Cleanova

CUSTOMER SUCCESS STORY
Mining & Mineral Processing

IMPROVING IRON ORE TAILINGS FILTRATION

Delivering Longer Cloth Life, Lower Cake Moisture & Faster Cycle Times

At A Glance

- √ Iron ore tailings filtration for dry stack tailings
- √ 1,900+ average filter cloth cycles, 36% longer cloth life
- √ ~20% shorter filtration cycles
- √ 1–2% points lower cake moisture
- √ Two horizontal filter presses, 2.5m × 2.5m
- √ Ongoing Cleanova application engineering support

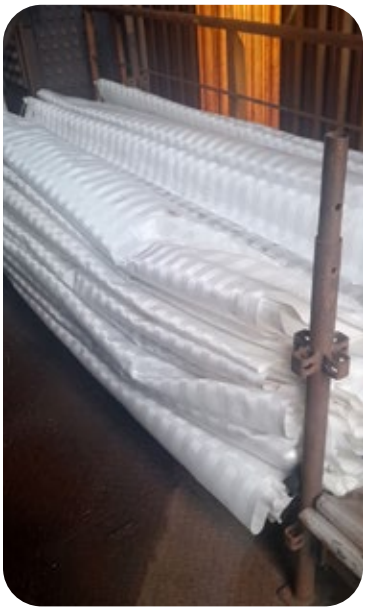
The Challenge

Following Brazil's move toward filtered tailings and dry stacking after major tailings dam failures, mining companies have been challenged to improve filtration reliability, reduce operating costs, and maximize water recovery. For this iron ore operation, filtration performance was being limited by premature filter cloth wear, leaks, inconsistent cake formation, and variable cycle times.

The site operated two Diemme horizontal filter presses using competitor-supplied cloths. Because iron ore tailings are highly abrasive, the existing filter media delivered only 1,400–1,500 cycles while operational variability prevented the plant from achieving best-practice filtration performance.

Operational challenges included:

- Premature cloth wear in an extremely abrasive application
- Average cloth life of approximately 1,400–1,500 cycles
- Inconsistent cake moisture
- Irregular filtration cycle times
- Cloth leaks and maintenance-related issues



Cleanova.FORYOU Approach

Rather than simply replacing the existing filter cloths, Cleanova Micronics evaluated the complete filtration process, including wash cycles, membrane squeeze, drying, core blow, plate shaking, slurry characteristics, wear patterns, and filter press operating practices. Root causes of cloth wear and inconsistent performance were identified before recommending a solution.

For this application, Cleanova selected a premium PrimaPress™ filter cloth manufactured using a specialized polymer and sophisticated multi-layer fabric construction specifically designed for highly abrasive iron ore tailings. The team also optimized cloth and plate feed design, monitored wear points, and provided on-site technical support and operator training.

The objectives were to:

- Reduce cake moisture by 1–2 percentage points
- Extend cloth life toward a 2,000-cycle benchmark
- Improve cake formation and release
- Reduce cycle times while improving operational consistency

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Results

Performance improvements included:

- Average cloth life increased to more than 1,900 cycles, with continued progress toward 2,000+ cycles
- 1-2 percentage points reduction in average cake moisture
- 20% reduction in filtration cycle times, roughly a 9 minute improvement in cycle time
- Improved cake formation and release
- Reduced leaks and abrasion through optimized cloth and plate design

Business Impact

Beyond measurable filtration improvements, the project delivered broader operational value:

- **Up to 40% lower** filtration cost per tonne processed
- **Longer cloth life** and reduced replacement frequency
- **Higher throughput** from shorter filtration cycles
- **Lower transportation costs** through reduced cake moisture
- **Reduced CO_2 footprint**
- **Improved operator safety**

Why This Matters to the Global Mining Industry

Mining companies worldwide are accelerating adoption of filtered tailings and dry stacking to improve water recovery, reduce environmental risk, and meet increasingly stringent sustainability expectations. Iron ore tailings present particularly demanding filtration conditions because of their high abrasiveness.

This project demonstrates how custom-engineered filter media combined with application expertise can substantially improve filtration performance, reduce operating costs, and increase production capacity.

The lessons learned are directly applicable to mining operations globally where tailings management filtration solutions continue to gain strategic importance.

Why Cleanova

Cleanova is a total lifecycle partner combining custom-engineered filter media solutions, application engineering, in-house laboratory testing, field service, and continuous process optimization to maximize filtration performance throughout the life of the operation.

Rather than supplying filter cloth alone, Cleanova partners with customers to improve reliability, improve throughput, and lower total cost of ownership.