LUBSOIL® SYNTHETIC FOOD GRADE HYDRAULIC ISO 46 (5162)

Food Processing Plant – Southeast United States
Hydraulic Systems

APPLICATION

Hydraulic system operating in a large food processing plant with fluid temperatures ranging from less than 30°F during down time to greater than 200°F during maximum load. The production schedule is 24 hours per day 6 days a week making equipment performance vital. The hydraulic fluid was operating at 500 psi with 4 electric driven hydraulic pumps.

CHALLENGES

Several concerns arose with the maintenance and operations groups with the performance of the existing hydraulic oil. Key issues includes sticking valves, lack of consistent operating pressure, sub-optimal gallons per minute fluid flow, pump failures, additional pumps required to maintain proper pressure, and existing fluid needing to be changed every 6 months. All of these issues slowed production, decreased operational output, and increased maintenance and material costs.

ACTIONS TAKEN

Tulco Oils initiated oil analysis from multiple locations in the plant which showed the viscosity index of the existing oil was not high enough to perform properly throughout the full operational temperature range. The existing oil also did not have the critical ability to flow properly at cold start. Oil analysis further showed low level water contamination and medium to high levels of particulate contamination. Target particulate levels did not meet ISO code 18/16/13 for variable piston pumps running less than 2000 psi. The added particulate load was likely contributing to silt lock which occurs when micron-sized silt particles become lodged between the hydraulic valve spool and the bore. Silt lock increases friction when a valve is actuated. Additional analysis showed the OEM recommendation for the hydraulic system was an ISO 46 oil, not the ISO 32 oil in use.

The incorrect viscosity grade was creating additional pressure issues within the hydraulic system while in operation.

TULCO OILS LUBSOIL® SOLUTION

Existing fluid was drained and the hydraulic system flushed to remove all particulates and the off-spec, contaminated fluid. The fluid reservoir was physically cleaned to remove sludge. All filtration was replaced and a desiccant breather was added to block external moisture from entering the system. The hydraulic system was filled with Lubsoil® Synthetic Food Grade Hydraulic ISO 46. This fluid is NSF® H1 Registered and is Kosher approved by the Union of Orthodox Jewish Congregations. Lubsoil® Synthetic Food Grade Hydraulic ISO 46 retains a high viscosity index and exhibits a Pour Point of minus 40°F. Lubsoil® Synthetic Food Grade Hydraulic cools, cleans, seals, and lubricates better than conventional oils, does not gel at low temperatures and strongly resists oxidation and vaporization at high temperatures.

RESULTS

Upon restart of the system all of the key issues were solved and optimal operation occurred. Fewer pumps were needed to maintain proper pressures and a pump was brought offline and available as a back-up. Twelve months after the Lubsoil upgrade, detailed oil analysis showed the fluid remained intact and did not need to be replaced. Bringing the hydraulic system to optimal operation decreased energy consumption, decreased maintenance costs, and extended fluid drain intervals. Collectively these improvements saved the customer an estimated $100,000 annually.

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