



Aluminum Plant Invests in Preventive Particulate Monitoring and Control Solutions

Challenge

A leading producer of rolled aluminum, and the largest recycler of aluminum in the world, has made major investments to increase capacity and technology. These investments were in response to growing market opportunities in the automotive industry. *"We think there's a lot of opportunity to invest in the future."* - Company CEO

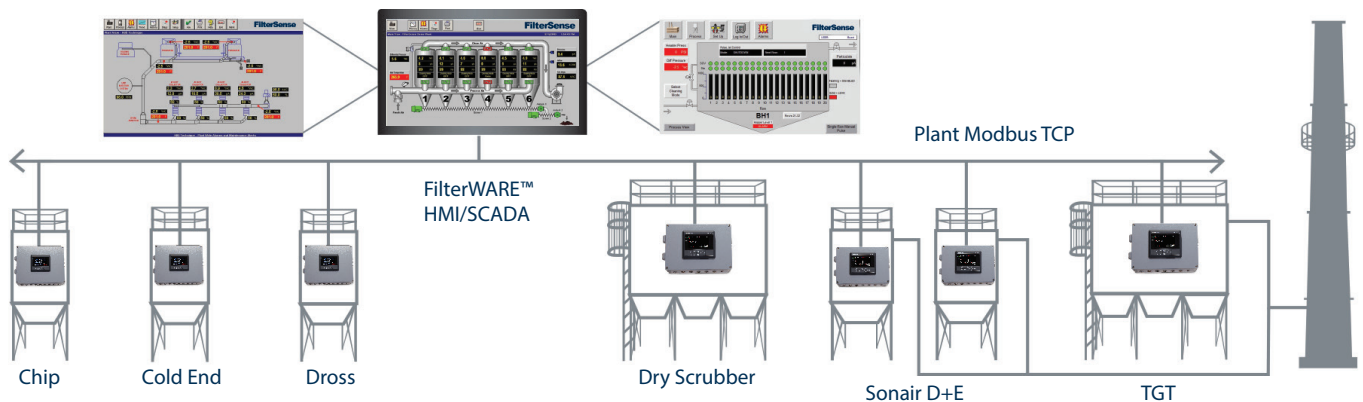
Increasing production at a large facility comes with challenges. With a strong commitment to the community and environment, this plant took proactive steps to ensure 7 baghouse processes and stacks complied with US-EPA MACT. Existing triboelectric broken bag detectors and monitoring software were unreliable and not well supported by the manufacturer. This created a compliance risk and the potential for production disruptions. Being proactive, the plant pursued technology that would not just meet MACT but would be best available for the environment and community, while at the same time improving plant efficiency to meet expansion goals. A supplier that could provide high quality support was a must.

Solution

"DynaCHARGE particulate monitors replace unreliable triboelectric broken bag detectors."

It was determined that replacing all existing triboelectric monitors and software was the best solution. FilterSense was selected based on their superior particle charge induction technology and expertise to support large projects.

The scope of supply included 4 DynaCHARGE™ particulate monitors with filter leak locating and 3 B-PACs™ (Baghouse Performance Analyzer & Controller) – each with particulate monitoring and leak locating. Additionally, 2 DynaCHARGE powder flow monitors for neutralizing injection lines were installed. All systems were integrated into FilterWARE™ HMI/SCADA software, which is upgradeable to include automated EPA reporting. FilterSense also provided comprehensive on-site support including pre-project engineering, commissioning, training, and on-site systems integration to network the new solutions into existing automation systems.



Application Note

“The data logging redundancy is added value for compliance.”

“FilterSense’s expertise for large projects and on-site support is unmatched.”

Benefits

The project is providing many benefits:

Improved Reliability

FilterSense’s DynaCHARGE particulate monitors employ charge induction sensing and fully insulated sensing probes to enable reliable operation with conductive particulate, corrosives, and moisture. The plant experienced recurring false alarms from triboelectric sensors and electronic failures from poor quality. These issues took valuable time away from core operations.



Installation of new DynaCHARGE™ particulate sensor (left) for filter leak detection by row.

The previous software was not user-friendly, flexible, or robust, and was not adequately supported. FilterSense’s FilterWARE is based on reliable industrial SQL and employs industry standard configurable HMI applications familiar to operators. Connection to FilterSense control units is with certified fieldbus communications for high reliability. The control units feature internal data logging to provide redundancy for EPA records.

Automated EPA MACT QA

US-EPA MACT filter leak detection regulations for secondary aluminum require adhering to quality assurance (QA) testing as specified in EPA-454/R-98-015 Fabric Filter Bag Leak Detection Guidance. The required tests include a zero, span, and response to actual PM injection. FilterSense products have internal circuitry to automate these tests; data is recorded in the instrument. The design and accuracy of FilterSense’s self-test systems meet internationally recognized EPA standards including ASTM D7392 and EN 15859. Automatic QA reduces labor costs and prevents recording errors. Further time saving is available from FilterWARE reporting, which generates reports automatically.

Improved Operations

All 3 main components of the project, DynaCHARGE Particulate Monitors, B-PAC Controls, and FilterWARE software, assure that the plant efficiently meets MACT. More importantly they simultaneously improve plant operations. Proactive environmental solutions that simultaneously benefit plant operations is the future, and this aluminum producer recognized that FilterSense, is leading this approach in the fabric filter market.

The DynaCHARGE monitors perform filter leak locating by row, which allows the plant to prevent excess emissions and to find and repair leaking filters quickly and easily.

B-PAC controls provide real-time diagnostics to detect/locate failed solenoids and pulse valves. At start-up the B-PAC on the dross process quickly identified failed solenoids in rows 4, 47, and 49, avoiding catastrophic filter failure, emissions, and unexpected shutdown. Intelligent DP control keeps the baghouse optimized.



FilterSense engineer inspecting B-PAC function (center) and pulse valves (below).

FilterWARE HMI/SCADA software centralizes information, process control, and historical data. This helps the plant prevent emissions, simplify baghouse troubleshooting, and improves other operations, providing a fast return on investment.

Combining the above with the experienced on-site and remote support available from FilterSense, the plant is now confident that they are maximizing plant performance.