



**FILTER
TECHNOLOGY**

cleaner fluids mean better business

CASE STUDY

Mining

Case No : 2 - 6 - 5

Grinding Mill Lube Systems: Xstrata Group - Ernest Henry Mine

Ernest Henry Mine Mt Isa

Ernest Henry Mine part of the Xstrata Group have implemented procedures to control contamination in its lube systems.

To prove the worth of FTA's unit's Ernest Henry hired 8 x FM 504 buggies for a 6 month period, based on the results achieved by the FM 504's they now have moved ahead and installed fixed units on all the mill lube systems within the plant

The result below on Omala 460 in Vertical Grinding Mill lube system indicates the ISO particle count has been reduced from 22/17 to 14/11 a 99% reduction in particulate contamination

Water has been reduced by 86%, Iron by 88%, and PQ by 82%, significant reductions when looking at the past history on the oil sample.



The picture above shows two FM 504's connected to the lube systems and one of the new FM 840 fixed units that have now been installed at Ernest Henry

Site: Xstrata Ernest Henry Mine
 Attention To: DARRYL GRAY / DAVE PULLIN
 Machine: 333LU002 Vertical Grinding Mill Lube Oil System
 Sample Location: Planetary Gbox - Before filter
 Oil Type: SHELL OMALA 460

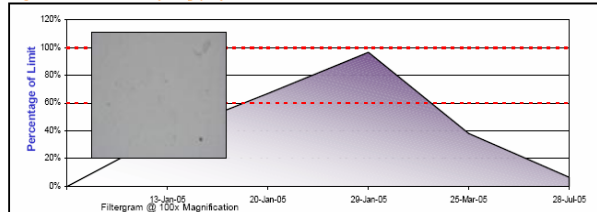
Oil+Test

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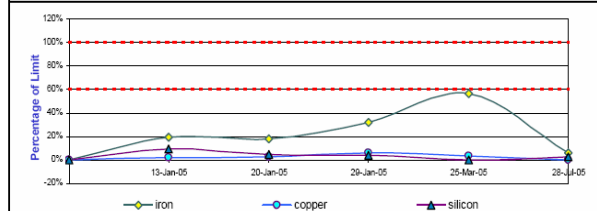


Sample Date	13-Jan-05	20-Jan-05	29-Jan-05	25-Mar-05	28-Jul-05
Analysis Report No.	230,505	230,941	231,690	236,478	247,965
Service Meter Reading	0hrs	0hrs	0hrs	0hrs	0hrs
Electric SMR	-	-	-	-	-
Oil Hrs	-	-	-	-	-
Oil Changed?	No	No	No	No	No
Wear Metals	Limit	ppm	ppm	ppm	ppm
lead	20	0	0	0	2
iron	60	11	11	19	34
aluminium	30	0	0	0	0
copper	60	1	2	4	2
chromium	15	0	0	0	0
tin	15	1	0	0	2
nickel	15	0	0	0	0
silver		0	0	0	0
titanium		0	0	0	0
Contaminants	Limit	ppm	ppm	ppm	ppm
silicon	30	3	1	1	0
sodium	30	0	0	0	0
vanadium		0	0	0	2
Oil Additives	Limit	ppm	ppm	ppm	ppm
magnesium		0	0	0	0.3
zinc		10	7	8	5
molybdenum		0	0	0	0
calcium		0.3	0.1	1	2
phosphorous		187	155	156	178
boron		0.3	0.2	0.1	0.1
barium		0	0	0	5
Physical Tests					
TBN		0	0	0	0
TAN		0.00	0.00	0.00	0.00
fuel dilution %		0	0	0	0
water %	0.05	< 0.1	< 0.1	< 0.1	< 0.1
viscosity index		96	97	96	98
visc @ 100oC - Cst	32	29.00	29.30	28.80	30.80
visc @ 40oC - Cst	460	424	426	421	444
FTIR Analysis					
soot - abs		0	0	0	0
glycol %		0	0	0	0
water ppm		57	12	19	154
oxidation - abs		0	0	0	0
nitration - abs		0	0	0	0
sulphation - abs		0	0	0	0
Particle Analysis					
particle count in 1ml		40673	47534	52918	42812
ISO-4406 6um \ 14um	16/13	23/21/16	23/22/17	23/22/18	23/21/17
PQ90 Fe - mg \ ltr	60	23	40	58	23
		4			4

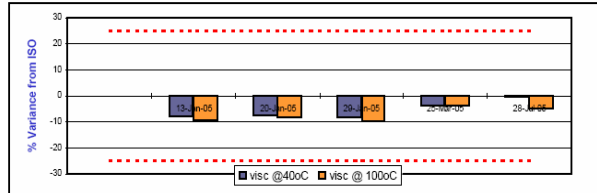
PQ - Ferrous Wear Debris (Fe mg \ ltr)



Major Small Particle Element Trends



Viscosity Condition From New Oil Specification



Comments & Recommendation

Solid particle contamination has improved significantly. Results within acceptable limits. Continue with regular maintenance and monitoring.

NOTE: This machine / oil condition report should be used in conjunction with normal maintenance practices. All care will be taken in processing and analysing samples but no express or implied guarantee is offered in regard to the continuing operation or condition.