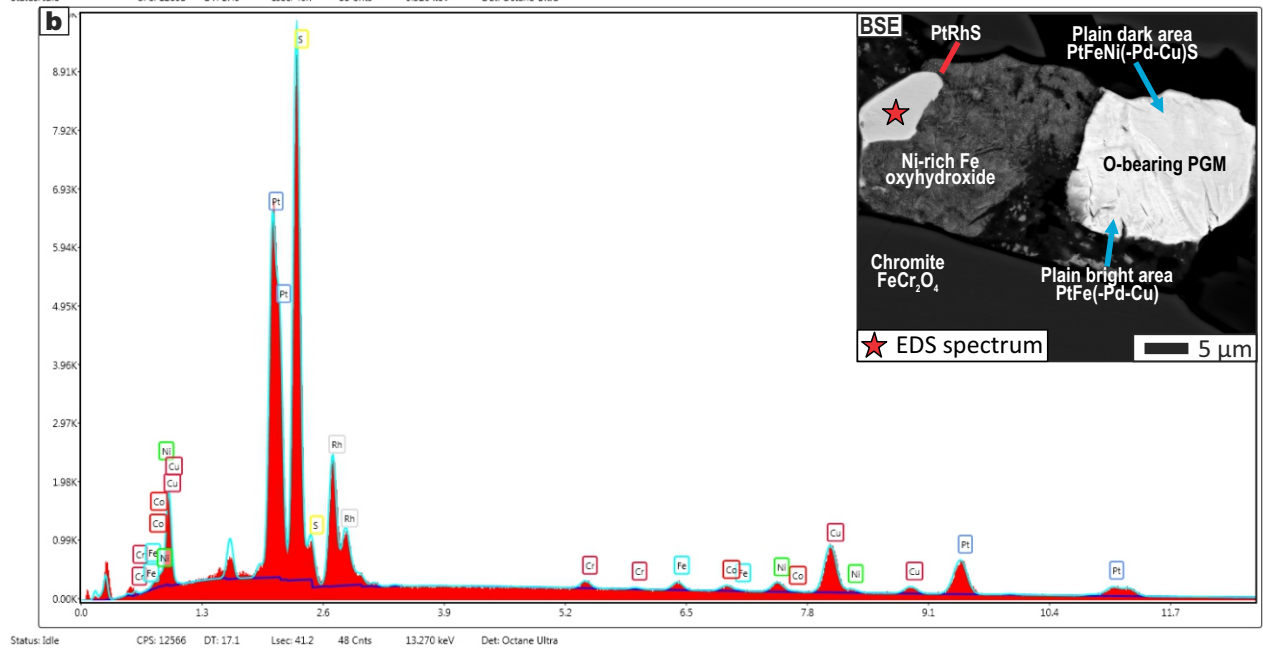
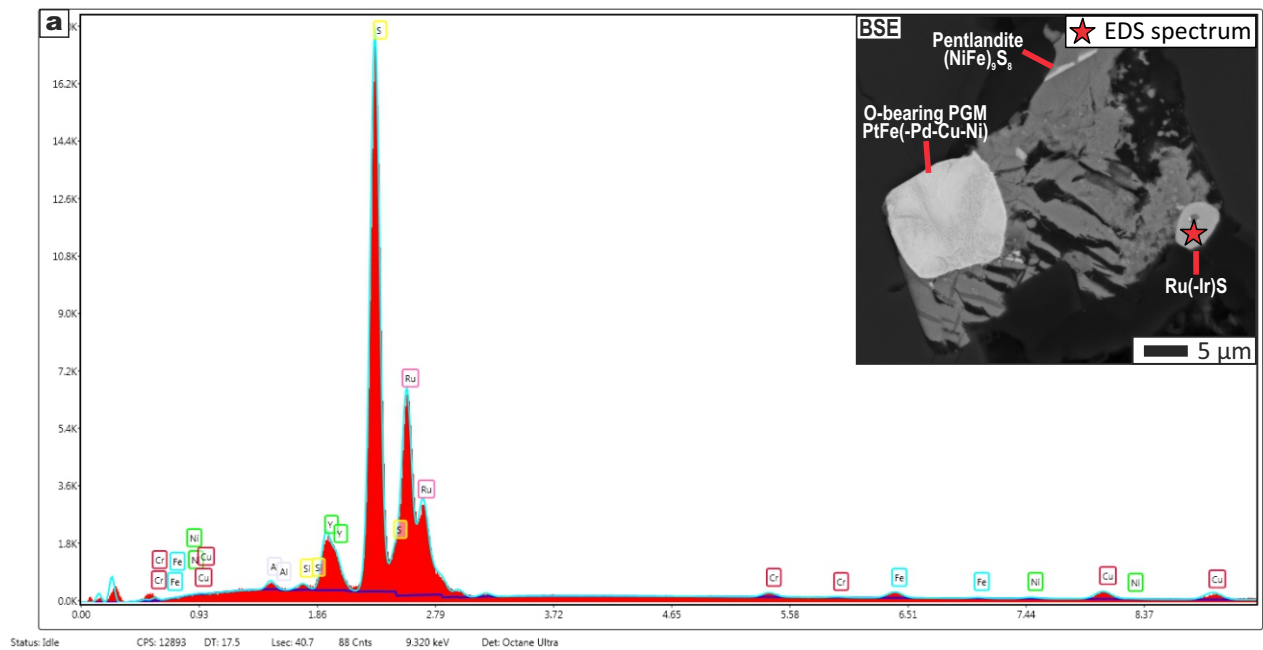
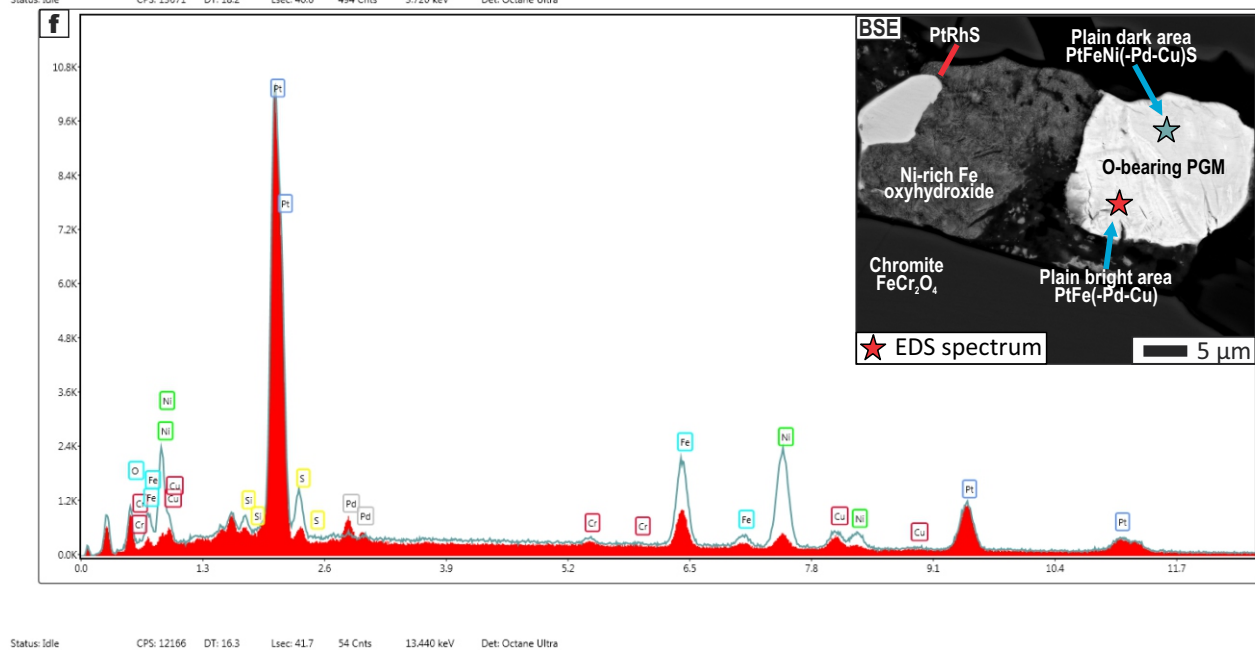
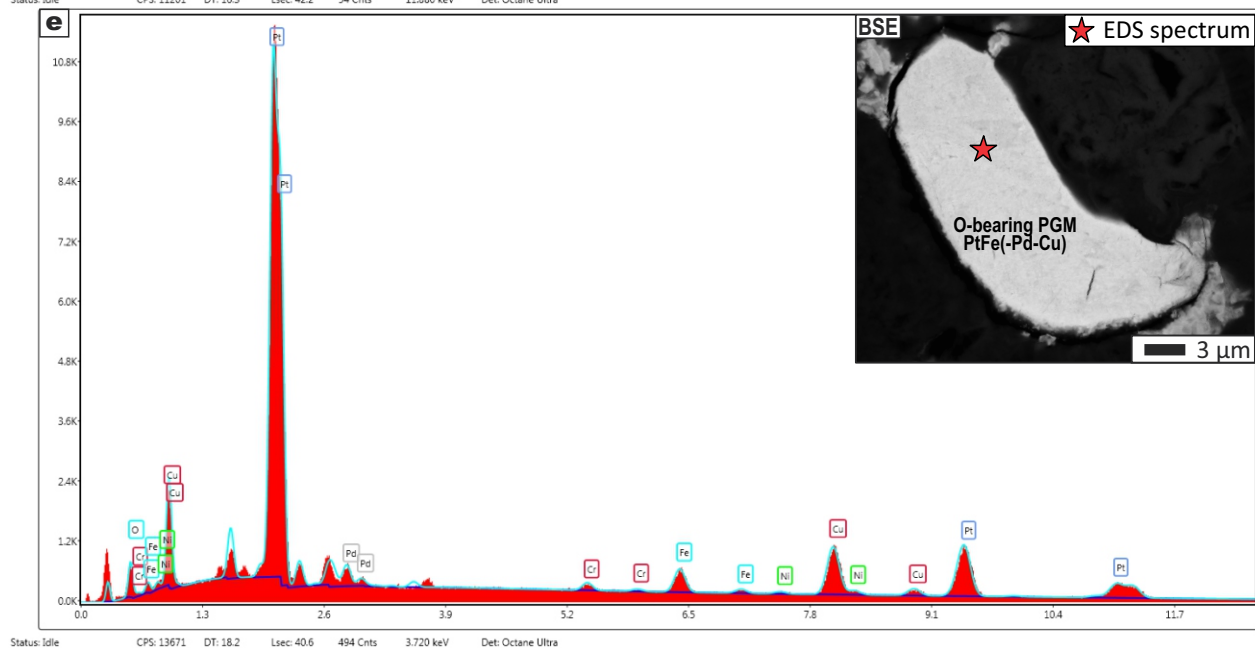
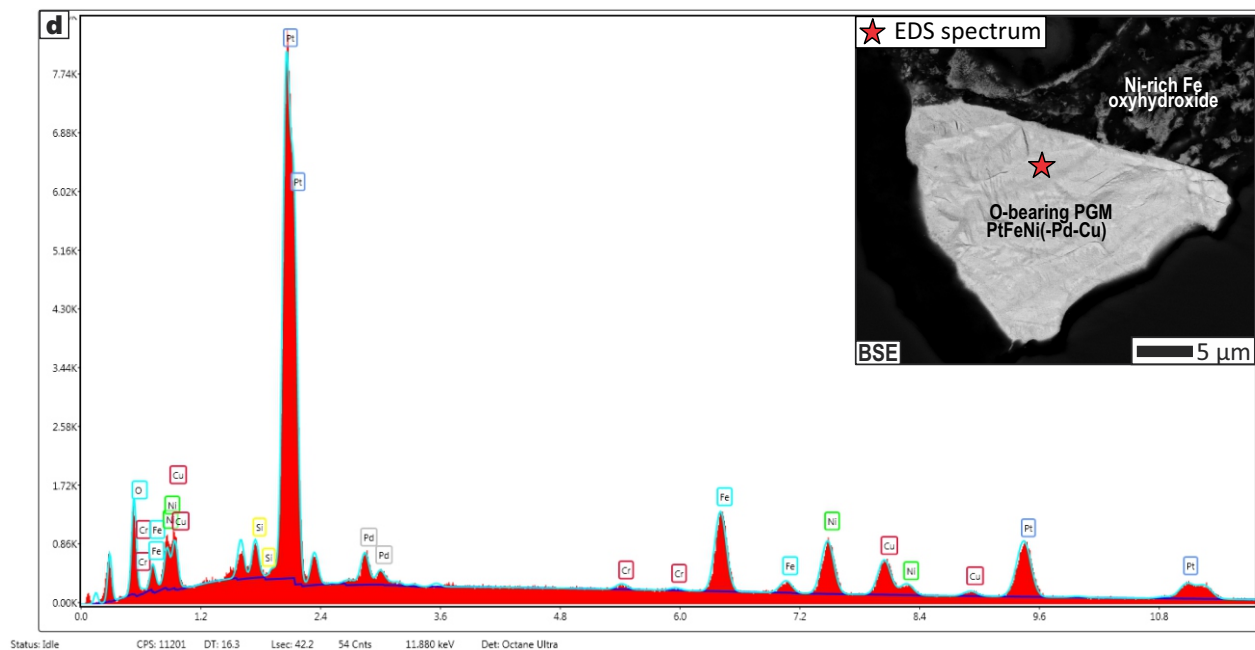


Figure S1. Thin foil preparation using focused-ion beam scanning electron