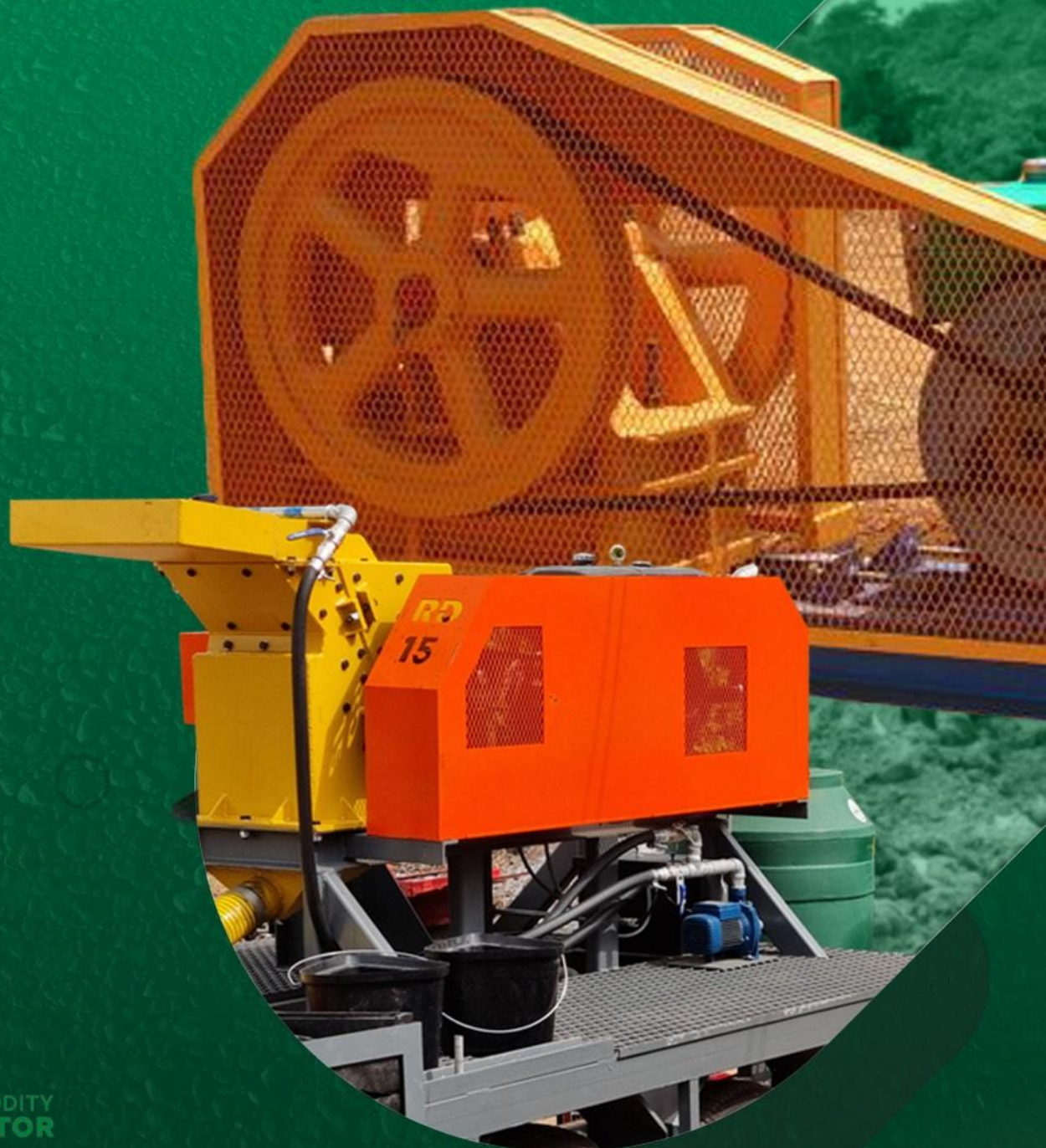


THE CHANGE

CREATING AN ECOSYSTEM OF SUSTAINABLE MINERAL PROCESSING
IN THE SMALL AND LARGE SCALE MINING SECTOR



MERCURY-FREE MINERAL PROCESSING TECHNOLOGY

To combat the dangers of mercury in gold recovery, new equipment and techniques have been deployed to make mining safer for the environment. Commodity Monitor Limited, a logistics, trading and research company is championing the Mercury-free mining technology in Ghana and other West African countries.

