

**CASE STUDY**

# Additive Monitoring in Aluminium Cold Rolling

Real-time rolling oil additive concentration for top-quality aluminium

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In aluminium cold rolling, maintaining precise additive concentration in the rolling oil is critical to producing top-quality aluminium. **Spectrolytic FluidInspectIR®** provides a data-driven solution that delivers additive concentration data in real time — enabling the transition from slow, outsourced lab sampling to **timely, evidence-based top-up decisions**.

This case study highlights a proven application where FluidInspectIR® has delivered significant operational and financial benefits.

## Real-Time

Additive concentration data

## Lab

Equivalent accuracy

## Automation

Pathway to automated additivation

## The Challenge

Additive concentration in rolling oil is time-critical for producing top-quality aluminium. The challenge was a reliance on slow, outsourced lab sampling — resulting in:

- Outsourced lab sampling taking too long to return results
- Delayed additive top-up decisions affecting product quality
- Valuable human assets consumed by routine oil sampling
- Skilled technician time diverted away from value-add activities

The operator required real-time additive concentration data to make timely top-up decisions and free up skilled staff for higher-value work.

## The Solution

A **Spectrolytic FluidInspectIR®** system was installed to provide continuous, real-time monitoring of rolling oil additive concentration. Using mid-IR based chemical analysis, the system **matches laboratory accuracy** and delivers additive concentration data inline — enabling timely top-up decisions without waiting for outsourced results.

This enabled a shift toward evidence-based additive management and opens the pathway to fully automated additivation.

## Implementation

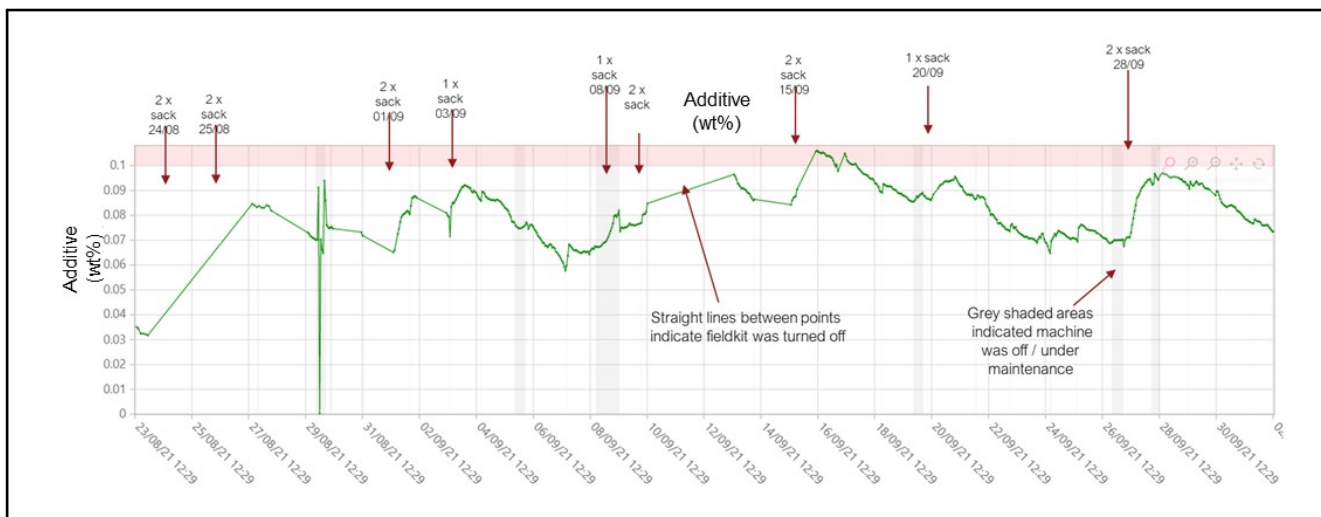
- Installation on the aluminium cold rolling line
- Continuous real-time monitoring of rolling oil additive concentration
- Inline data delivered at laboratory-equivalent accuracy
- Trending of additive concentration against scheduled top-up events

## Results

The deployment delivered clear, measurable outcomes:

- Additive concentration data delivered **in real time**, at **laboratory-equivalent accuracy**
- Enabled **timely additive top-up decisions** for consistent product quality
- **Freed up technician time** for higher-value tasks
- Opened the pathway to **fully automated additivation** in the future
- Reduced oil analysis costs by replacing outsourced sampling

### USE CASE — ALUMINIUM COLD ROLLING: ADDITIVE MONITORING



Real-time additive concentration (wt%) data captured by FluidInspectIR® — showing additive trending against top-up events, with annotations for sack additions and machine downtime.

## Operational Impact

- Reduced oil analysis costs through replacement of outsourced sampling
- Freed up skilled technician time for higher-value activities

- Improved product quality through timely additive management
- Increased confidence in maintenance and additive decision-making
- Established the pathway toward fully automated additivation

## Key Insight

FluidInspectIR® provided the actionable, real-time data validation required to manage additive concentration as conditions changed. Rather than waiting on slow outsourced lab results, the operator could make top-up decisions based on actual additive condition in real time — while freeing staff from routine sampling.

## Financial Benefits

Reduced oil analysis costs

Freed staff & enabled automation

## Conclusion

**Spectrolytic FluidInspectIR®** enables aluminium cold rolling operators to move beyond slow outsourced sampling and manage additive concentration with real-time, lab-equivalent data.

The result is a measurable combination of **reduced analysis costs, improved product quality, and freed-up skilled resource** — supported by real, actionable data.

Real-time additive monitoring is no longer just a maintenance improvement — it is a strategic pathway to automated additivation and consistent quality.

Organisations adopting advanced monitoring solutions such as Spectrolytic FluidInspectIR® today will be best positioned to manage volatility and optimise performance tomorrow.

**Interested in understanding how this can be applied within your operations?**

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