microscopy. (a) Back-scattered electron (BSE) image of the sampled area (green area). (b). Secondary-electron image (SEI) showing the Si protective layer. (c–d) Pre-milled cross-sections of the thin foil. (e–f). Thin foil extraction and transfer to the Cu grid. (h–i) SEI images of the milling processes. PGM: Pt-group minerals.





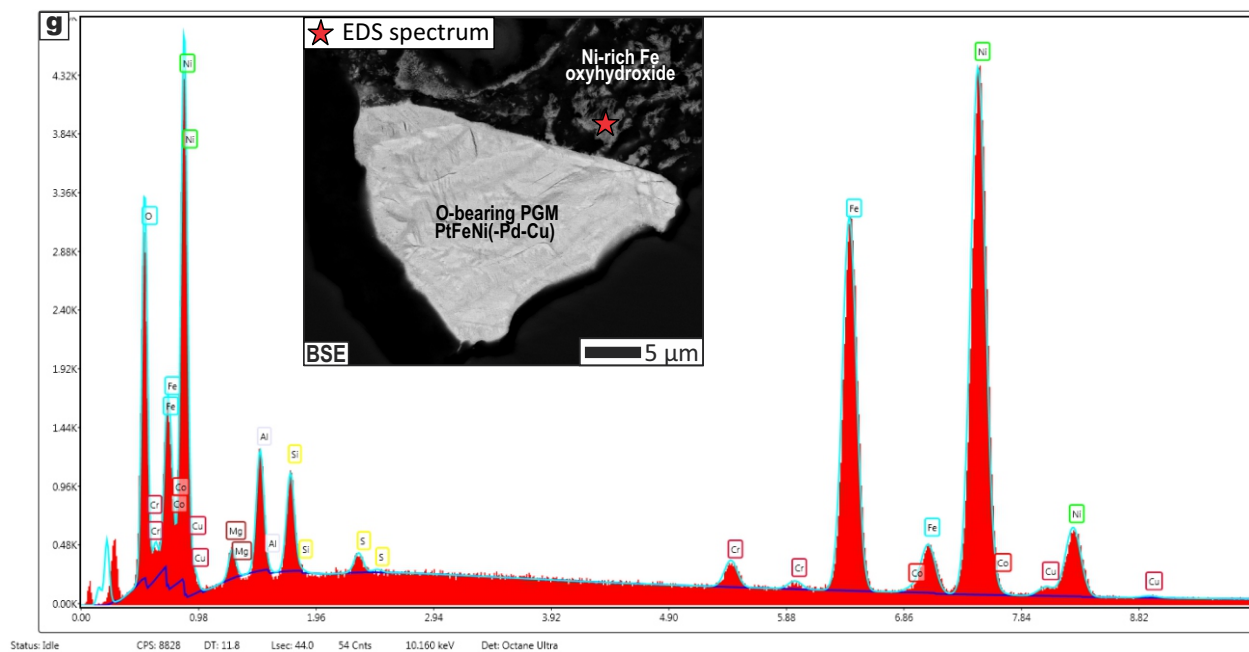


Figure S2. Energy-dispersive X-ray spectroscopy (EDS) results for the studied minerals. Back-scattered electron images (BSE) in insets show the analyzed spot. PGM: Pt-group minerals.

