



engenium
smart project delivery

Gold

Gold (Au) is a soft, malleable, ductile and dense metal. Chemically it is a transition metal and one of the least reactive chemical elements hence it often occurs in native form as a solid solution with silver (electrum). As the most malleable of all metals, a 1m² sheet can be formed from a single gram of Au. Au has a density of 19.3 t/m³ and a melting point of 1,064°C.

Our Expertise

The Engenium experience covers a diverse commodity base and throughput range. Engenium has the ability to evaluate its client's resource and utilise sound metallurgical and mineralogical principals to engineer flowsheets suited to a variety of commodities and incorporating the entire spectrum of metallurgical unit operations.

Within the gold industry the Engenium Process Engineers have gained their experience in key senior project development and technical roles for projects and operations which utilise gravity, cyanide leaching, froth flotation, oxidative pressure or atmospheric leaching, bacterial oxidation, roasting or a combination of processing routes to recover gold from free milling ores, complex ores (oxygen consuming, cyanide consuming, preg robbing) or refractory gold ore bodies.

Our Capabilities

The services provided by Engenium include:

- Metallurgical testwork design, supervision, interpretation and geo-metallurgical assessment of free milling, complex or refractory gold ore bodies.
- Process selection studies based upon gold mineralogy incorporating various leaching routes (cyanidation, biological, atmospheric or pressure leaching) of whole ores and concentrates.
- Comminution studies and projects including single, two and three stage crushing, high pressure grinding rolls, single stage SAG milling, single stage Ball milling, SAB, SABC, AG milling, rod milling, fine and ultra-fine milling.
- Greenfield and brownfield circuit evaluation and modelling including application of new or novel technologies.
- Tailings handling including thickening and filtration, cyanide destruction, arsenic stabilisation, cyanide recovery, paste tailings, paste backfill and filtered tailings.
- Recovery from leach solutions by carbon adsorption (CIP, CIL, Pumpcell) or Merrill Crowe cementation, followed by elution from carbon via AARL or Zadra elution circuits.
- Engineering – concept and feasibility study across all disciplines, owners team representation during project development.
- Management and Coordination – project management, study management, owner's representation, project implementation strategies, design management, project engineering, cost control, scheduling.
- Commissioning, operations ramp-up and optimisation.
- NI 43-101 support, reporting and QP sign-off.
- Capital Equipment – QA/QC, selection, inspection, storage, maintenance and expediting.

Delivering Value. Delivering Results.