

KEMIX®





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South Africa's rich mineral resources, and in particular the gold mining industry, have led to the growth of a sophisticated beneficiation industry. Established in 1986, Kemix has evolved alongside the mining industry to become a truly international business.

Kemix designs and supplies equipment for the metallurgical industry, specialising in adsorption circuit technology. This covers Carbon-in-Pulp (CIP) and Carbon-in-Leach (CIL) circuits for gold and silver recovery, and Resin-in-Pulp (RIP) circuits for the recovery of gold and silver as well as metals such as uranium, nickel and other base metals.

Kemix is able to supply from complete plants, such as the Pumpcell circuits for CIP and RIP, to equipment supply covering our range of equipment.

Our range of equipment comprises agitators, interstage screens, launder gates and plugs, electrowinning cells and carbon regeneration kilns.

Kemix offers a process technology service covering the simulation of adsorption processes using recognised programmes to evaluate and size the suitable adsorption circuit. This also covers the sizing of equipment and unit operations affected by Kemix technology, such as elution plants.

Kemix provides an engineering service to our customers covering design to general arrangement (GA) level for structures around our plants and equipment. This includes launder layouts for CIP / CIL circuits and maintenance structures for our screens.

Kemix strives to continuously develop technologies both from existing

equipment and new equipment. The development of the carbon regeneration kilns to operate at higher temperatures in non-gold applications, the Kemix sludge reactor and the application of Pumpcells to recover uranium and base metals are examples of ongoing technological innovations.

A dedicated product support department services customers through the supply of components and ancillary services.

Kemix operates throughout the world through a network of representatives.

Further information about our technology or our representatives is available on our webpage www.kemix.com



PUMPCELL PLANT

This self-contained carousel carbon adsorption plant enhances carbon management. The Pumpcell Plant has a residence time of approximately fifteen minutes per stage, making it considerably smaller than conventional CIP circuits. The Pumpcell Plant operates at carbon concentrations of 30 to 60 g of carbon per litre of pulp.

A carousel circuit differs from a cascade circuit by rotating the feed and discharge points of each tank to simulate the counter current movement of carbon against the pulp flow. Carbon management is simplified as each cell contains a discrete batch of carbon. In the cascade circuit the carbon is pumped against the pulp flow on a continuous basis.



MPS & MPS(P) SCREENS

These are used in CIL and CIP applications to screen pulp and activated carbon from each other. Typically, CIL or CIP applications operate in a cascade arrangement, where pulp is either pumped or gravitates down the adsorption circuit while carbon is pumped up the circuit. The pulp and carbon need to be separated from each other prior to the pulp proceeding down the circuit.

The MPS interstage screen is utilised in circuits with adsorption tanks in a cascade arrangement, allowing the pulp to gravitate down the circuit.



The MPS(P) interstage screen is equipped with a pumping impeller which generates a height differential and imparts a horizontal pulp velocity causing the pulp to flow into the next adsorption tank. This allows all adsorption tanks to be located on the same elevation, achieving ergonomic as well as installation capital cost benefits relevant to a cascade circuit.



INDUSTRIAL MIXERS

Kemix offers two ranges of mixers, the KX range of heavy duty industrial mixers and the lighter Stallion A and C Series.

The KX range is used extensively in the mining industry to handle heavy slurries. The Stallion A and C Series mixers are used in the dairy, food, brewery, pharmaceutical and processing industries.



A wide variety of design configurations can be applied to individual applications to maximise agitation efficiency and duty requirements.



CARBON REGENERATION KILNS

Kemix's carbon regeneration kiln is an indirectly fired rotary furnace featuring the Kemix patented dewatering screw feeder arrangement. Each Kemix kiln is custom designed to fulfill customer needs in terms of the type of firing, throughput rate and required residence time of carbon at a specified temperature.

The Kemix kiln can be electric, gas, heavy or light fuel oil fired. Each kiln is supplied with a control panel incorporating an automatic start-up and shut-down sequence. An emergency direct current standby rotation drive is automatically activated in the event of power failure or loss of drive.





ELECTROWINNING CELLS

Electrowinning is performed by applying a current across an anode and cathode, submerged in a gold rich eluate. This results in reduction occurring at the cathode and a subsequent deposition of gold onto the stainless steel cathode mesh.