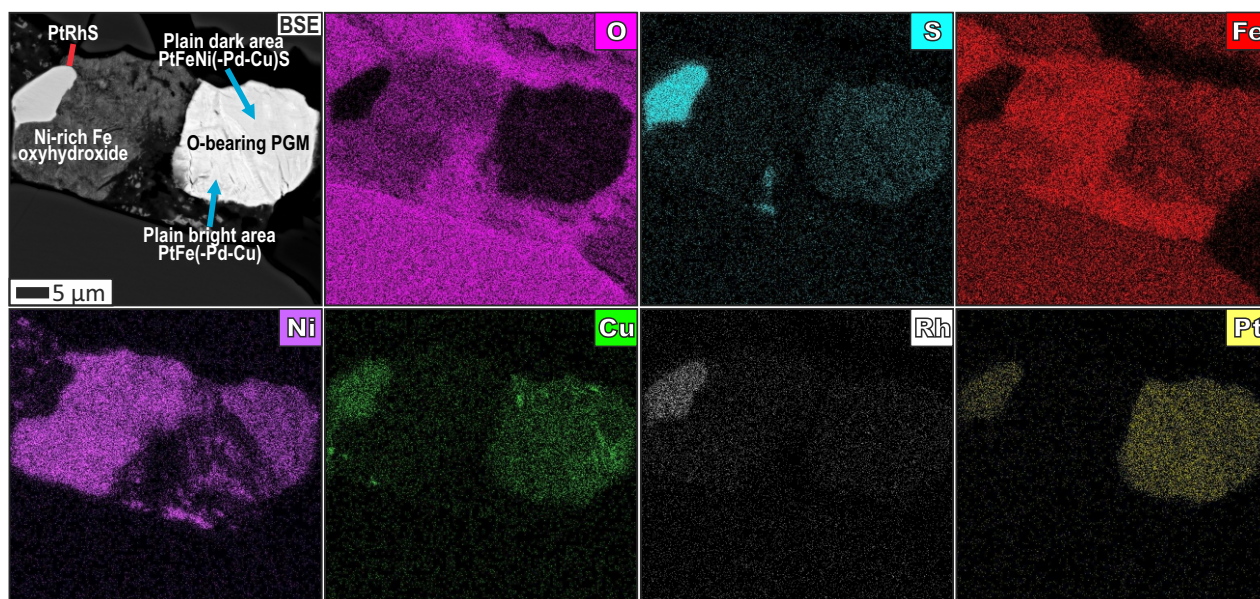
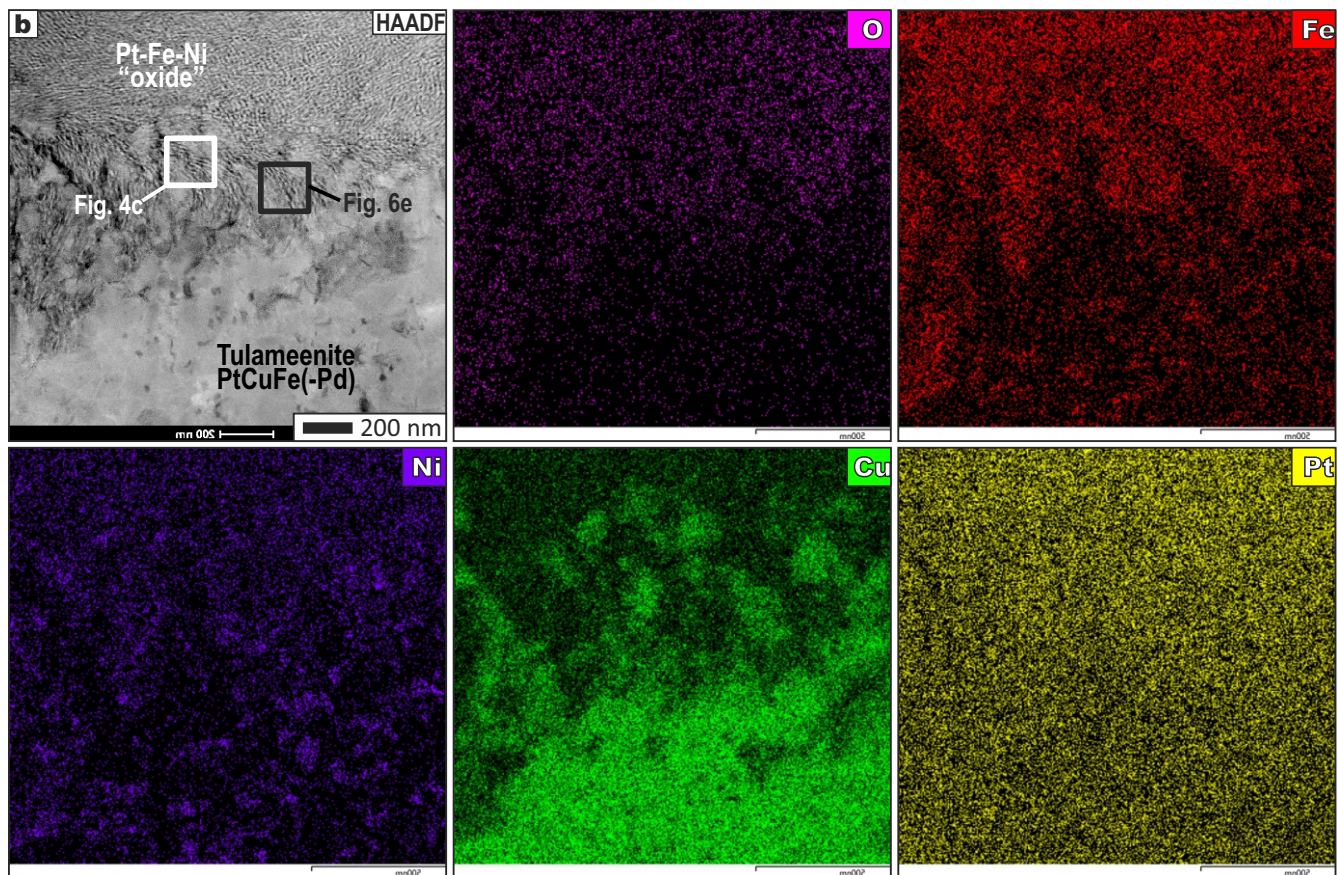
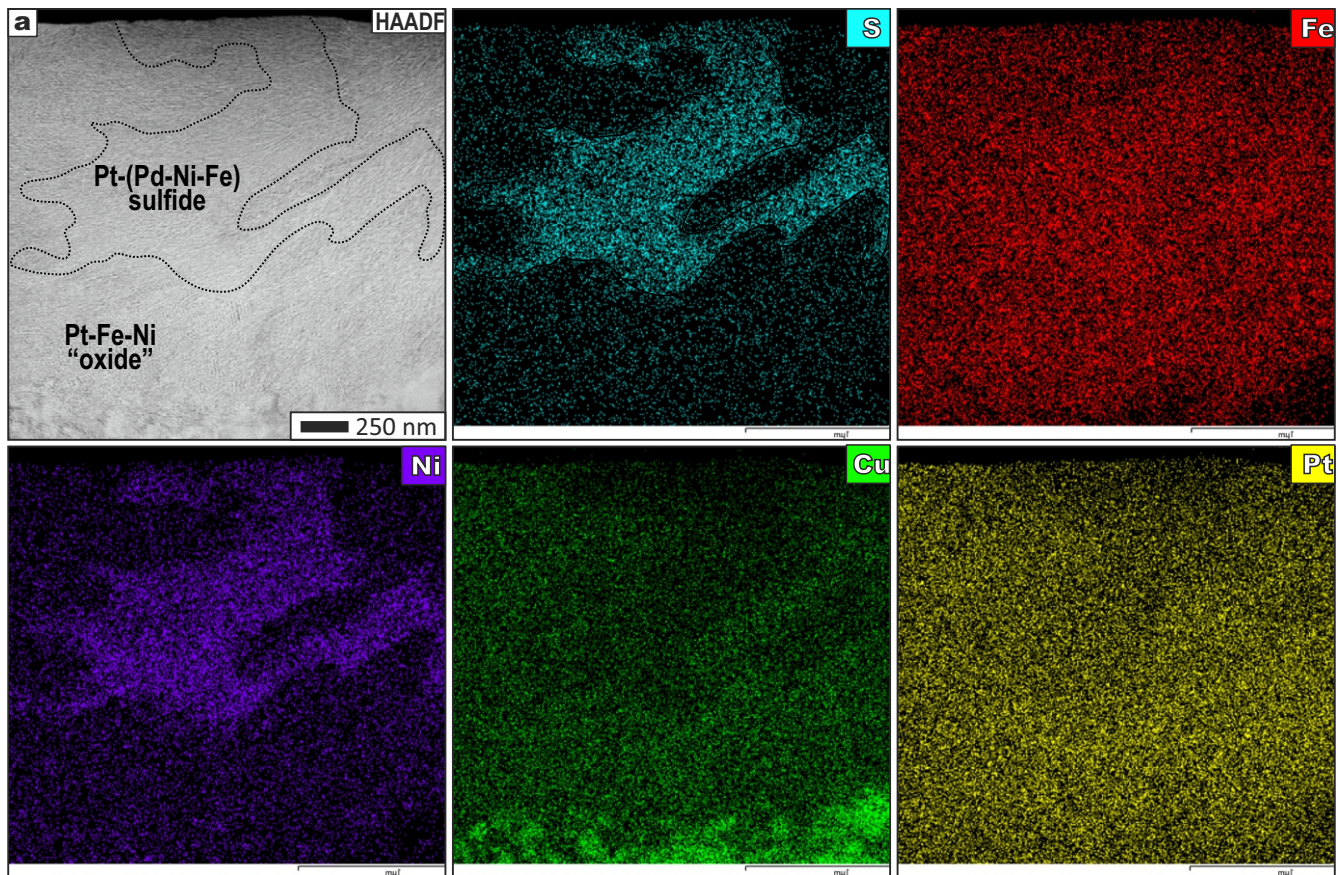


Figure S3. EDS elemental mapping of Figs. 3D or S2f. BSE: back-scattered electron image, PGM: Pt-group minerals.



