SCOPING METALLURGY FOR PGE DEPOSITS

SCOPING LEVEL METALLURGICAL CHARACTERIZATION FOR PGE DEPOSITS

PGM ores are some of the most difficult to treat metallurgically and their treatment should be evaluated early in any exploration program. The three step program provided by SGS is designed to provide a step-by-step preliminary evaluation of such ores to:

- adequately understand the basic metallurgical behavior of the ore to allow for the conceptual economic evaluation of a project
- develop bankable milestones that can assist with financing
- provide some indication of the likely cost associated with advancing the metallurgical understanding of the project
- step-wise evaluate progress and the results obtained, before committing to the next phase

SGS' metallurgical group has considerable experience in PGM mineral processing. Our engineers have experience both in PGM flowsheet design and also start-up and operational optimization – indeed SGS is a world-leader in the design and management of structured plant optimization programs for PGM ores. Since we are constantly applying what we learn about how production plants treat PGM ores, you can be sure our PGM ore evaluations and flowsheet development programs are bankable and will truly reflect the likely performance of a production plant.

Typically SGS completes a PGM project once every two months, with most projects being conceptual studies as described in the attached proposal.

WHAT DOES A SCOPING PROGRAM DELIVER?

On completion of a scoping program such as this, you will have all the metallurgical information required to conduct a formal conceptual study and preliminary economic evaluation of the project. You will also have an initial assessment of the likely environmental challenges with respect to acid mine drainage.
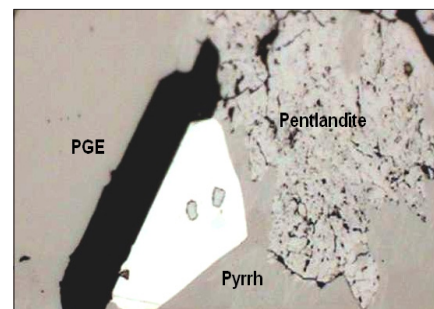
WHAT IS INVOLVED?

Scoping programs for PGE metallurgy consist of three phases:

Phase 1. Mineralogical Characterization

The first phase is designed to characterize the ore and identify critical problems if present. It becomes the basis for all further testing. Mineralogical characterization provides:

- a petrographic and quantitative mineralogical characterization of the ore
- provide some indication of what challenges will be likely be encountered (grind size, concentrate regrind, silicate flotation activity, pyrrhotite rejection etc)
- indications of how the ore should be best treated with respect to mineral processing and/or hydrometallurgy

With these parameters known, subsequent test programs can be better directed. Quantitative PGM mineralogy is excluded from this study as such studies are very expensive and would not be appropriate for such a conceptual exercise.

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Phase 2: Preliminary Flowsheet Development

While the exact configuration of Phase 2 is subject to the results from Phase 1, comments can be made as to next steps. In a typical conceptual PGM mineral processing study, the objectives of Phase 2 are:

- to develop a conceptual flowsheet
- to provide an indication of the likely response of the ore in terms of grade and recovery
- to rate the ore in terms of metallurgical response
- to determine if there are "metallics" in the ore that can be sold directly to refineries for faster, high value payment
- assess how the ore is likely to respond to production scale testing by comparing data to the Supasim Simulation database consisting of the existing primary PGM producers of South Africa, Zimbabwe and Canada

Phase 3. Flowsheet Optimization

The final phase seeks to optimize and confirm the flowsheet determined in Phase 2 through locked cycle flotation testing. The flotation concentrate will be exhaustively tested to assess its saleability to smelters or refineries. All final products of this testing are characterized mineralogically and environmentally.

TIMING

All three phases can normally be expected to take 15 weeks to complete. The entire project can be staged, with a delay between each phase if required for financing.

CONTACT INFORMATION

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WHEN YOU NEED TO BE SURE

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