

INLINE LEACH REACTOR

Highest recoveries, faster, guaranteed.

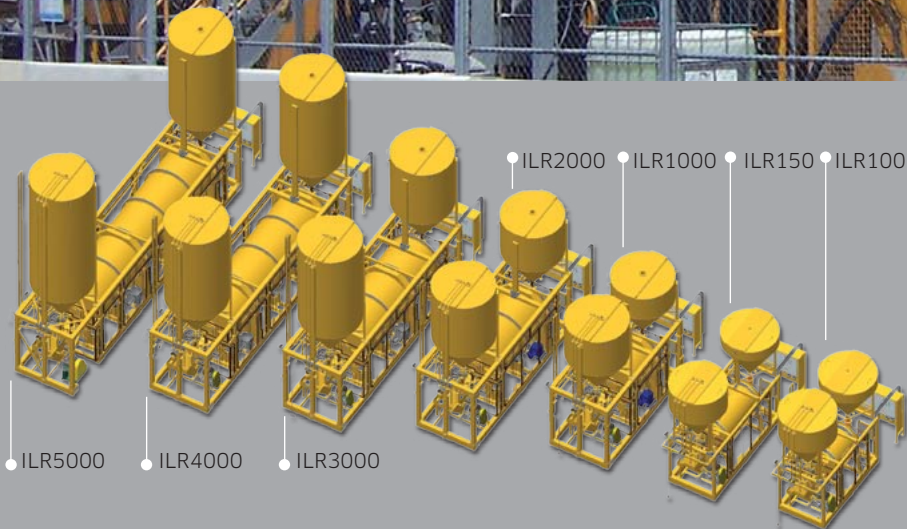
CONCENTRATING ON THE FUTURE, NOW

- Technical leadership
- World's first intensive leach technology
- Largest global installation base
- Advanced design

“Highest recoveries,
faster, guaranteed.”



Castlemaine Goldfields, Ballarat, Concentrate treatment plant



FULL CONCENTRATE TREATMENT PLANT

The InLine Leach Reactor ranges from large continuous models treating flotation concentrates, down to small batch concentrate units for high-grade coarse gravity concentrates. We have what you need.

World's first intensive leach technology

"...reduced cyclone underflow grade, higher total plant recoveries and lower plant tailings."

Yavus Atasoy, St Ives



Ares installation, Peru

PRODUCT PROFILE

Gekko Systems launched the InLine Leach Reactor (ILR) in 1997 as the world's first intensive leach production unit. It is designed to optimise the recovery of gold and silver from high-grade gravity and flotation concentrate streams.

The ILR has the highest unit recoveries of any concentrate treatment option available. Its unique design allows mine operators to produce gold and silver doré on site from gravity and flotation concentrates. The ILR is the market leader with over 100 units installed globally in over 40 countries.

THEORY OF OPERATION

The ILR works on the principle of the laboratory bottle roll to keep the solids in contact with the liquid. It comprises a horizontal drum rotating at low speed with a set of specially designed baffles and aeration system for maximum leach performance. The ILR drum contains the solids while leach solution passes through the drum carrying fresh reagents which are mixed into the solids as the drum rotates.

The leached slurry is separated from the pregnant solution and washed. The washed solids are discharged to tails and the dissolved gold is recovered from solution by electrowinning, zinc precipitation or absorption onto carbon or resin.

In Batch ILRs the leaching, solid-liquid separation and washing is performed in the drum and solution tank in discrete steps. In Continuous ILR systems, the feed enters and the leached slurry discharges continuously from the drum; the leached slurry is separated and washed in a separate CCD or filter and the gold continuously recovered from solution and the barren solution is then recycled to the drum.

TECHNICAL LEADERSHIP

Why is the ILR drum system the most efficient?

The heart of the ILR's effectiveness is the horizontal rolling drum. This high shear mixing zone has been specifically designed to remove the attrition layer from the gold by speeding up cyanide access to the gold surface. Continuous removal of the diffusion layer significantly improves leach kinetics. The Gekko ILR is the only intensive leach unit which attritions this layer.

The enriched oxygen zone ensures optimum dissolved oxygen levels are sustained, thus maintaining a high surface area for the solution/oxygen interface. Finally, the solution solid mixing zone allows for the most efficient chemical reaction.

Figure 1: ILR Drum System Cross Section

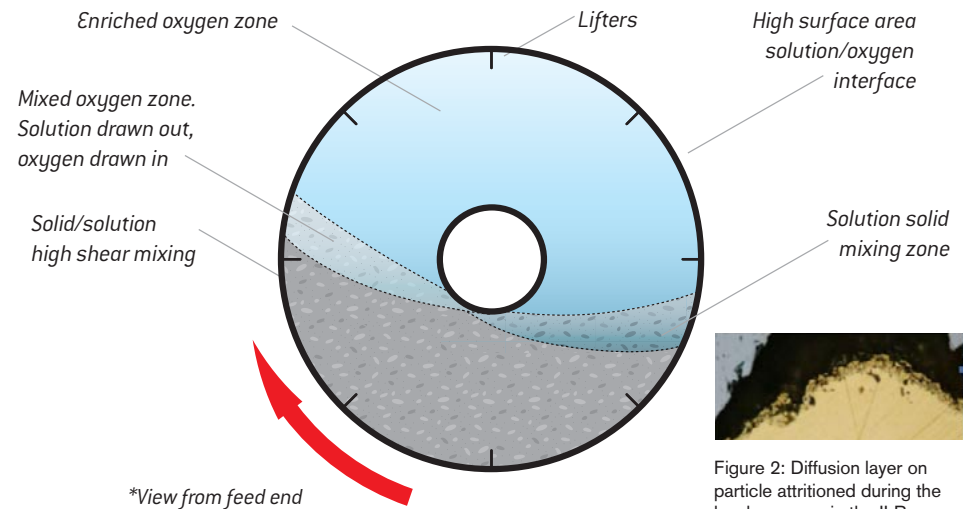


Figure 2: Diffusion layer on particle attritioned during the leach process in the ILR.

