

EXPERT LUBRICANT ANALYSIS TO MONITOR EQUIPMENT HEALTH

<b>CUSTOMER:</b>		
<b>PLANT:</b>		
<b>MACHINE NAME:</b>	MAIN REDUCTION GEAR	<b>Machine Condition</b> <b>CRITICAL</b>
<b>LOCATION:</b>		
<b>MACHINE TYPE:</b>	GEARBOX	
<b>LUBE TYPE:</b>	NAV SHELL OMALA S2 G 320	
<b>MACH MFGR:</b>	Unknown	
<b>MACH MOD:</b>		<b>Lubricant Condition</b> <b>NORMAL</b>
<b>RECEIVED:</b>	24-MAR-15	
<b>CONTACT 1:</b>		
<b>REPORT:</b>	27-MAR-15 11:59:20	
<b>SAMPLE NO:</b>	XXXX-1-1-5	
<b>PO NUMBER:</b>		

RECOMMENDATIONS

- Corrective action suggested.

MISCELLANEOUS

- Lubricant refers to oil, fuel, biofuel, grease, coolant or varnish.
- FOR GREATER DIAGNOSTIC, PLEASE SUPPLY A CURRENT REFERENCE LUBRICANT TO COMPARE WITH SAMPLE.
- The hours on lube: calculated based on 168 hr/wk.
- Our database indicates no site contaminant for this unit.

ANALYTICAL FERROGRAPHY

- Heavy amount of normal rubbing wear that is generated as normal machine wear with a red oxide caused by water or poor lubricant condition.
- Heavy amount of abrasives; dirt /silica and environmental contaminants. Heavy gear wear, scuffing of the gear is caused by too high a load and /or speed.

NOTE

- Special sample particulate from oil strainer

SAMPLING HISTORY

LabNo	SAMPLE DATE DD-MM-YYYY	TIME ON OIL / TSN	TIME SINCE OVER- HAUL / TSO	OIL CHANGED (Y/N)	PREVIOUS CONDI- TION MACH/OIL
2044636	18-03-2015	3831	3831	N	(n/a)
2043105	05-03-2015	3519	3519	N	N/N
2041865	05-03-2015	3519	3519	N	N/N
2026431	16-11-2014	903	903	N	M/N
2018358	20-11-2014	999	999	N	N/N

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**(SP) SPECTROSCOPIC ANALYSIS [ASTM D5185] (elements seen in ppm)**

TESTED ELEMENTS ARE: Fe, Cu, Pb, Sn, Cr, Al, Ni, Ti, Ag, V, Mg, Si, B, Na, Ba, Ca, P, Mn, Zn, Mo, Cd, K.

Date(DD/MM/YY)	18-03-15	05-03-15	05-03-15	16-11-14	20-11-14	(n/a)	(n/a)	LIMITS	
Labno	2044636	2043105	2041865	2026431	2018358			M	C
Fe-IRON		35	42	34	19			50-100	>100
Cu-COPPER		-	-	2.0	-			25-50	>50
Al-ALUMINUM		2.0	1.0	-	-			5-10	>10
Ni-NICKEL		1.0	-	-	-			5-10	>10
Si-SILICON		2.0	2.0	2.0	-			15-30	>30
Mg-MAGNESIUM		2.0	-	4.0	-				
Na-SODIUM		2.0	2.0	-	-			15-30	>30
Ca-CALCIUM		9.0	6.0	9.0	1.0				
P-PHOSPHORUS		210	287	247	259				
Zn-ZINC		5.0	5.0	5.0	3.0				

**(PC) PARTICLE COUNT [ISO 4406] (/ml) ISO 4/6/14,µicron**

Date(DD/MM/YY)	18-03-15	05-03-15	05-03-15	16-11-14	20-11-14	(n/a)	(n/a)	(n/a)	REF
Labno	2044636	2043105	2041865	2026431	2018358				
> 4µ		6035	22941						-
> 6µ		1624	3105						-
> 14µ		33	14						-
> 25µ		0.0	0.0						-
> 50µ		0.0	0.0						-
> 100µ		0.0	0.0						-
ISO 4406(1999)		20/ 18/ 12	22/ 19/ 11						-
ISO 4406(1989)		19/ 12	20/ 10						-

