Donaldson HY-PRO™

24 Hour Turnaround:

Donaldson Hy-Pro Filter Elements Restore Critical Operations in US Paper Mill

The Problem

A US paper mill faced a critical operational challenge. After an unexpected shutdown, the paper machine's main lubricating oil system contained solid contamination above the acceptable ISO code limit of 16/14/10, preventing startup. The mill attached two vacuum dehydrators (offline, slower flow rate) and used their normal $\beta 6(c) \geq 200$, 6-micron lube oil filter elements (inline, higher flow rate) in the 1x1 duplex lube oil assembly to attempt to clean the system. They changed to $\beta 3(c) \geq 200$, 3-micron elements in an attempt to speed up the cleaning. When the particle count wasn't decreasing, they started replacing the elements daily, assuming the differential pressure (DP) indicator was faulty.

Bypass valve held open by debris, preventing proper sealing.

The Solution

Donaldson Hy-Pro addressed this urgent issue. A particle counter had already been connected upstream of the lube oil duplex filter assembly. We recommended keeping this counter attached to monitor the cleanup. We then connected a PFM75 downstream of the lube oil filter assembly for additional confirmation. On Thursday afternoon, before we installed the Donaldson Hy-Pro filters, the system's ISO code was a concerning 19/18/15, as shown on the original particle counter. To quickly clean the system, we recommended the mill use Donaldson Hy-Pro 6µ filter elements ($\beta 7(c) \geq 4000$) (HP360206L39-6LV) in the main lube oil filter assembly. This approach utilized inline filtration with full primary pump flow, compared to the slower process of vacuum dehydration. During the installation of the Donaldson Hy-Pro filters, we recommended that the mill inspect the housing bypass valves. This revealed debris

in one of the valves, preventing it from sealing completely. Although the mill acknowledged the issue, they were unable to address it at the time.

Within just four hours of installing the Donaldson Hy-Pro filters, the system's contamination levels dropped below the target ISO code of 16/14/10, enabling a safe and efficient startup. The bypass valve issue, which had hindered proper sealing, was resolved during the next scheduled filter change. Remarkably, the system maintained a cleanliness level of ISO 15/13/10 or below for the next six months.

The Results

Thursday

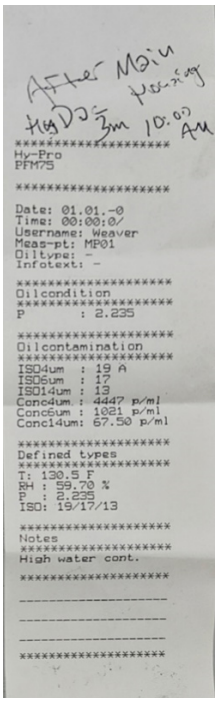
- **2:00pm:** The mill placed an order for Donaldson Hy-Pro filter elements.
- **7:30pm:** A hotshot delivery service picked up the filter elements and drove them straight to the mill.

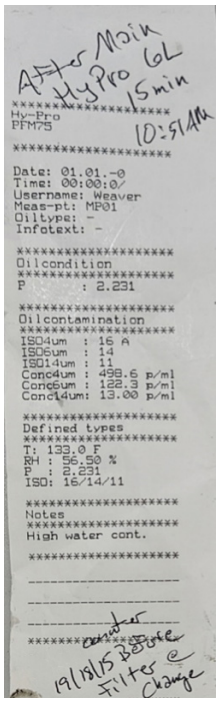
Friday

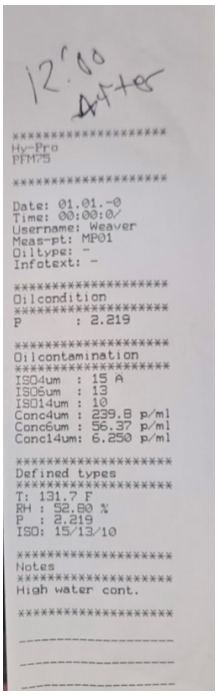
- **8:00am:** The filter elements arrived at the mill.
- **10:00am:** Technicians confirmed particle counts downstream of the inline 1x1 paper machine duplex filter assembly to be 19/17/13 (4447/1021/67.50).
- **10:36am:** Technicians placed the Donaldson Hy-Pro filter elements in the 1x1 duplex filter assembly.
- **10:51am:** The downstream ISO Code showed 16/14/11. Actual particle counts were 498.6/122.3/13.
- **12:00pm:** The downstream ISO Code showed 15/13/10. Actual particle counts were 239.8/56.37/6.25.

Less than 24 hours after receiving the order from the mill, Donaldson Hy-Pro certified the system clean and ready for start-up.

This case study demonstrates Donaldson Hy-Pro's ability to deliver rapid, results-driven contamination control through advanced filtration technology and hands-on support, proving to be a trusted partner in high-stakes operational recovery.







Donaldson Hy-Pro Filter Elements

Reduced Dirt

94.6%

in **24 Hours**

Want to find out more? Get in touch.

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