



Case Study / Energy

Cone Crusher



A construction equipment manufacturer started promoting oil analysis to their end-users to support warranty and maintenance service on a product line of cone crushers.

The company felt that oil analysis is an investment in product support and service, as well as upholding the integrity of it's product line. Possible risks without predictive maintenance include:

Catastrophic failure

Loss of production

Reduced resale value

Analysis

A construction company that was taking advantage of the oil analysis support provided by the equipment manufacturer had been seeing abnormal wear trends on one of its cone crushers. The level of wear metal had been routinely flagged on the oil test reports going back a couple of months.

The test reports had noted that the iron level on a particular piece of equipment was outside of the OEM's recommended limits and was getting worse.

Diagnosis

The determination was made that since there was no chromium present in the oil analysis, then wear from bearing races was not an issue. Additionally, the normal levels of copper, lead, and aluminum indicated that bearing cages were not wearing excessively.

The fact that the iron was the only wear metal which was high and getting worse narrowed the potential problem down to a floating plate, which is similar to a universal joint, or a gear set itself.

Solution

With a 5 minute operation, the customer was able to pull out the cone head and inspect the unit. It was discovered that the floating plate had extensive wear and was ready to "explode" at some point.

Generally, the floating plate will wear so thin that it will break apart and distribute large particles into the bearing passage, causing additional damage. It was recommended that the floating plate was replaced immediately by a single \$700 part.

Result

Without oil analysis, the worn part would not have been identified. The repair costs could have amounted between \$2,000 to \$12,000 with an estimated minimum downtime of 2 days.

In this case, by using ALS oil analysis and diagnosis as a proactive maintenance tool, the construction company prevented a larger problem by knowing what to look for and having the right parts on hand when needed. The equipment manufacturer was able to use oil analysis in supporting its product line and maintaining the integrity of the equipment they sell.

\$12,000
EST. COST SAVINGS

Based on the maintenance/downtime cost to mitigate the causal factor and avoid potential catastrophic failure of the machine.