**TAN [ASTM D974 OU D664] (mg KOH/g)**

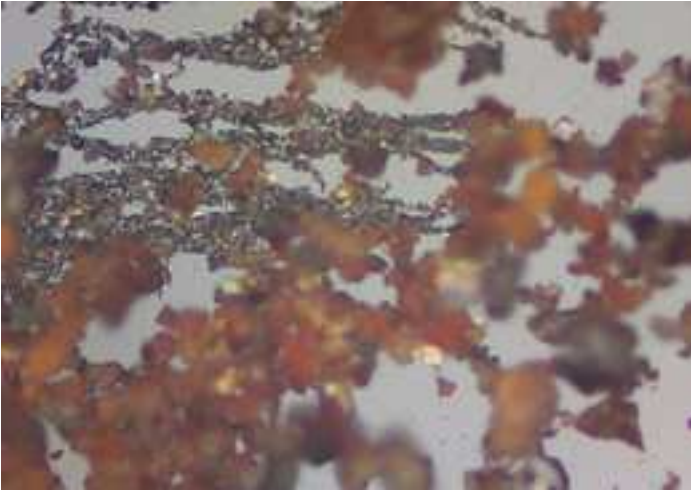
Date(DD/MM/YY)	18-03-15	05-03-15	05-03-15	16-11-14	20-11-14	(n/a)	(n/a)	LIMITS	
Labno	2044636	2043105	2041865	2026431	2018358			M	C
TOTAL ACID NO		0.63	0.63	0.44	0.34			1.0-1.5	>1.5

**KARL FISHER (%)**

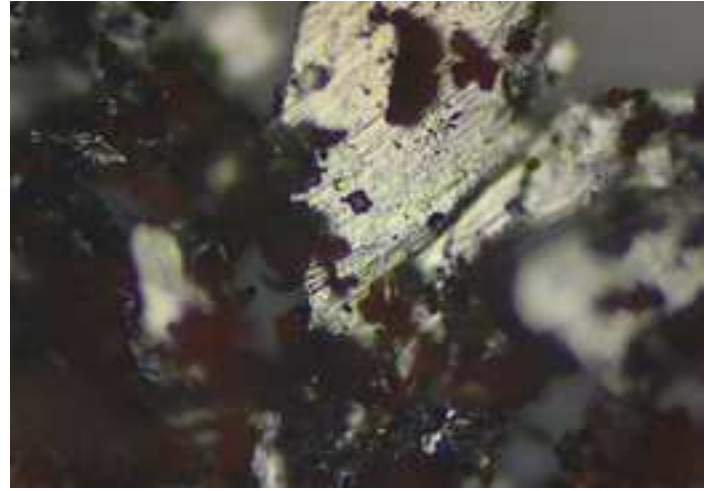
Date(DD/MM/YY)	18-03-15	05-03-15	05-03-15	16-11-14	20-11-14	(n/a)	(n/a)	LIMITS	
Labno	2044636	2043105	2041865	2026431	2018358			M	C
WATER KF		0.05	0.05	0.05	0.05			0.06-0.10	>0.10

**ANALYTICAL FERROGRAPHY**

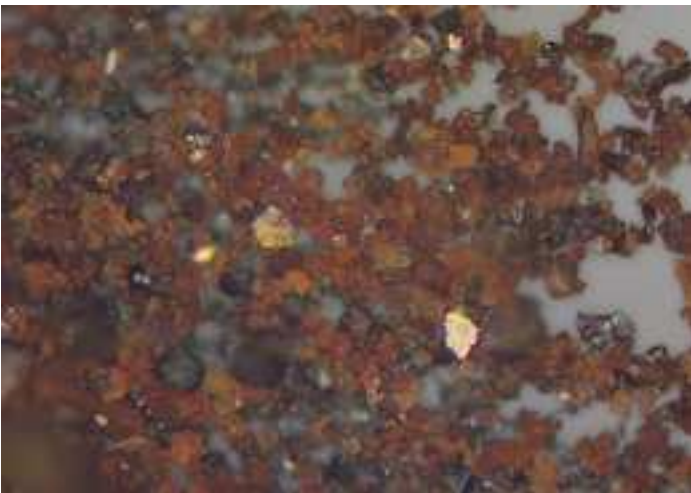
	PARTICLES			FEW	MODERATE	HEAVY
RUBBING WEAR						X
LOW & MEDIUM ALLOY STEEL PARTICLES						X
ABRASIVE WEAR						X