The technology is for:

- i. Hard rock gold deposits**
- ii. Alluvial gold deposits**

For all these forms of gold deposits, the combined technology has gravity-recoverable rate of 90% + compared to the traditional methods with less than 40% gold recovery. This is based on field tests and engagements with different miners in different districts across the country. This technology would allow small scale miners to gain a return on investment as well as protect them and their communities from mercury and other dangerous chemical poisoning.



JAW CRUSHER (JC25)

The JC allows for hard rock material larger than 400mm to be crushed down to smaller size (30mm). The JC is powered by either electric or diesel motors. It has a throughput of 2-3 tonnes per hour.





IMPACT FINES GRINDER

The impact grinder crushes hard rocks to size (100-400 microns) and pass through to the concentrator. We adjust screen sizes based on the nature of ore of a mining community or district. It is powered by either electric or diesel motor (18kW). The feed rate is between 1.5-3tph and requires 2-3 m³/h of water.



GOLDKACHA CONCENTRATOR

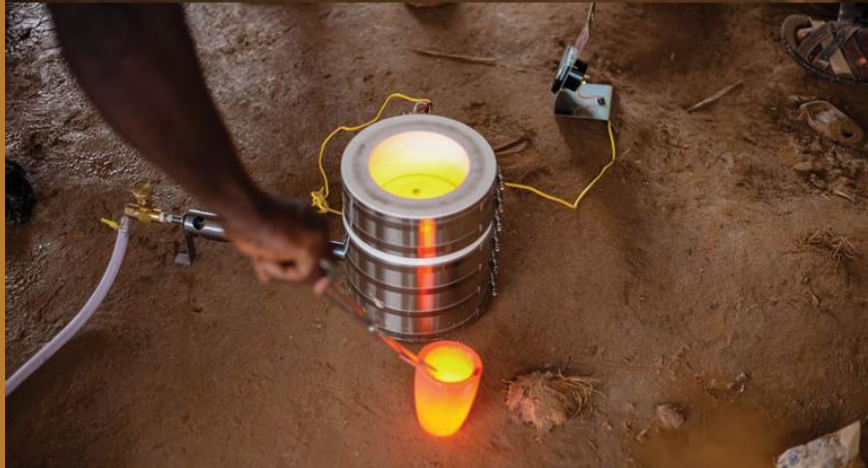
A centrifugal concentrator is key in gold recovery and it is fast becoming popular among miners in Ghana. The GoldKacha, which we have deployed, is suited to the recovery of precious metals from dump tailings, rubble beds and alluvial sands. The novel centrifugal riffle principle results in high recovery of both coarse and fine precious metals. It has 1-3tph feed rate and runs on 0.75kW electric motor. Complete, simple and robust processing solution. Suited to remote areas and rough terrain, run via generator and solar option available.



GOLDKONKA CONCENTRATE UPGRADER

The GoldKonka upgrader was designed as a mercury free solution for concentrate upgrades. It is able to recover the finest gold particles for small scale mining. The recirculative water system enables miners to conserve water and reduces pollution. It has 0.5tph feed rate capacity.





