USED OIL ANALYSIS WEAR REPORT

Clean Oil Services Pty.Ltd.

CLIENT: DEMONSTRATION REPORT
ADDRESS:

ATTENTION:

REPORT NO: 67504
SITE AREA:
UNIT No: No. 2, GENERATOR
COMPARTMENT: CAT 3412 ENGINE
MAKE/MODEL:
OIL CAPACITY: 70 LITRES

CLASS: 3
CONDITION
GOOD
FAIR
WATCH
ACTION
CAUTION

This section tells you at a glance whether the machine is healthy (GOOD or FAIR), if some maintenance is recommended (ACTION) or if imminent failure is likely (CAUTION)

COMMENTS ON CURRENT REPORTS:
Wear condition appears to be within limits for the hours on oil. Oil condition and performance is satisfactory for oil hours. Drain interval could safely be extended to 350 hours.

The comments section is a summary of the most important results and can include recommendations to optimise the lubrication of this compartment.

SAMPLE ID:	67504	66510	64608	62101	60912	LIMITS
SAMPLE NO:	5	4	3	2	1	
SAMPLE DATE:	11/06/2009	2/05/09	13/04/2009	14/03/2009	15/02/2009	
REPORT DATE:	13/06/2009	3/05/09	15/04/2009	16/03/2009	17/02/2009	
LABEL No:						
MACHINE HRS	2295	1946	1686	1431	1270	
OIL HOURS	250	260	255	161	267	
OIL ADDED	4	5	4	6	3	
OPERATING TEMP DEG. C	80	80	85	90	85	
OIL BRAND	BP	BP	BP	BP	BP	
OIL GRADE	C6 Global	C6 Global	C3 Multi	C3 Multi	C3 Multi	
NEW OIL VISCOSITY cSt@40c	117	117	104	104	104	
PHYSICAL TESTS----------						
SAMPLE VISCOSITY cSt@40c	116	120	106	123	110	+ or - 10%
FUEL DILUTION	<0.5%	<0.5%	1.80%	3%	<0.5%	0.5%
WATER	<0.1%	<0.1%	1.50%	5.0%	<0.1%	0.10%
TBN (BASE No.) mg KOH/g	6.4	6.2	5.4	3	6.7	<5
MICROSCOPIC REPORT----------						
PARTICLE COUNT (1-100)	15	20	25	60	10	35
PARTICLE SIZE % <10um	98%	97%	96%	90%	99%	95%
PARTICLE SIZE % 10 to 20um	2%	2%	3%	6%	1%	3%
PARTICLE SIZE % >20um	0%	1%	1%	4%	0%	2%
RUBBING	Low to 25um	Low to 30um	Med to 50um	High to 140um	Low to 25um	
CUTTING		Low to 20um	Med to 25um	Low to 25um		
SLIDING						
LAMINAR						
FATIGUE	Low to 10um	Low to 25um	Med to 30um	High to 45um	Low to 30um	
SPHERES						
DARK OXIDES		Low	Med	High	Low	
COPPER PARTICLES	Low to 15um			High to 25um		
PARTICLE CONTAMINATION	Low	Low	Med	High	Low	Low
SOOT (1 TO 100)	40	25	30	70	40	60
SPECTROGRAPHIC RESULTS - PPM						
IRON	12	20	40	120	10	35
LEAD	1	3	5	15	2	10
TIN	1	1	3	4	1	5
COPPER	3	5	9	20	6	30
ALUMINIUM	2	4	7	13	5	10
CHROMIUM	<1	7	10	11	5	10
NICKEL						
SILICON	3	4	7	15	3	10
SODIUM	<1	2	6	37	2	5
BORON	<5	<5	<5	<5	<5	
CALCIUM	1238	1462	1296	1570	1326	1340
MAGNESIUM	835	956	1027	198	870	880
PHOSPHOROUS	790	690	830	860	720	780
MOLYBDENUM	<1	<1	<1	<1	<1	<1
ZINC	1100	1145	1215	1037	990	1120
SULPHUR	5629	5872	7430	8632	5580	5640

We can work with you to set limits for contamination and wear levels that suit the specifi c machine, operating conditions and consequences of failure.

Providing oil hours on your sample lets you see the trend on wear rate.

From the oil brand and type we can determine the acceptable viscosity range for the oil.

A base additive is used in engine oils to neutralise any build up of acids. If you are using high quality oil and centrifuges to run extended oil drains you will need to keep track of the base reserve left and top up if necessary.

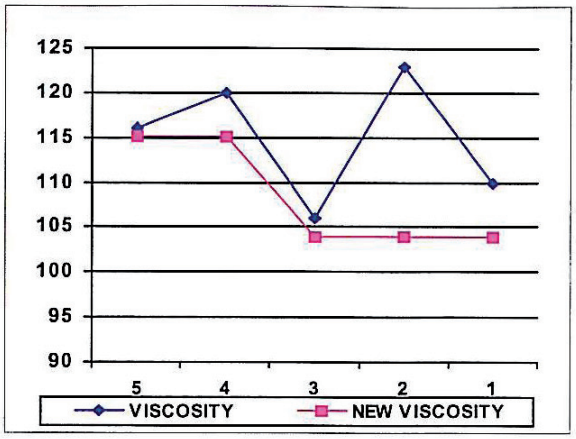
These are the common elements in an oil additive package. Discrepancies can indicate that the wrong oil has been added.

