

## METHODS OF STUDY

The following methods of separation, concentration and study have been used when appropriate:

- Magnetic separations (hand magnet and Frantz Isodynamic Separator);
- Hand-picking of particles under the binocular microscope;
- Hydrofluoric acid leaching;
- Density separation: centrifugation in bromoform;
- Reflected Light Microscopy (RLM) on polished thick sections;
- RLM and Transmitted Light Microscopy (TLM) on polished thin sections.
  
- Scanning electron microscopy (secondary SEM-SM mode, and back-scattered SEM-BS mode) applied to polished sections, powder mounts and hand-picked particles;
- Electron microprobe (XR Energy Dispersive Spectrometry EDS);
- Computer automated semi-quantitative chemical analyses.

Proposed mineral names are based on those which are known for similar compounds from the Katanga deposits, or from elsewhere. The following criteria have been used to name the detected minerals:

- 1) Chemical compositions (EDS-semi-quantitative), and calculation of the stoichiometric (atomic) ratios.
  
- 2) Visual optical properties (RLM/TLM):
  - relative reflectivity (subjective)
  - colour
  - pleochroism and anisotropism
  - transparency-opacity-internal reflections
  - associations, alterations, replacements
  - polishing relief.
  
- 3) Electronic properties based on atomic number:
  - associations of fresh minerals (with high BS yield) with their alteration products and neighbours (lower BS yield).
  
- 4) EDS detection of oxygen, and comparison with pure metals and primary minerals.

Formulas of undetermined and unnamed minerals and mineraloids (mixtures of amorphous and sub-micrometric minerals) are qualitative, and represented by a suite of their atomic symbols (grouped in order of PGE-cations-anions). In each group, the order is of their relative or semi-quantitative importance. Since stoichiometric ratios are not always known, they are not written, and the groups of elements are separated by hyphens. Example: (Pt, Pd)-(Cu, Co)-(Te, Se).

The oxides-hydroxides-oxihydroxides-hydrates are merely signaled by "Ox.". The latter indicates that combined oxygen has been determined qualitatively in the spectra, or has been inferred from the compound's optical and associative properties.