



How Tignis Drives Pharmaceutical Manufacturing

Pharmaceutical, biopharmaceutical, and biotechnology companies are leaders in asset and process optimization, and for good reason. Dynamic market forces coupled with tight regulations compel the industry to continuously refine and improve. There is no tolerance for equipment failure, unplanned production shutdowns, product recalls, or inefficient or wasteful processes. Countering today's competition, tight profit margins, and pricing pressures demands a new level of operational intelligence.

Advanced technologies provide the means to upgrade maintenance, production, and energy management while controlling costs and ensuring high product quality. Already, tools for condition monitoring and predictive maintenance are commonplace in pharma, yet the full potential of these best practices remains out of reach for many. Real-time, sensor-based condition data and historical records will not by themselves drive actionable results. Tignis' physics-driven analytics platform provides the missing link.

Proactive Optimization with ML and Digital Twins

Tignis analytics, fortified with artificial intelligence (AI) and machine learning (ML), automatically digest streaming and historical data, learn usage patterns, detect anomalies in processes and systems, notify responsible parties, and facilitate timely troubleshooting and corrective actions. Tignis visualizes the emerging risk or fault in a digital twin, or virtual replica, of the connected asset or system. It enables modeling of the digital twin to simulate and fine-tune resolutions before they are applied, and to predict and enhance future performance.

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Applications for the pharmaceutical industry are wide ranging:



Energy Management

With pharma's pristine cleanrooms, sterile equipment, and energy-intensive conversion processes at stake, controlling energy, water, and steam consumption and associated costs are serious priorities. Applying Tignis analytics and digital twins to cleaning, ventilation, and production systems enables energy and facility managers to continually monitor power and water usage, reveal and resolve leaks, and implement valuable conservation measures.



Process Optimization

Operations teams depend on highly efficient, reliable, and flexible manufacturing processes to convert base ingredients into safe and effective packaged products. With Tignis, process engineers have better visibility into deviations and deterioration and can quickly optimize the process parameters accordingly. They can also apply predictive modeling to simulate and fine-tune new recipes and manufacturing processes, before going live, saving time and materials.



Predictive and Prescriptive Maintenance

High reliability and availability of complex equipment is mandatory in pharma, including its HVAC systems, centrifuges, bioreactors, cooling towers, spraying systems, and other crucial assets. Tignis helps to detect degrading asset and system conditions so that predictive maintenance can be scheduled in time to avoid the risks and costs of failure. It learns from each experience to enable earlier detection and prescribe better solutions, and it provides digital twin testbeds for corrective actions and design improvements. It also lends intelligence to avoid future occurrences – whether purchasing better-quality machines or components or improving preventive maintenance routines.

Pharmaceutical manufacturers have much to gain from the advanced analytics offered by Tignis, even beyond its functional applications. Tignis also helps to combat the growing industrial skills shortage by retaining institutional knowledge, automating learning, and attracting new digitally minded talent.

See what Tignis can do for your business.

For more information on applying analytics to your 24/7 monitoring data, visit www.tignis.com.