DIRECT SMELTING

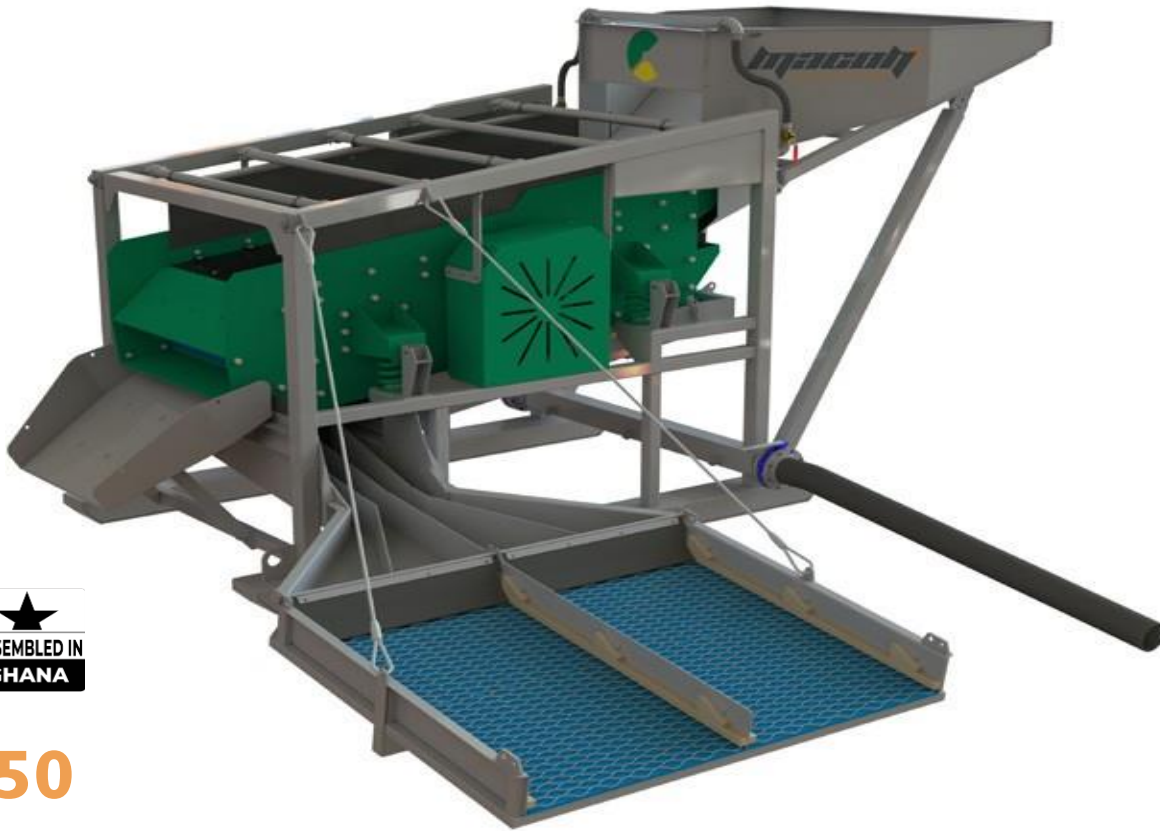
Commodity Monitor uses a small induction kettle furnace. It can be used to smelt gold from the upgrader. It is a direct smelt system and is easy to operate for artisanal and small scale miners. It can be used to smelt ore concentrates, fire assay, melt pure metals and old jewellery. It enhances the purity of gold produced by small scale miners.





SD350 ALLUVIAL WASH PLANT

The SD350 is a lightweight and robust alluvial wash plant specifically designed for small, and medium to large scale operations in Africa.



SD350

SPECIFICATIONS

CAPACITY	TONS PER HOUR	100
WATER	PUMP SIZE	4" - 6"
WEIGHT	METRIC TONS	6
TOWING REQUIREMENT	EXCAVATOR	20 TON
TOWING REQUIREMENT	DOZER	D6
SCREEN DECK SIZE	METERS	1.2 x 2.4
SCREENING AREA	SQUARE METERS	5.8
DECK DRIVE MOTOR	HP	15
SLUICE RUN WIDTH	FEET	7
SLUICE RUN LENGTH	FEET	14

Processing Capabilities

- 100 tons/hour
- Ideal for medium to large scale operation.
- Two-stage sluice runs designed for course and fine gold recovery.
- Built to meet high level of quality and durability.



Types of Gold Ores and Our Processing Solutions

Types of Gold ores	Our Processing Solutions
1. Placer ores Placer ores contain free gold particles mixed with lighter materials like sand and gravel.	SD350 Alluvial Wash Plant, GoldKacha Concentrator, Gold Konka Upgrader, Smelter
2. Free-milling Gold Ores Free-milling ores contain gold that is easily liberated through crushing and grinding. This type of ore can be concentrated by gravity methods after reducing its size.	JC25 Jaw Crusher, RD15 Hammer Mill, GoldKacha Concentrator, Gold Konka Upgrader, Smelter
3. Refractory Gold Ores (with free gold) Refractory ores can be challenging due to the presence of sulfides and arsenic minerals, but the free gold in these ores can still be recovered using gravity separation before further treatment.	JC25 Jaw Crusher, RD15 Hammer Mill, GoldKacha Concentrator, Gold Konka Upgrader
4. Sulphide Gold Ores Sulphide gold ores contain gold associated with sulfide minerals. While most of the gold may be locked in the sulfides, free gold can also exist, making gravity separation an important pre-concentration step.	JC25 Jaw Crusher, RD15 Hammer Mill, GoldKacha Concentrator, Gold Konka Upgrader NB: After Concentration, methods such as flotation or chemical leaching can be applied to the sulfides.
5. Oxide Gold Ores Oxidized gold ores are formed from the weathering of primary sulfide ores. These ores often contain free-milling gold, which is easy to recover through gravity separation.	JC25 Jaw Crusher, RD15 Hammer Mill, GoldKacha Concentrator, Gold Konka Upgrader

