

## Technology Opportunity Bulletin

### A Novel Thiosulfate/Thiocyanate Gold & Silver Recovery Process

Tech ID: 2005-016

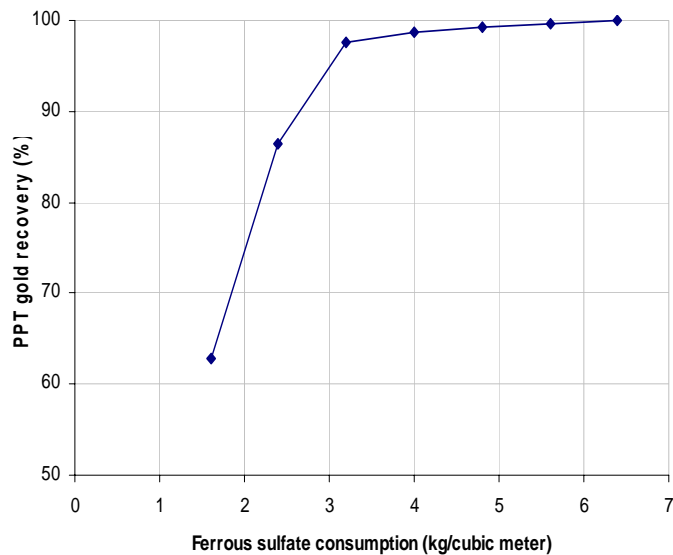
#### Description:

A researcher at Queen’s University has developed a novel process for the recovery of gold or silver (as a solid) from thiosulfate and thiocyanate leachates. The process, which uses a low-cost, environmentally-inert reagent, is suitable to pre-existing or green-field industrial leaching processes and results in the rapid and almost complete recovery of the precious metal.

By employing a reductive, co-precipitation process this novel method may provide a cost-effective alternative to existing recovery techniques such as carbon/resin adsorption and zinc/copper cementation. Bench testing has validated the effectiveness of this process as is demonstrated in the example below.

#### Effect of Ferrous Sulfate Consumption on Gold Recovery

[Au] – 21.27ppm, 50ml  
 [(NH<sub>4</sub>)<sub>2</sub>S<sub>2</sub>O<sub>3</sub>] – 0.2 mol/L  
 [CuSO<sub>4</sub>] – 300 mg/L  
 [NH<sub>3</sub>] – 0.9 mol/L  
 [FeSO<sub>4</sub>] – 50 g/L  
 FeSO<sub>4</sub> – 1.6 ~ 6.4 kg/m<sup>3</sup>  
 Agitation – 5sec @ 210 rpm



#### Advantages:

Additional advantages of the process include (1) minimum copper loss; (2) absence of any thiosulfate loss in the recovery process; (3) no introduction of harmful ions into the leachate; and (4) the barren solution can be easily recycled.

**Status of Commercialization:**

The technology is protected by international patent application PCT/CA2007/000566 entitled “Precious Metal Recovery from Solution”. PARTEQ Innovations, the technology transfer office of Queen’s University, is seeking industrial partners interested in licensing the intellectual property.

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