Increasing Capacity in Sulfur Production Using Sulsim™ Modeling
“Thanks to this technology, we can propose to our client how to increase production almost 100% just by upgrading a few pieces of equipment.”

— Diego Scilla, Senior Process Engineer, Siirtec Nigi

**CHALLENGE**
Find optimal level of oxygen enrichment and set up controls to increase sulfur recovery unit capacity.

**SOLUTION**
Used Aspen HYSYS® to simulate case study, conduct sensitivity analysis and define a window of operating condition

**BENEFITS**
- Sulsim allowed Siirtec Nigi to validate the existing operation and simulate their proprietary technology
- The new process called for minimal equipment changes
- Adjustments can be executed during turnaround with no additional downtime

Increased sulfur production per day
50 ton/day to 90 ton/day
Siirtec Nigi is an engineering and contracting company providing a range of services around oil and gas treatment, sulfur recovery and acid gas removal. Their customers include many oil and gas companies and other international EPC contractors, both onshore and offshore.

Creating an Accurate Simulation to Test Design

One of Siirtec Nigi’s customers wanted to nearly double sulfur production capacity. Aspen HYSYS validated the original heat and material balance created using a different tool. Sulsim was able to reproduce the results within the acceptable tolerance levels and is the only tool that allowed Siirtec Nigi to simulate O$_2$ enrichment and O$_2$ injection within their customer’s confidence level.

Based on the HYSYS model, Siirtec Nigi proposed an increase from 50 ton/day to 90 ton/day in sulfur production capacity that required only minor equipment upgrades. The upgrades can be completed during a normal turnaround, rather than scheduling an additional, costly shutdown because the simulation showed the minimal changes required to achieve the desired outcome.

Maximizing Production with Minimal Cost and Impact

One of the key challenges Siirtec Nigi and their customer faced was determining an operating envelope for optimal operations. The Aspen HYSYS case study feature allowed Siirtec Nigi to complete a sensitivity analysis, which helped define the optimal range for controlling the new operation. The case study also simulated upset conditions and gave a snapshot of the worst-case scenario.

Aspen HYSYS Sulsim allowed Siirtec Nigi and their customer to accurately simulate the new process and design the changes needed to double production. Siirtec Nigi customer was anticipating expensive changes with a huge impact to equipment and processes, but with Aspen HYSYS Sulsim simulation, Siirtec Nigi was able to design a process with minimal changes which could be implemented quickly during a turnaround.
AspenTech is a leading software supplier for optimizing asset performance. Our products thrive in complex, industrial environments where it is critical to optimize the asset design, operation and maintenance lifecycle. AspenTech uniquely combines decades of process modeling expertise with machine learning. Our purpose-built software platform automates knowledge work and builds sustainable competitive advantage by delivering high returns over the entire asset lifecycle. As a result, companies in capital-intensive industries can maximize uptime and push the limits of performance, running their assets faster, safer, longer and greener.

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