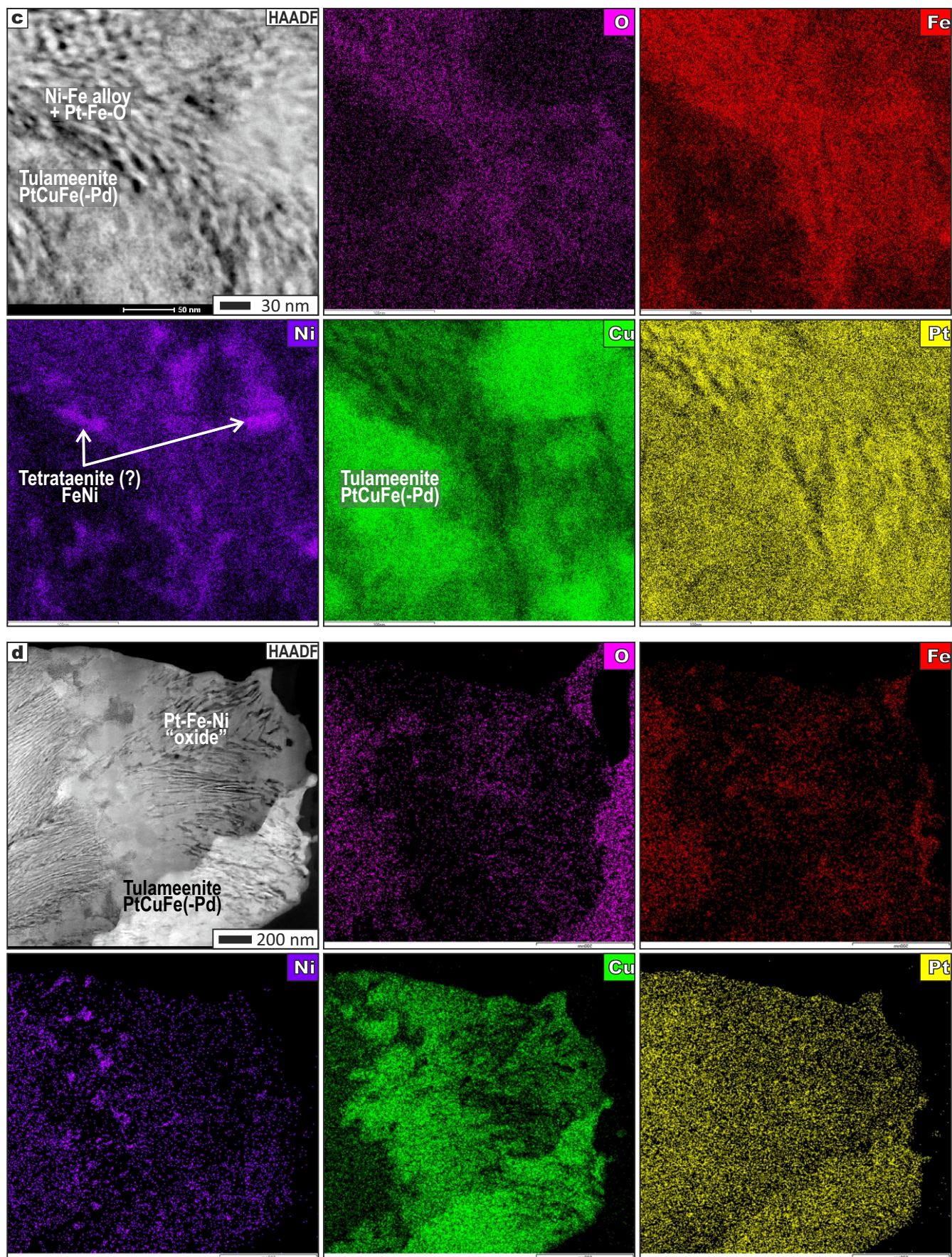


Figure S4. TEM-EDS elemental mapping of different segments of the thin-foil. (a) Fig. 6b, (b, c) Fig. 6d, and (d) Fig. 6e.

