

Oil Analysis Verifies Success in Crusher Application



Arizona Copper Mine Extends Oil and Crusher Life with Spinner II® Centrifuges

Scenario

A copper mine in Arizona was experiencing problems with solid particulate in the oil of their crushers. Based on differential pressure readings, maintenance personnel were forced to change elements in their full-flow filters every two weeks. Oil analysis confirmed the severity of contamination, warning that large particle counts exceeded recommended cleanliness levels. Copper, lead, lead-tin and iron were all increasing at unacceptable rates.

In addition to unnecessary downtime, the increased number of oil and filter changes were a costly strain on the maintenance budget. Excessive wear particles were undoubtedly shortening the service life of crusher components.



Solution

After consulting with Spinner II Products distributor Ramon Valenzuela of DC distributors, officials at the mine agreed to install Spinner II centrifuge systems on five cone crushers. Each system consisted of a Spinner II Model 3600 centrifuge packaged with a pump and motor.

To gauge the effectiveness of the centrifuge systems, maintenance personnel would continue to monitor differential pressure, as well as reports and recommendations from their ongoing oil analysis program.



Actual contaminants removed after seven days of operation

Results

The centrifuge systems produced dramatic results. Instead of having to replace full-flow filter elements every two weeks, maintenance personnel can now leave elements in service for three months.

Oil analysis (see report data) confirms ISO cleanliness has improved from 23/22 to 18/13. Particle counts have dropped significantly in every size range and the presence of wear metals has been limited to only trace amounts.

As a result of this success, additional Spinner II centrifuge systems are being installed on other crushers throughout the mine. The systems are extending maintenance intervals and reducing costs of oil, full flow filters and labor. Oil analysis confirms that oil is remaining cleaner throughout the entire service interval. Mine personnel are convinced that the systems are eliminating wear problems and likely extending overhaul intervals, as well as providing longer service life for their crushers.



Excerpts from Oil Analysis Reports

Wear Metals (ppm)	Copper	Iron	Aluminum	Silicon	Lead	Tin
Before	169	56	2	25	41	12
After	19	4	0	2	4	0

Oil Condition/Particle Count (ct/ml)	ISO	5µ	10µ	15µ	20µ	25µ
Before	23/22	63447	47339	27709	8975	1098
After	18/13	1521	177	66	28	12

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