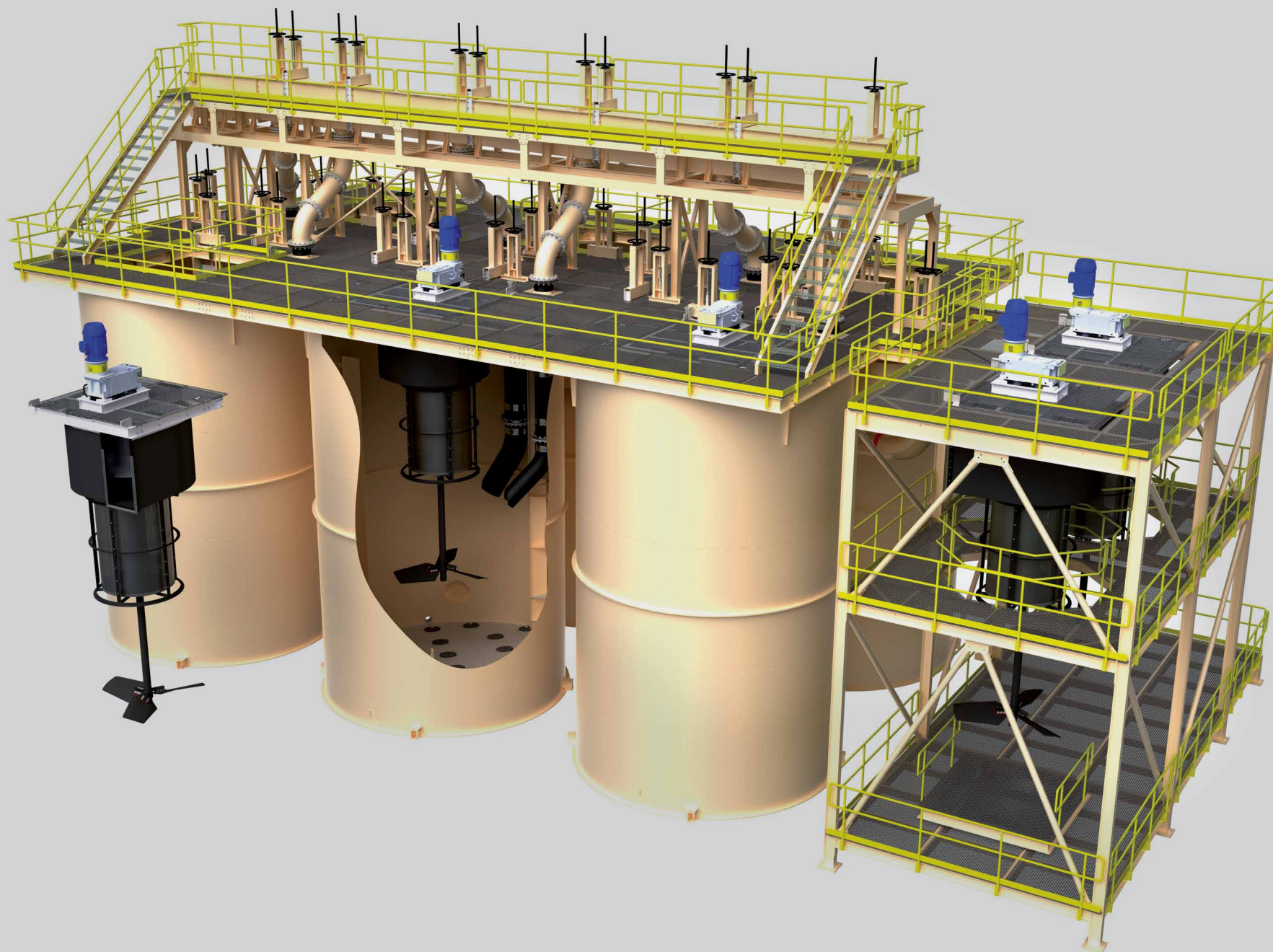
The packed bed electrowinning cell is a stainless steel rectangular bath having cathodes and anodes alternatively positioned along its length. Cathodes consist of insulated baskets containing stainless steel wire mesh, while anodes are fabricated from stainless steel.



KEMIX SLUDGE REACTOR

The Kemix Sludge Reactor is an automated electrowinning cell. This unique unit allows both the electrowinning and cathode washing cycles to occur in the same enclosed vessel. It consists of a cylindrical stainless steel cathode rotating between two static perforated stainless steel anodes. The cathode rotation is affected by a single variable speed drive.

Developed to limit operator contact with valuable gold sludge, the Kemix Sludge Reactor facilitates hands-free gold production.





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