



Application: Hydraulic Test Stand

ISOPur Fluid Technologies goes beyond expectations - purges varnish and sludge from test stand application

Introduction

A large manufacturer of advanced automotive hydraulic actuators and sensors produces thousands of assemblies per hour with highly automated and computerized equipment. Filters alone were not meeting oil cleanliness standards. ISOPur's Balanced Charge Purification (BCP) improves the efficiency of the filtration process by electronically inducing rapid growth of very small and very damaging particles to filterable size. The ability of the BCP technology to stop and reverse varnish formation has been proven and documented.

The Challenge

The hydraulically driven test stands experienced problems producing extremely high-precision flow controllers due to contamination specification failures. Clearances of 250-300 micro-inches and a continuing upgrade in clearance specifications created the test stand efficiency but also made accelerated testing difficult because debris would cause a product failure rate of one out of every 20 tests performed with this hydraulic fluid.

The contamination problem was so severe that a multi-million dollar clean room assembly and test facility was under consideration. Oil analysis revealed that biological contamination was the source of the problem.

The company established the following goals for their oil purification needs:

- Maintain fluid quality at new oil conditions (see Figure 1)
- Eliminate component rejection due to oil contamination
- Extend 90-day oil change and clean out
- Reduce or eliminate waste oil generation

The Solution

In June of 2000, an ISOPur purification unit with ISOPur's patented Balanced Charge Purification (BCP) technology on-board was installed onto sixteen hydraulic test stands. Almost immediately the biological material was removed. Previous to using the ISOPur BCP technology, the company had numerous filter and oil changes as well as a rigorous cleaning routine. Within six (6) months of the study the oil was so pristine that there was no need for oil and filter replacement, cleaning or oil changes on the test stands. As noted in the below graph, all purification goals were reached and exceeded.

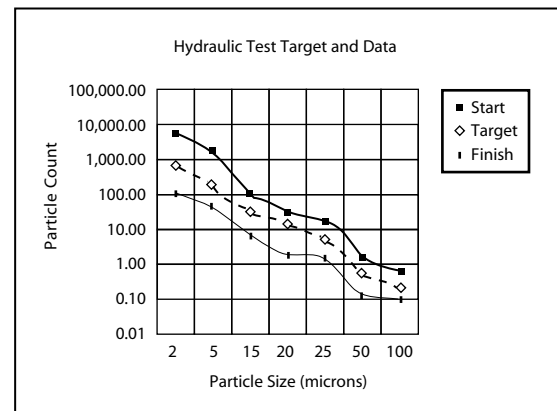


Figure 1: Problem, target, and performance per ml.

Within a few days of the first ISOPur installation, contamination test failures dropped dramatically and tracing of fluid using particle analysis documented lower levels of debris in the hydraulic test stands.

The Return

This leading manufacturing facility earned a return on investment in multiple ways. Costs were down in annual fluid acquisition and disposal (\$69,000 savings/year), filter and screens (\$13,500/year), and maintenance (\$28,000/year). The payback period for this company's investment was 4.5 months with a 270% return on investment.