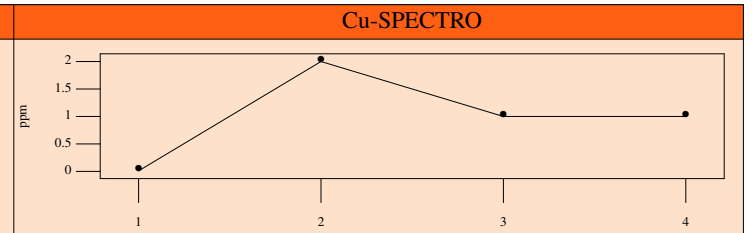
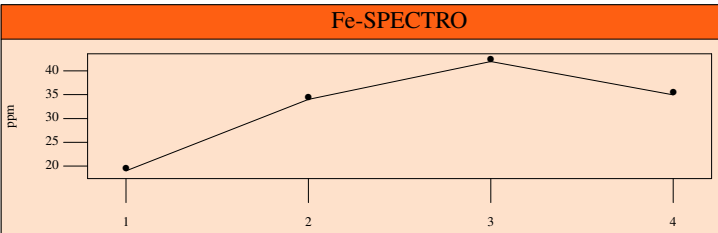
200X  
RUBBING WEAR

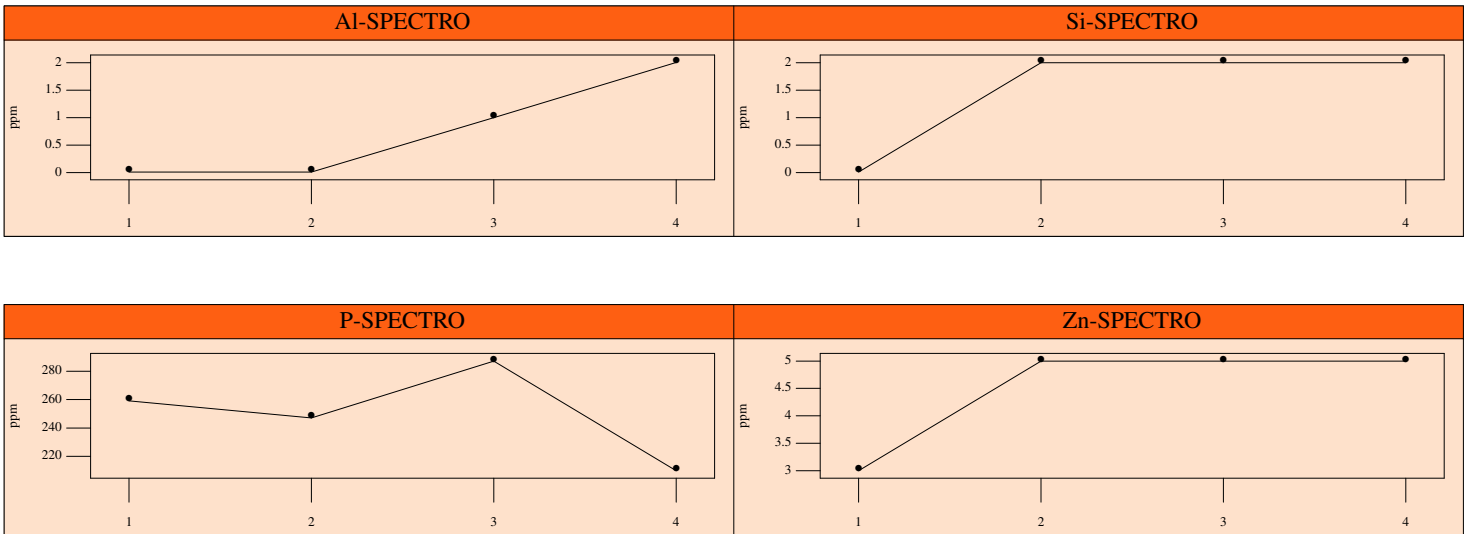


200X  
LOW & MEDIUM ALLOY STEEL PARTICLES



200X  
ABRASIVE WEAR





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