Direct Gold Leaching From Sulfidic Refractory Ores or Concentrates

Tech ID: UA18-232

Title: Direct Gold Leaching from Sulfidic Refractory Ores or Concentrates

Invention:

This solution is a less expensive and more environmentally friendly method for extracting gold from ores or concentrates. The industry standard is leaching using cyanide, but initial tests have shown that this method is more efficient at gold extraction than cyanide. In optimized conditions, this system achieved 99% gold extraction from copper concentrates, compared to the general recovery, which is usually below 50%. This system removes the need for pressure oxidation or a roasting plant which are conventionally used to increase gold extraction. The removal of these in the extraction process can save companies capital and operating costs.

Background:

Gold is a rare metal used in jewelry, coins, and as a hard backing for currency. It has great value around the world. Gold can be found in a natural metallic state or as an ore.

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When found as an ore, the gold must be extracted to become more valuable. The current industry standard is to use cyanide to leach the ore. Unfortunately, cyanide has numerous environmental drawbacks which can lead to added expenses because of regulations. Cyanide leaching has also been banned in some states and various European countries. The environmental problems of cyanide, combined with its less than ideal extraction rate has opened the door to a new technology.

Applications:

- In the leaching process of gold ores or concentrates
- In the leaching process of primary copper ores or concentrates

Advantages:

- Eliminates the need of expensive processing plants
- Can also apply to copper concentrates with a small amount of gold
- Does not have the environmental drawbacks of cyanide
- Developed at the University of Arizona—near many gold mines in the United States

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