



CONSERVATION OF RESOURCES

Verifying Roll-off Cleanliness of Fluid with High Additive Concentration

Technical Application Bulletin

PROJECT BACKGROUND

DISCOVER

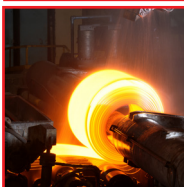
- OEM of large mining dump trucks.
- Issues with current condition monitoring equipment giving inaccurate results
- Experienced frequent quality rejections due to solid particle contamination in hydraulic fluid.
- Rejections caused significant costs due to delayed shipments
- Average holding delay per truck: 7 days at \$1.5k cost per day, per truck.



DIAGNOSE

- Existing light-blockage automatic particle counters providing inconsistently high and erroneous measurements.
- Fluid analysis reports and datasheets suggest the hydraulic fluid contains high concentration of an additive known to cause phantom particle measurements in light-blockage automatic particle counters.

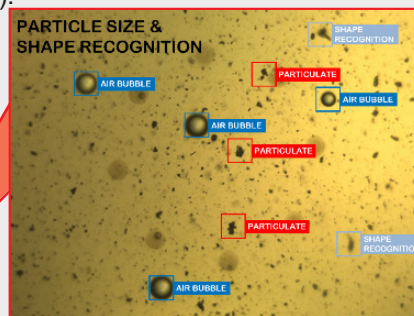
INDUSTRIES



DESIGN

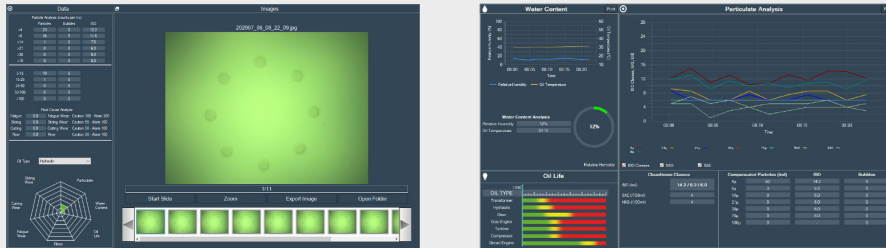
What We Did: Schroeder Industries proposed the Schroeder Pro: Total Fluid Health (TFH)—an advanced portable fluid condition monitoring solution. The TFH direct-imaging particle measurement technology—capable of recognizing and sorting particle shapes—can distinguish spherical additives as water droplets from solid particles within fluid. Furthermore, the customer can conveniently record particle count, relative water content, relative oil life and fluid temperature conditions in a comprehensive format. .

Value Hypothesis: Schroeder Industries predicted that the TFH technology would enable the passing of multiple units in a single day through accurate and consistent contamination measurements; Schroeder Industries estimated that the fluid of at least four units could be inspected within a single day, reducing fluid contamination-based rejection costs by approximately 26% (including the cost of one [1] TFH).



DELIVER

Schroeder Industries provided an extensive on-site demonstration of that proved the advanced technological capability of the TFH, allowing the customer to successfully process the fluid of and pass six units during the first day of demonstration. The two remaining backlogged units passed early on the second day of demonstration.



Number of Trucks (out of 8)	Holding Days	Holding Cost per Day	Total Holding Cost
6	7	\$1,500	\$63,000
2	8	\$1,500	\$24,000



CUSTOMER BENEFITS

- Identified source of contamination verification issues
- Reduced bottlenecks in the quality inspection phase due to fluid contamination verification
- Improved overall time-to-delivery
- Holistic analysis of fluid quality

FURTHER APPLICATION AREAS

- Wind power turbine gearboxes and pitch cylinder hydraulics
- Electrohydraulic control system of hot rolling mill
- Chemical blending processes
- Pulp and paper machines

ROI

Total Cost Savings (\$)



\$40,500

Total Cost Savings



35%

Inspection Time Savings (%)



81%

ROI (%)



81%

Underlying assumptions:

- Total cost savings and ROI calculations based on the cost of one (1) TFH unit
- Total cost savings and ROI calculations are hypothetical estimates based on the on-site demonstration/consultation results

PRODUCT SPECS

Schroeder Pro: Total Fluid Health

Fluid Temperature Range:

14°F to 131°F (oils)

14°F to 122°F (diesel fuel)

System Pressure: 145 psi (10 bar) Max.

Pump Type: Gear

Duty Cycle: Continuous

Power Supply Voltage: 115V AC

Nominal Battery Voltage: 15.0V DC

Charge Voltage: 16.8V DC