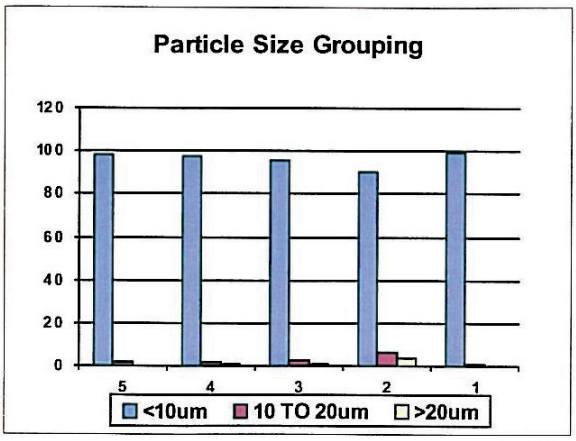
We keep a database of these elements of the oil additive package to compare levels to the current sample. If we don't have a recent test of the oil you use on our database, send us in some new oil and we will run a free analysis of it.

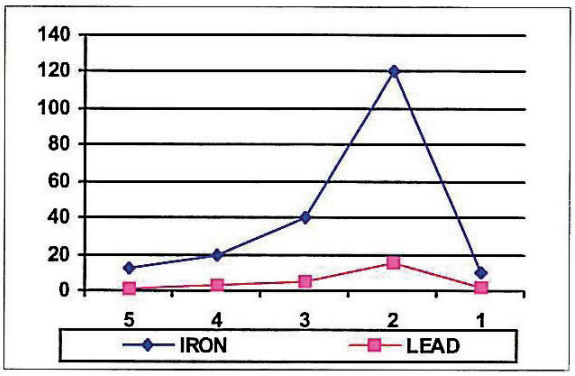
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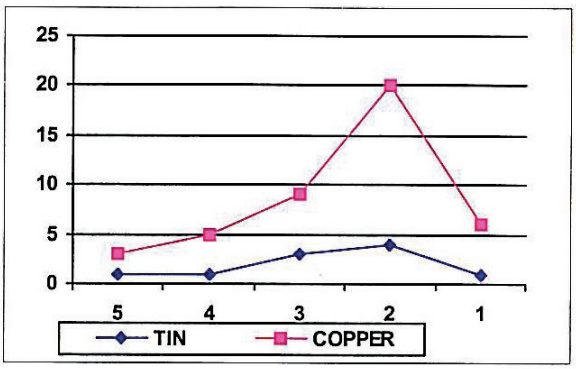
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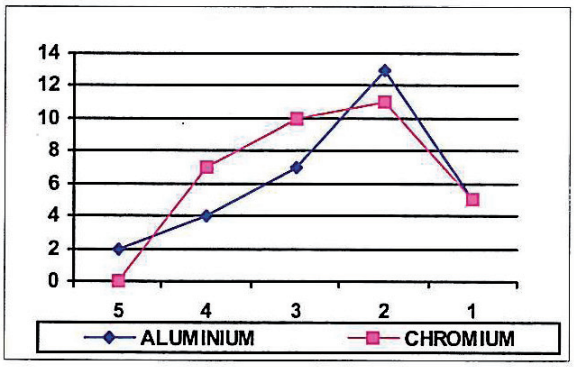
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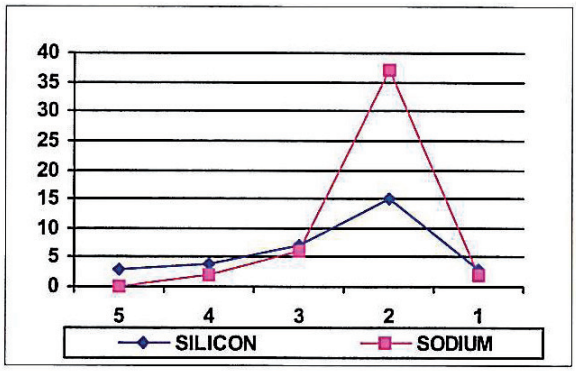






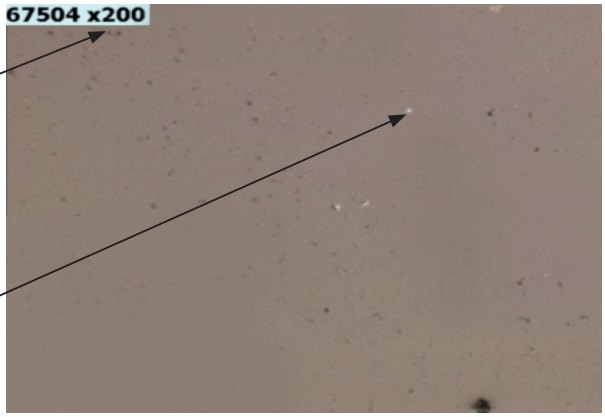


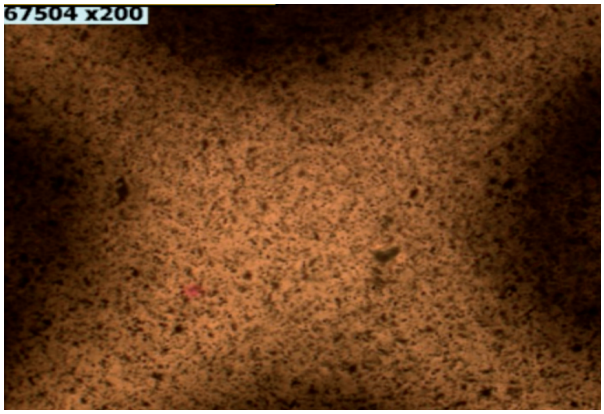




Microscope analysis allows you to see your wear at 200X magnifi cation.

This photo is taken with light reflecting off the sample. White particles are pieces of wear metals. Dark particles are dirt and dust.





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