



Tailings Management Solutions for Water Reuse and Elimination of Tailings Dam



We recently partnered with our channel partner in Africa, Multotec, to bring a filter press technology solution to a chromite mine. Chromite is an oxide mineral consisting of chromium, iron, and oxygen (FeCr_2O_4); chromite mining is very important as chromite is the only economic ore of chromium.

Traditionally, chromite mines use tailings dams to discard the tailings while recovering water to be reused in the process. However, as tailings dams present numerous challenges, the client requested a solution that presented a cost-effective alternative.

Challenges

There were a range of challenges facing the chromite mining operation. Principally, these included needing a suitable alternative to the use of a large tailings dam which contributed to a variety of potential environmental concerns such as:

- Contaminating groundwater drinking sources
- Harming wildlife
- Releasing harmful toxins into the environment
- Creating risk to nearby communities as a result of potential structural damage to the tailings dam

Because of the numerous aforementioned environmental challenges associated with tailings dams, the government put in place stricter regulations for receiving a tailings dam license.

The mine management – like many mines around the globe - was keenly interested in conserving water, in addition to preventing groundwater contamination from the mine tailings. Tailings dams in this locale also had the inherent challenge of high evaporation rates due to the high temperatures.

The mine additionally needed a technology solution that could effectively deal with the highly abrasive slurry.

Highlights

Water Reuse

Reuses ~80% of the clean water in the slurry

Dry Stacked Tailings

Eliminates the need for large wet tailings dam

Cost-effective, easy transport & disposal of dry filter cake

(80% solids)

Mitigates Environmental Risks

such as contaminating groundwater for drinking

Longer Filter Cloth Life

optimum cloth selection for abrasive mine slurry

Solution

Filter Press Dewatering for Tailings Management, Achieving Filter Cake with 80% solids



Test work was conducted by Multotec to evaluate various technologies and to assess the customer's slurry samples. After collaboration with the Micronics team and based on local process expertise, a dewatering solution which allowed for an alternative to the large tailings dam was proposed.

Specifically, with the implementation of our filter press dewatering operation, the waste product is a filter cake with 80% solids content. Importantly, the cake could be easily and cost-effectively transported away for disposal rather than relying upon the tailings dam.

In addition, the dewatering operation, utilizing two 1200mm Micronics filter presses, resulted in recovery of ~80% of the clean water in the slurry, allowing for economical water reuse in the mine's processing plant. Dealing with water scarcity is a major concern in mines across the globe from Latin America to Africa.

Contact us to put our long-standing global expertise in **Tailings Management Solutions** to work for your mine.

Cloth Expertise

While many filter press manufacturers focus almost exclusively on the robustness of the filtration equipment, Micronics additionally brings strong [filter cloth](#) expertise to the table.

Here, we were able to implement a solution whereby the filter cloths were specifically optimized for this abrasive slurry application, allowing for easier cake release and longer cloth life.

When a sub-optimal cloth is selected, mining clients should be concerned with loss of productivity during premature/unscheduled cloth changeouts.

We're committed to your success.

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