INVICTA®

INVICTA® | FILTRATION

Invicta® Outperforms Legacy Filters for Food Oils Processing, Extending Life by 6-12x

PROBLEM

A global leader in human and animal nutrition, and one of the world's premier agricultural processing companies, faced significant challenges with their filtration of crude soybean and corn oil loops at a major processing facility in the Midwestern U.S. Employing two separate processes (one for corn and another for soybean), the output required recirculating through the vessel 6-8 times to achieve the minimum effluent quality required. Even worse, the units kept experiencing short filter run times. This disrupted operations leading the company to reach out to FTC's Midwest distribution partner for a reliable solution to ensure process efficiency.

ANALYSIS

The primary issue in the process occurred in the deodorizer stream for both the crude soybean and corn oil loops. Crude oil, moving from storage tanks, passed through 8 Round #2 Bag Filters rated at 1-micron absolute for initial filtration before being bleached and sent to the deodorizer. After this, the oils were filtered again for polishing through the same filter housings before reaching customer storage. In both processes, the company operated five lines (A, B, C, D and E), each with dual filter housings for incoming and discharge filtration. However, the filters were failing to capture all the clay used in the bleaching process, particularly due to the variability in the quality of the crude feedstock. The lack of particle removal by the 1-micron bags, which required the plant to recirculate through the filters 6-8 times with frequent filter changes to meet effluent quality specifications, had a severe impact on production rates and costs.

SOLUTION

To enhance operational performance and fluid quality downstream, FTC recommended their Invicta® cartridge filtration technology. Due to its revolutionary shape and filter configuration, Invicta affords greater packing density, up to 176% greater surface area, and more dirt-holding capacity, meaning change-outs are far less frequent. Additionally, Invicta filtration media has a 99.98% absolute filtration rating providing high-efficiency particle removal in a single pass. In this case, Invicta rental units increased the surface area by 43 times the original area per vessel, proving out process performance, single-

pass filtration goals and economics prior to a full-plant conversion to Invicta cartridge systems.

RESULTS

The customer's main goal was predictable—improve operational performance and effluent fluid quality with manageable filter life, also known as process reliability. Bags only ran 2-4 hours before plugging and requiring recirculation 6-8 times before they could reach the desired effluent quality.

In stark contrast, Invicta testing filters ran smoothly for 24 hours and hit effluent quality in a single pass on the worst batch of feed. The results were remarkable.

The plant manager approved the purchase of five new Invicta housings and a full set of start-up and filter inventory for standard operations. FTC's sales engineer and distribution partner's sales representative were onsite to consult with the customer when the new equipment arrived.

The Invicta solution not only met the client's plant-throughput reliability goals but also delivered significant time and cost savings. By meeting effluent quality achieved through a single-pass filtration and avoiding the productivity losses of having the recirculate 6-8 times, FTC and our distribution partner achieved the plant's goal. Invicta's rental units also provided the opportunity to demonstrate the system's cost-effectiveness and performance before committing to a full investment. As a result, production yields increased by more than $1 million annually, and the client achieved a 6-month return on investment.

INVICTA® LIQUID-SOLIDS FILTERS

Invicta® liquid-solids filter cartridges are designed to provide the most cost-effective filtration solution on the market. This innovative, patent-pending technology offers a significant improvement to the conventional filters used today. Because of its revolutionary design qualities, Invicta® can provide up to 176% more surface area in a vessel footprint over conventional cylindrical filters. The trapezoidal, coreless design allows more elements to be placed in a vessel by reducing the amount of wasted space in traditional cylindrical filter designs. This results in lower clean pressure drop, higher solids loading capacity, and longer life which means fewer changeouts and greater overall cost savings.

Process clarified that the circle on the right is the finished product from the 1 micron absolute bag. This cleanliness level barely passes. On the left is one pass through the 0.5 micron glass. It passes easily. This example is hanging in the plant managers office.

ABOUT FTC®

Since 1987, Filtration Technology Corporation (FTC) has built a reputation for developing and delivering innovative products at the forefront of filtration technology. We engineer and deliver the highest quality process solutions, training, testing, and cutting-edge technology with unparalleled service and support. Through the ongoing development of new, game-changing products, FTC continually redefines success for our customers.

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