

sherritt technologies

AU
TECHNOLOGY

Refractory Gold Technology

Sherritt's Refractory Gold Technology is used to recover gold from refractory sulphide feedstocks. Many gold ores and concentrates contain fine grained gold locked within sulphide minerals, such as pyrite and/or arsenopyrite, unavailable for recovery by conventional leaching. In Sherritt's gold process, the sulphide and arsenide minerals are completely oxidized by pressure oxidation, thereby liberating the gold. Subsequent treatment by conventional techniques yields typical gold recoveries of over 95%.

The process converts the iron, arsenic and sulphur to environmentally stable hematite, ferric arsenate and gypsum, respectively.

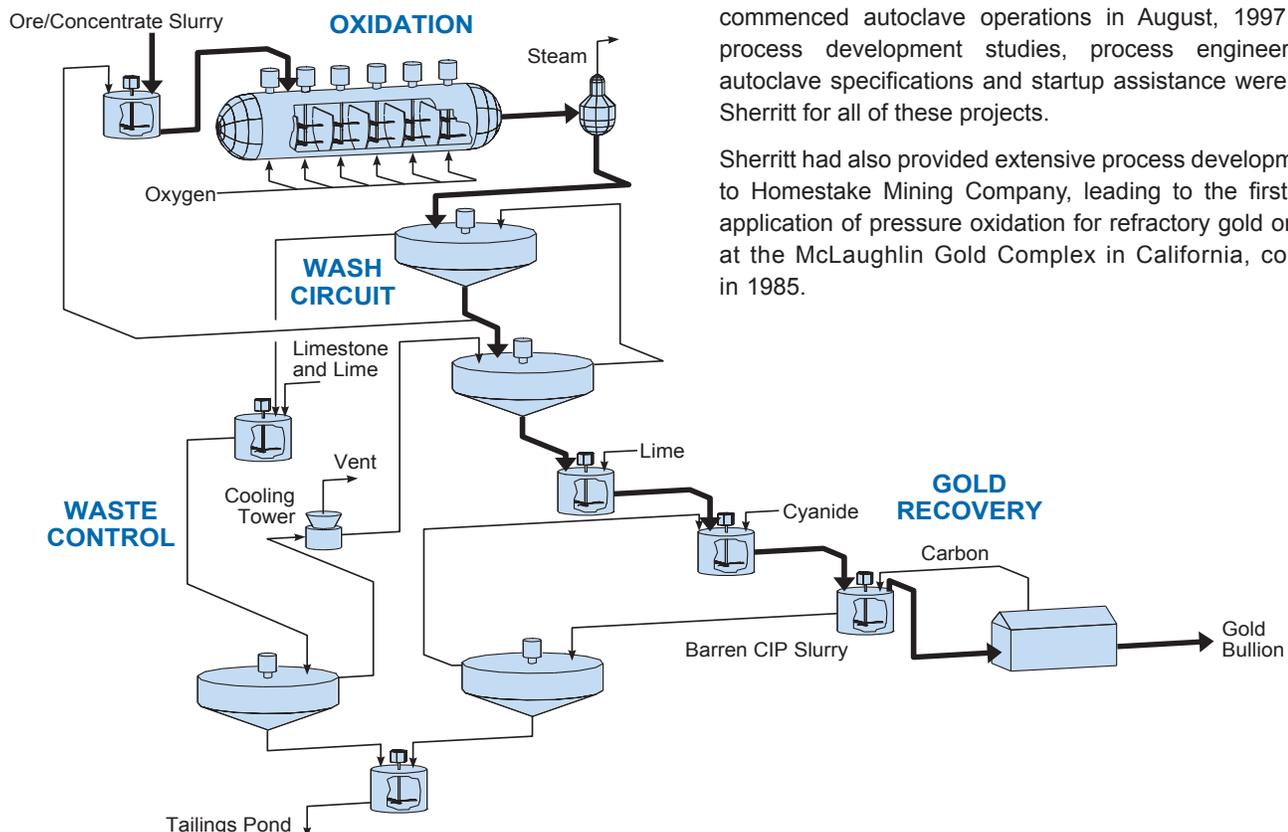
Sherritt's gold process has several advantages over traditional roasting practice. The process has low sensitivity to the sulphur, antimony and lead content of the feed material, allowing increased gold recovery in the mill flotation circuits, and/or the direct treatment of ores. It has been proven effective in the treatment

of feeds which have varied in composition from 0.1 to 20% As, and from 1.5 to 50% S. The process is environmentally preferred, eliminating gaseous emissions of sulphur dioxide and arsenic associated with roaster operations.

Four major plants worldwide are currently using Sherritt's proprietary refractory gold processes: the Sao Bento Mineracao plant in Brazil, operating on arsenopyrite-pyrite-pyrrhotite concentrates since 1986; the Campbell Mine Plant in Canada, which replaced its roaster with an autoclave circuit, on arsenopyrite-pyrite concentrates, starting in July 1991; the Porgera Joint Venture plant in Papua New Guinea, started up in August 1991 on pyritic concentrates; and, most recently, the Lihir Gold Plant, also in Papua New Guinea, which commenced autoclave operations in August, 1997. Laboratory process development studies, process engineering design, autoclave specifications and startup assistance were provided by Sherritt for all of these projects.

Sherritt had also provided extensive process development services to Homestake Mining Company, leading to the first commercial application of pressure oxidation for refractory gold ore treatment, at the McLaughlin Gold Complex in California, commissioned in 1985.

Pressure Oxidation of Refractory Gold Feeds



Gold Technology Clients

PROCESS DEVELOPMENT AND ENGINEERING

- Sao Bento Mineracao S.A., Brazil
- Homestake Mining Company, U.S.A.
- Porgera Joint Venture, Papua New Guinea
- Placer Dome Inc., Campbell Mine, Canada
- Lihir Gold Ltd., Papua New Guinea
- Aegean Metallurgical Industries S.A. (METBA), Greece
- Placer/Corona JV, Eskay Creek Project, Canada

COMMERCIAL PLANTS

- Lihir Gold Ltd., Expansion, Papua New Guinea (2012)
- AngloGold Ashanti, Córrego do Sítio, Brazil (2012)
- Lihir Gold Ltd., Papua New Guinea (1997)
- Placer Dome Inc., Canada (1991)
- Porgera Joint Venture, Papua New Guinea (1991)
- Sao Bento Mineracao S.A., Brazil (1986)

The Technologies Division of Sherritt is a recognized leader and pioneer in the development and application of pressure hydrometallurgy. In addition to supporting Sherritt's existing business units, the division provides metallurgical services, including test work, analytical services, engineering and commercial operations support to existing and emerging clients in the metals industry. We provide a suite of services to help take projects from the process and flowsheet development stage, to piloting and demonstration and onto commercialization. Sherritt has more than 60 years of experience in the development and commercialization of hydrometallurgical technologies for the recovery of non-ferrous and precious metals. More than 40 operating plants worldwide have successfully applied Sherritt's processing expertise.

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