FREQUENTLY ASKED QUESTIONS ABOUT OUR MERCURY-FREE GOLD PROCESSING TECHNOLOGY

Question	Answer	Comment
Is the technology suitable for hard rock deposits?	Yes	This technology is well-suited for hard rock deposits with economically viable quantities of gravity-recoverable gold.
Is the technology suitable for alluvial gold deposits?	Yes	For fast and efficient concentration of sluice concentrate, and also for exploration works.
Is the technology suitable for sulphide and/or carbonaceous ores?	Relative	The technology is suitable for complex and refractory ores sufficient and well liberated gravity recoverable gold.
Is the technology suitable for ore with clay material?	Yes	It can handle ores with up to 30% clay content effectively.
Is the technology suitable for ore in desert areas?	Yes	A ponding system for water recirculation must be created to conserve water.
Is the technology suitable for high grade ores?	Yes	If the high-grade ore contains sufficient gravity-recoverable gold and the gold is well liberated from the ore.
Is the technology suitable for fine grained gold?	Yes	The technology effectively recovers both coarse and fine gold particles.
Is the technology suitable for large quantity of feed material?	Relative	The technology is designed to handle up to 3 tons per hour of material.
Does the technology require an external power source?	Yes	Powered by a 0.75 kW electric motor, the technology can be operated using any AC power source, including a generator or the national grid.
Does the technology require reagents during processing?	No	The only input materials required are concentrate/ore and water.
Does the technology allow operation by individual miners?	Yes	Built to be robust and easy to use, it can be operated by an individual miner with proper training.
Does the technology work in a continuous or batch system?	Batch	This is a batch process technology. The ideal washout time is approximately 1 hour.
Does the technology offer high recovery rates compared to the amalgamation process?	Yes	It is proven to recover very fine gold particles that amalgamation often misses.
What are the typical gold recoveries for this technology?	80-90%	It has a recovery rate of around 80-90% for well-liberated, gravity-recoverable gold.
Can the technology re-process tailings?	Yes	Since residual gold in tailings is often not fully liberated, re-milling the tailings before concentration is recommended for improved recovery.
Can the technology recover other minerals in addition to gold?	Yes	In addition to gold, silver and copper can often be recovered. For recovery of other minerals, consult Commodity Monitor Limited for advice on suitable technologies.
Does the recovery of gold using this technology pose any health and safety hazards?	No	No significant health hazards are associated with its operation, but attention to standard safety measures is crucial due to the presence of moving parts. It should only be operated by trained technicians.

COMMUNITY MINING SCHEME (CMS)

Community Mining Scheme (CMS) is a policy rolled out by the government of Ghana to tackle illegal mining by encouraging locals living in mining communities to undertake responsible, viable and sustainable small scale mining under the Minerals and Mining Act, 2006 (Act 703). So far the government has commissioned over 25 community mining sites for operation. Each community mining site is provided with a mercury-free mineral processing machine through Commodity Monitor Ltd.

Commodity Monitor Ltd is playing a major role in achieving the objectives of CMS through the provision of mercury free mining machines that achieve three basic goals: a) high tonnes per hour processing, b) no mercury use, and c) high gold recovery.



A Display of the Mercury-Free Mineral Process Machines at the Launch Bongo Soe Community Mining

Showcasing clean gold recovered to the Minister of Lands and Natural Resources and Chief of Bongo during the launch of the Bongo Soe Community Mining in the Upper East Region





A Demonstration of the mercury-free mineral processing technology at the launch of the Kenyasi Community Mining at Asutifi North in the Ahafo Region

A Demonstration of the mercury-free mineral processing technology at the launch of the Tokwae Community Mining Scheme at Asante Akim South, Ashanti Region



Demonstrating the Mercury-free mineral processing technology to Hon. Paul Kabuswe, Zambian Minister for Mines at the launch of the Asamang Tamfoe Community Mining in the Eastern Region

WAREHOUSE

Commodity Monitor Ltd operates a warehouse located at Medie in the Greater Accra Region. This warehouse accommodates more than 100 Mineral Processing plants and their spares.





“providing solutions to global commodities from ground-up”



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