



Colfax® Purifier Reduces Water Contamination of Lube Oil

Challenge:

A major global chemical company found itself facing costly condensation leaks at its Canadian isopropyl alcohol manufacturing facility. Not only did water condensing into a lubricant tank have to be drained up to three times a day, it also led to equipment failure that could shut down the plant for up to a full week.

Solution:

Colfax carefully studied the chemical company's needs and recommended a THERMOJET® Oil Purifier from the Lubrication System Company (LSC), a state-of-the-art online industrial purification system that removes free, emulsified and dissolved water as well as light hydrocarbons from industrial lubricants and hydraulic oils. Colfax personnel also clearly outlined the period in which the company would see its investment in the new equipment paid back.

Results:

The undisputed test of success for the installation came in measurements of the amount of water found in the oil. Prior to the THERMOJET Oil Purifier installation, water content reached .95 percent; after installation, that figure dropped dramatically to just .019 percent.



Combating Costly Leaks and Downtime

A major worldwide chemical company began experiencing condensation problems caused by a combination of conditions at its isopropyl alcohol manufacturing facility in Ontario, Canada. One factor was an equipment modification that added significant thrust loads to the steam turbine. Additionally, a gland condenser extracting steam from the turbine was leaking through a worn labyrinth seal and not functioning at its rated capacity.

Those two conditions added more steam to the low-pressure side of the seal, which eventually condensed to a liquid state. The resulting water migrated to the lubrication tank, where it accumulated and required draining of up to five quarts every eight hours.

But that was just the beginning of what would prove to be a costly ongoing issue. Water in the oil had caused corrosion on the turbine shaft where the thrust collar is mounted. The added thrust load compounded the corrosion problem, causing the shaft to break several times in the course of a few years. The total expense of each failure included up to one week of lost production due to downtime and the cost of round-the-clock work to replace the shaft, all amounting to approximately \$100,000 per breakdown.

Pinpointing the Perfect Solution

Colfax took an in-depth look at the company's specific issues, including recent analyses of the type of oil being used, reservoir size and water content. After further consultations with the customer, the Colfax team recommended a THERMOJET® Oil Purifier – which removes free, emulsified and dissolved water – to keep the compressor, turbine lube oil and hydraulic systems functioning as intended. The system is capable of processing oil containing 1,000 parts per million (ppm) of water and reducing the contamination to less than 100 ppm of water within eight passes.

"It sounds obvious, but the key to this solution was listening to and clearly understanding our customer's challenges and resulting needs," said Jim McDonald, Colfax's manager for the project. "We asked the right questions up front, clarified our understanding of



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the customer's problem and needs, did a careful analysis of the entire situation and showed the company exactly what they could expect concerning a return on their investment. ThermoJet Oil Purifier was clearly the right solution."



Before installation of the ThermoJet Oil Purifier, water catalyzed rust and corrosion formation, which produced sludge in the lubricating oil at an isopropyl alcohol manufacturing plant. When oil is maintained with water contamination below 100 ppm, formation of corrosion, rust and sludge are significantly reduced, and filter changes are needed less often.



Prior to the ThermoJet Oil Purifier installation, water contamination of lubricating oil reached .95 percent; after installation, that figure dropped dramatically to just .019 percent.

Positive Results Across the Board

The chemical company recouped its investment in the ThermoJet Oil Purifier equipment in just three months. And by the end of that timeframe, test measurements showed the water content in the oil had dropped significantly – from .95 percent before installation to only .019 percent.

ThermoJet Oil Purifiers offer an array of benefits, including:

- Increasing machinery reliability: no failures due to water-contaminated oil.
- Reducing all forms of water to below 100 ppm.
- Reducing the number of oil changes by keeping oil fresh.
- Reducing waste oil disposal.
- Reducing the need for new oil purchases.
- Reducing particle filtration: Water catalyzes rust and corrosion formation, which produces sludge. When oil is maintained with water contamination below 100 ppm, formation of corrosion, rust and sludge are significantly reduced, and filter changes are needed less often.

In addition to those operational advantages, the oil purifier operates without contaminating the environment. The system absorbs oil from the water condensate before it exhausts from the unit. Documented tests show that the water discharged can be drained into a sanitary sewer because it contains hydrocarbons below eight ppm, and the Environmental Protection Agency's limit is 15 ppm.

"Not only does the ThermoJet Oil Purifier meet our immediate challenge," said one company representative, "it also addresses – and solves – a wide range of real issues that would have been costly and disruptive to our isopropyl alcohol manufacturing capabilities. And that makes what was already a fast payback on our investment even more significant."



About Colfax Corporation

Colfax Corporation is a global leader in critical fluid-handling products and technologies. Through its global operating subsidiaries, Colfax manufactures positive displacement industrial pumps and valves used in oil & gas, power generation, commercial marine, defense and general industrial markets.

Colfax's operating subsidiaries supply products under the well-known brands Allweiler, Baric, Fairmount Automation, Houttuin, Imo, LSC, Portland Valve, Tushaco, Warren and Zenith. Colfax is traded on the NYSE under the ticker "CFX." Additional information about Colfax is available at www.colfaxcorp.com.

About Lubrication Systems Company

Lubrication Systems Company (LSC) is a worldwide leader in lubrication-related solutions that improve equipment reliability and reduce operating costs. Located in Houston, Texas, LSC delivers two proprietary, patented technologies: LUBRIMIST® Oil Mist, a centralized lubrication system; and THERMOJET® Oil Purifier, an online oil-purification system.



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