

FIGURE CAPTIONS

PLATE 1-SHINKOLOBWE-CHLORITITE-1

1/1. Polished thin section. Desktop scanner.

Circles 1 to 12: Analyzed PGE-Ox.-containing particles, composed of major Pd, with variable amounts of Cu, Fe, Pb, Se and Te.

Irregular opaque spots: chloritized rock fragments (volcanic?)

1/2. Polished thick section. SEM(BS)

Partially altered particle composed of:

a: Fe-Te-Pb-Ox. (various shades of grey due to variable Te and Pb contents)

b: palladinite (Pd,Cu)O

c: residual Pd-Cu-Fe-Te-(Ox.?).

PLATE 2-SHINKOLOBWE-CHLORITITE- 2

Polished thick sections. SEM(BS)

2/1. A spot composed of:

a.chlorite

b.Co-impregnated chlorite

c.PGM (enlarged in 2/2)

2/2. Partly oxidized PGM composed of:

c: metallic Pt-Pd

d: oxidation rim of Pt-Pd-Co-Ni-Fe-Ox.

2/3. Two neighbouring particles, variously altered:

c. inalterd metallic Pt

e: residual Pt-Pd-Ru

f: Ru-Ir-Co-Ni-Fe-Ox.

2/4 to 2/6. Heterogenite with metallic Pt in chlorite:

a: chlorite (black)

b: heterogenite (grey)

c: metallic Pt (white spots and linings)

2/6. Heterogenite with metallic Pt, enlarged from 2/5.

This heterogenite particle contains very small particles of Pt, down to the separation limit. Semi-quantitative analyses of spots of heterogenite devoid of visible Pt, down to the highest practical magnification (0.01 μm), found from 0 to 4 wt.% Pt.

PLATE 3-RUWE-BUTTGENBACH SAMPLE

3/1. Paramagnetic fraction (Frantz separator), sifted (100-to-200 μm).
Six hundred particles, handpicked, aligned and fastened with double-coated tape on an aluminium SEM-stub. Desktop scanner picture. The qualitative analyses of the individual particles show that about 30 have an external palladinite-composition, the others being mottramite and Fe-hydroxides.

3/2. A rare composite grain of palladinite (Pd+Cu) and mottramite (Pb+Cu+V).

PLATE 4-PALLADINITE (Pd,Cu)O

All pictures under SEM(BS)

4/1. Shinkolobwe chloritite. Polished thick section.

a: chlorite

b: palladinite (grey) with Pd-Pb-Cu-Se residues (white)

c: unoxidized Pd-Pb-Cu-Se (undetermined).

4/2 to 4/4: polished powder mounts.

4/2. Grain composed of zoned palladinite (light grey) with Fe-rich zones and spots (dark grey).

4/3. Deeply altered and shattered palladinite grain (various shades of grey). Enlarged in 4/4.

4/4. a: palladinite (variously shaded in grey, depending on Pd/Cu/ Fe ratios).

b: residual oosterboschite (white).

PLATE 5-UNOXIDIZED PGM-1

5/1 to 5/5: Unpolished powder mounts. All pictures under SEM(BS)

5/1. RUWE-H271, HF-leach., $d > 2.77$.

Group of Pt-Fe crystals amidst hematite and rutile particles.

5/2. RUWE-H274. Nitric acid leach of mottramite nodules, $d > 2.77$.

Group of native Pt flakes.

5/3. RUWE-H271, HF-leach, $d > 2.77$.

Group of vysotskite crystals.

5/4. RUWE-H271, HF-leach, $d > 2.77$.

Isolated sudovokovite crystal, showing trigonal symmetry.

5/5. RUWE-H271, HF leach, $d > 2.77$

Complex particle composed of: oosterboschite (white) and covellite (light grey).

5/6. MINDINGUI-GOSSAN. Polished thick section.

A swarm of potarite particles (white, Hg(Pd,Pt,Au) in Fe-hydroxide (grey)).

PLATE 6-UNOXIDIZED PGM-2

6/1. MUSONOI-EXT. HF-leach. Pol. powder mount.

a: oosterboschite

b: trogtalite

6/2. MUSONOI-EXT. Pol. thick section.

a: merenskyite (Pd=2Te)

b: covellite

6/3. MUSONOI-EXT. Pol. thick section.

a: Se-hollingworthite (? Rh-As-Se)

b: covellite

6/4. SHINKOLOBWE-H47. Pol. powder mount.

a: kotulskite (? Pd=Te)

b: (Pd,Pt)-(Te,Se)

6/5. MUSONOI-EXT. Pol. thick section.

a: Se-carrollite

b: (Pt,Pd)-(Co,Cu)-(Se,S)

c: Pt-(Co,Cu)-(Se,S)

6/6. SHINKOLOBWE-VAES. Pol. thick section.

a: (Pd,Cu)(Te,Se)₂ (Se-merenskyite)

b: penroseite

c: (Ni,Co)(S,Se)₂ (Se-vaesite/cattierite)

d: dolomite