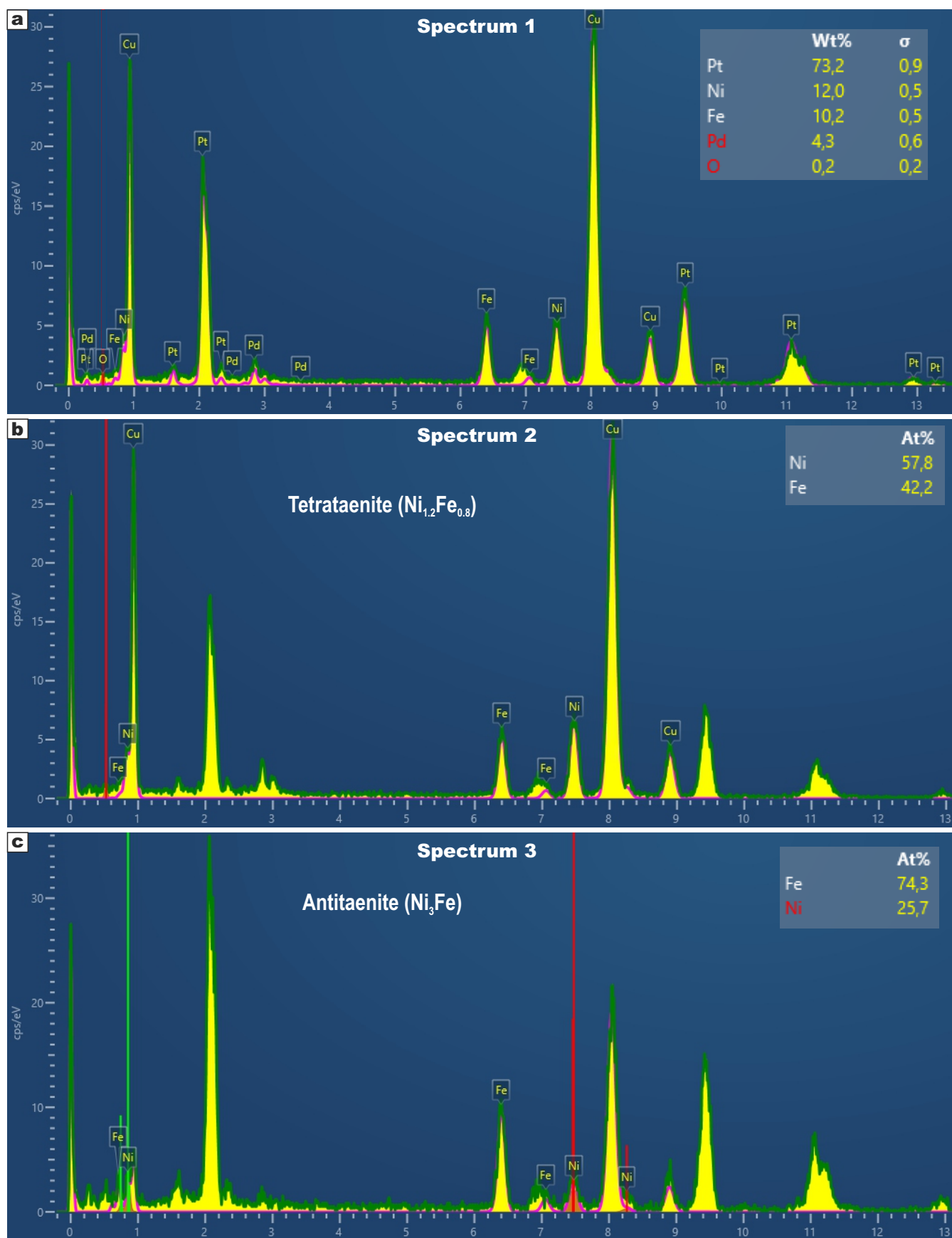


Figure S5. STEM-EDS spectra of the Pt-Fe-Ni oxidized alloy with needle-like texture (site indicated in Fig. 6f). (a) Raw spectrum. (b-c) Spectra with the recalculated Fe:Ni proportion to estimate the most likely Fe-Ni alloys.

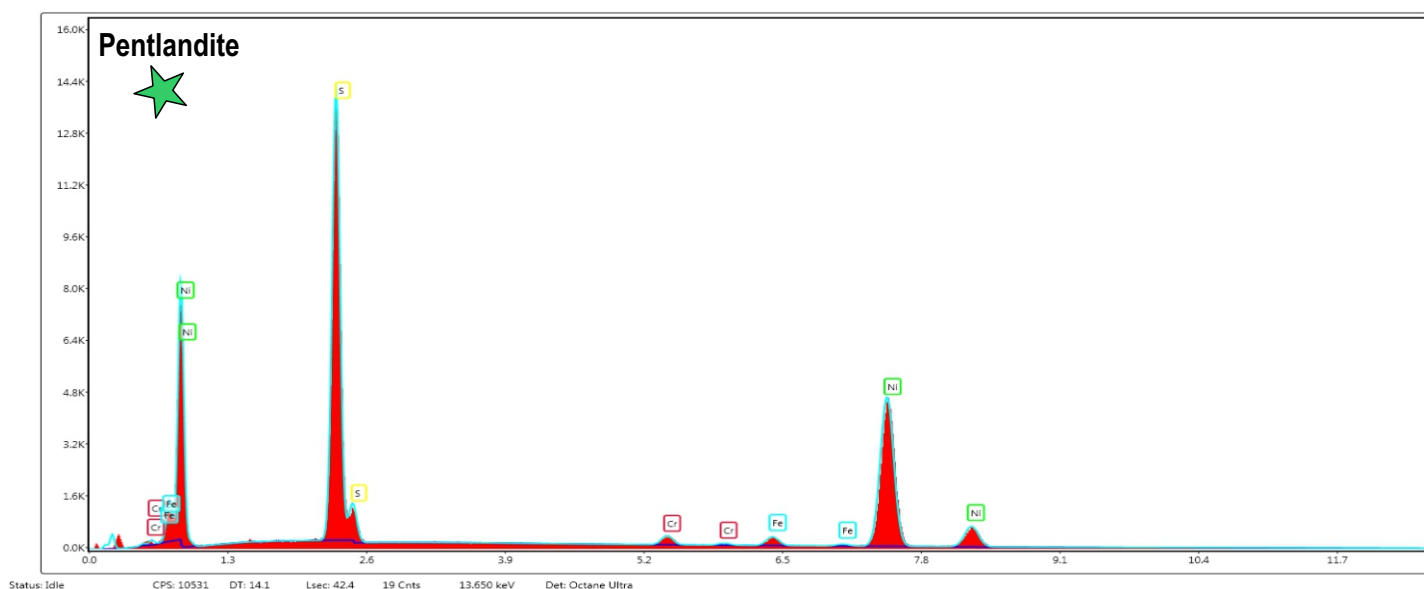