Fastest leach kinetics

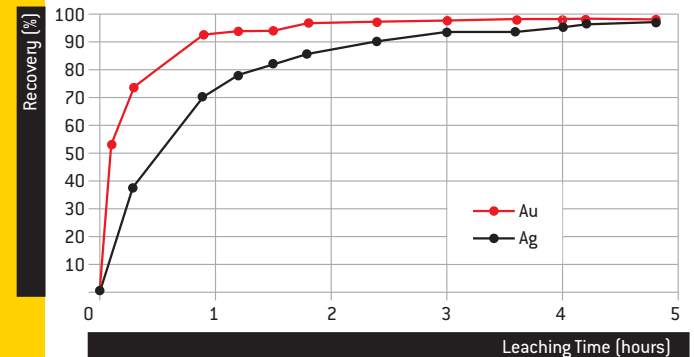


Figure 3: Sample ILR Kinetics Chart for Gold and Silver

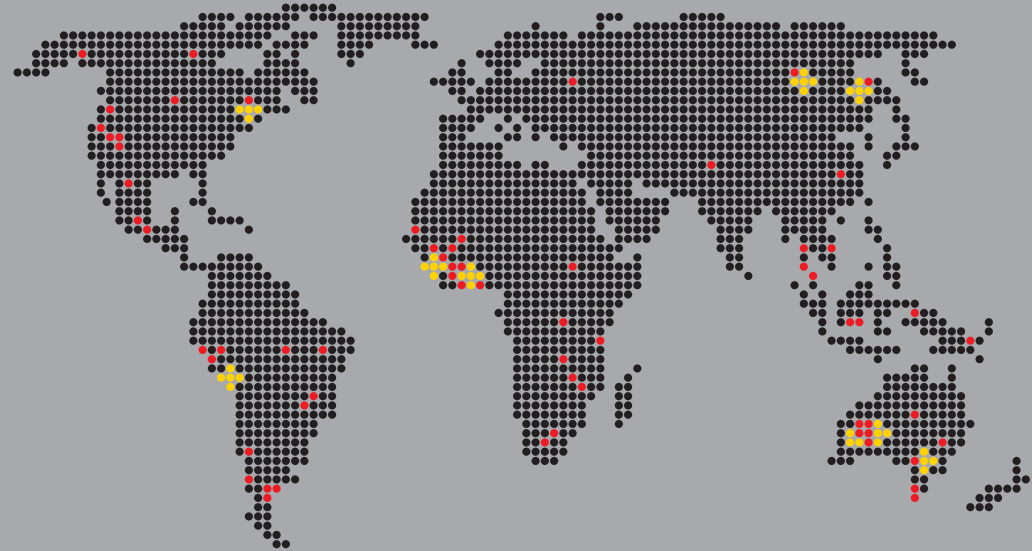
What are the benefits of the ILR for you?

| | |
|-------------------|---|
| Increased Returns | <ul style="list-style-type: none"> • Higher gold and silver recoveries • Lower operating costs • Treats coarse and fine material |
| Operability | <ul style="list-style-type: none"> • Increased safety features • Less operator time • PLC automation systems |
| Peace of Mind | <ul style="list-style-type: none"> • World's best technical support • Supplying four continents • Largest installation base |
| Accountability | <ul style="list-style-type: none"> • Automated sampling of solutions and tails • Metallurgical accounting |

Table 1: ILR Benefits

Key Features

- pH control
- Cyanide monitor options available
- Level sensors for level control and monitoring
- Fully bundled design
- Automated chemical addition
- Automated process control



| | | | | |
|---|------------------------|-----------------|-------------------|--|
| + | Hochschilts | Ares | Peru | Silver float concentrates, produces doré on site |
| + | Detour Gold Corp | Detour Lake | North America | Largest gravity circuit in North America |
| + | Gold Fields | St Ives & Agnew | Western Australia | Batch ILR - high-grade concentrates |
| + | AngloGold Ashanti | Sadiola | Mali | Fine gold concentrate, saprolitic ore |
| + | AngloGold Ashanti | Obuasi | Ghana | 3 units treating high arsenic, BIOX circuit |
| + | Castlemaine Goldfields | Ballarat | Australia | Continuous ILR 120t/day, Resin & EWC |
| + | Highland Gold Mining | Rusdragmet | Russia | Batch ILR - high-grade concentrates |
| + | Polyus Gold | Verninskoye | Russia | Batch ILR - high-grade concentrates |

Table 2: Sample ILR Installations

BOOSTED PROFITS AND PEACE OF MIND



QUALITY MANUFACTURING





BALLARAT – HQ

T: +61 3 5339 5859

F: +61 3 5339 5803

E: gekkos@gekkos.com

SANTIAGO

T: +56 2 657 1697

E: gekkos@gekkos.com

JOHANNESBURG

T: +27 11 448 1222

F: +27 11 448 1230

E: gekkos@gekkos.co.za

VANCOUVER

T: +1 604 681 2288

F: +1 604 681 2220

E: gekkos@gekkos.ca

PERTH

T: +61 8 9328 7200

E: gekkos@gekkos.com

gekkos.com