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EARTHGOLD 600

APPLICATION INSTRUCTIONS
GOLD & SILVER LEACHING REAGENT EARTHGOLD 600
(Replacement of cyanide agent)

EarthGold 600 gold leaching reagent is a new generation GLR developed on the foundations of previous EarthGold reagents. It has undergone rigorous testing and trial runs at mine sites. It has been proven to offer a higher performance with a higher leaching rate, shorter recovery and low usage costs than cyanide. It is an alternative to replace cyanide in gold and silver leaching processes and is an environmentally-friendly product.

Application Scope:

- Ores: gold and silver oxide ore, primary gold ore, high-sulphur and high-arsenic gold ore, cyanided slag, gold concentrate, pyrite cinder and anode mud.
  It is most suitable for ores which are difficult to leach by the use of cyanide such as high sulphide and high-arsenic ores etc.
- Process: heap leaching, pond leaching and carbon leaching (agitation leach).

Product ingredients: diatomaceous earth, sodium thiosulfate pentahydrate, sodium carbonate, sodium cyanate.

Product form: in granular or powdery form;

Application method:
The application methods of heap spraying, pond leaching and carbon leaching are the same as that when using sodium cyanide.

During the procedure, the pregnant solution and the barren solution can be reused. It would be better to use activated carbon for pregnant solution adsorption in gold & silver extraction. Environment temperature higher than 10℃ would be better for the gold & silver leaching process. This method is compatible with the cyanide process.

Before adding the ore pulp for gold and silver leaching, the gold & silver leaching reagent

shall be fully stirred to complete dissolution stage with alkaline water at normal temperature.

Leaching rate and recovery:

In general, the leaching rate is normally 2% higher than cyanide and the recovery is 2-3 times fast than cyanide process by using EarthGold GLR. The following are typical recovery and leaching rates:

- Heap leaching: 5-8 days, 75%-98%
- Pond leaching: 3-4 days, 75%-98%
- Tank leaching: 2-3 days, 75%-98%
- Carbon leaching: 4.5-12 hours, 75%-98%

Our research and testing has shown that leaching rates in scale production increase a couple of percentage points than in laboratory sample tests.

Dissolution method

It can be used after being fully dissolved in water. In general, the dissolution can be accelerated in flowing water or through full stirring; dosing pool can be built near the barren solution pool in heap leaching processes in order to let backwater which has passed carbon directly wash the GLR and dissolve it into the barren solution pool.

Basicity Adjustment

Keep the PH value of backwater after the heap spraying or tank leaching of the raw ore at 11～12 generally when being adjusted with lime (CaO) preferably or caustic soda (NaOH).

Dosage:

The dose of the reagent is roughly 0.1‰～0.2‰ of the ore volume (100～300 grams of reagent/ 1 ton of ore), which may change with the property, grade and pH value of the ore. The practical dosage can be calculated based on the mass concentration of the reagent. In general, its consumption is less than sodium cyanide.

Dosing method:

Use the reagent directly when fully dissolved in water under room temperature. Generally, the water turbidity and concurrent stirring can accelerate dissolution. Spraying the gold leaching reagent makes it dissolve in the tank (barren solute tank) or place it directly into the tank for dissolution. For heap spraying, the processes of dosing and spraying can be conducted simultaneously

- It is recommended to carry out leaching testing and refer to its optimum conditions.
- Calculation method of dosage: Added dosage of GLR = (optimum concentration value －measured concentration value) × water volume in dosing pool; assuming that the optimum concentration value of GLR is 1.5 ‰ (calculated as per water volume), the backwater GLR concentration is 0.6 ‰ and barren solution pool has water of 500 square meters, then the added dosage of GLR is (1.5－0.6)×500=450 kilograms.

Reagent concentration:

Since the composition and pH value may vary with different ores, the gold leaching reagent

will be calculated proportionally and as per the optimum concentration calculated, based on the actual ore volume and the ore sample test result.

FEATURES:

There are a number of features and operational advantages EarthGold offers when compared to a cyanide reagent which while at a comparable cost to a cyanide reagent offers strong safety advantages:

- ✓ **Environmentally-friendly product** – lower toxicity
- ✓ **Safer product** – Labelled within an ordinary goods item; non-burning, non-explosive, non-oxidizing, zero radioactivity and is less toxicrated in category 5 in GHS, marking: may be harmful if swallowed.
- ✓ **Wide applicability** – it can be used for leaching gold and silver from various kinds of gold and silver ores by heap leaching, pond leaching and carbon leaching processes.It is most suitable forthe ores difficultly leached by cyanide like sulphide ore etc.
- ✓ **Higher leaching rate** – up to 30% higher than sodium cyanide.
- ✓ **Faster recovery**–up to 2-3 times fast than cyanide process
- ✓ **Lower costs**– for transportation, storage, operation andtailing water disposalthan sodium cyanide.
- ✓ **Easy to use**– It can replace sodium cyanide in gold and silver leaching processes without changing existing technical processes used for sodium cyanide.

COST SAVING HIGHLIGHTS

- ✓ Higher leaching rate than sodium cyanide
- ✓ Faster recovery
- ✓ Lower cost for transportation, storage, operation andtailing water disposalthan sodium cyanide.
- ✓ Reduction of your mine’s environment protection cost