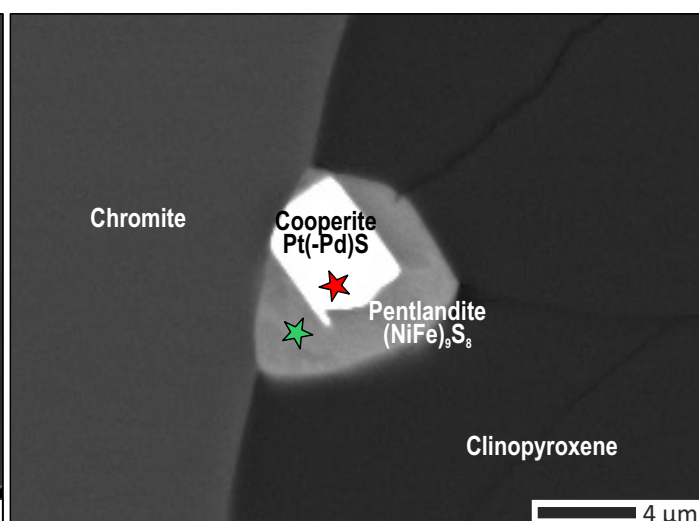
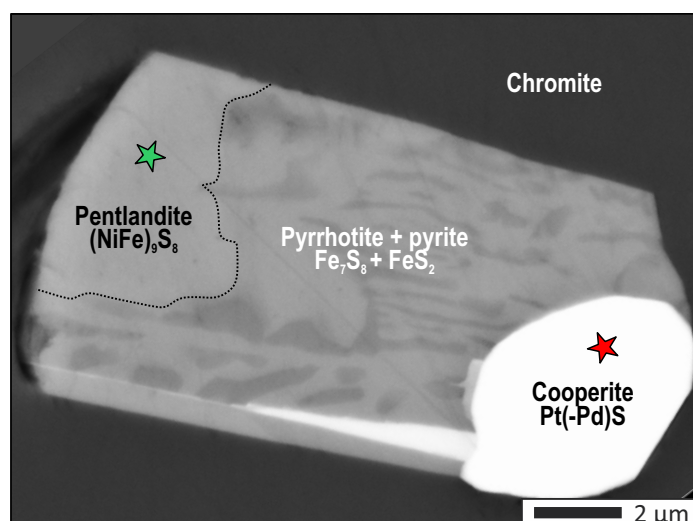
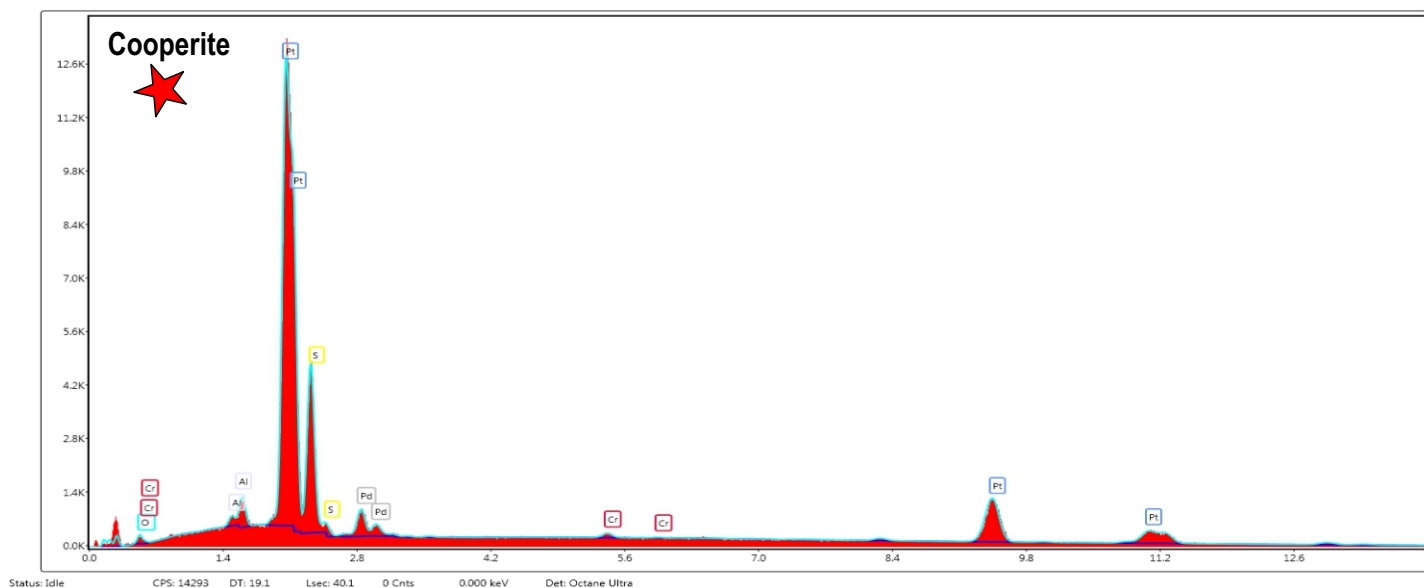


Figure S6. BSE images and corresponding EDS spectra of unaltered magmatic sulfide grains, consisting of cooperite, pentlandite, and pyrrhotite-pyrite. The grains occur as inclusions in chromite and clinopyroxene.