

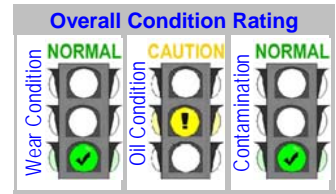
Customer Code : **8888**
 Customer Name : **ABC Manufacturing Co.,Ltd**
 Address : 123 Sukhumvit Road , Map Ta Phut
 Rayong 21150

Unit ID Number : **SWD 35148E**

Unit Type : Engine Nat Gas
 Unit Make : CATERPILLAR
 Unit Model : G3516 NA
 Oil type / Viscosity : CITGO 32046
 Site Name :
 Location :

Test code : 894

Lube System Capacity : 400 Liters



Recommendations and Notes

Note some test values are near to the Alarm Limits, or slightly over the Alarm Limits, but are not considered serious at this time. Oil condition tests indicate that the oil is slightly degraded. All other wear tests and oil condition tests appear satisfactory, and the oil was still serviceable at the time of sampling. Continue routine sampling interval.

WC / Andy Sitton

Condition History			Current Sample			Previous Sample			Alarm Limit Range											
			Wear	Oil	Cont.	Wear	Oil	Cont.	Wear	Oil	Cont.	Limit Name (Equipment / Oil) : Engine Nat Gas Cat G3516 NA w Citgo (UGCT)								
FocusLab ID Date sampled Hours on Oil Hours on Unit Bottle ID			N	C	N	N	C	N	C	N	A									
Test Method			Result																	
			68686	11-Dec-06		67366	06-Nov-06		65359	09-Oct-06										
			1212			535			2999											
			66009			65332			64797											
			855942			855593			854513											
Wear Condition											RDE fine					RFS coarse				
Wear Element	Method	Unit	RDE fine	RFS coarse	RDE fine	RFS coarse	RDE fine	RFS coarse	RDE fine	RFS coarse	New Oil	U-Caution	U-Action	L-Caution	U-Caution	U-Action				
Iron	D-6595	PPM	4.8	3.1	3.1	2.3	4.4	5.7	1	5.7	1	>7	>10	>6	>10	>10				
Chromium	D-6595	PPM	0.5	0.0	0.5	1.0	0.7	1.1	0	1.1	0	>1	>2	>1	>2	>2				
Lead	D-6595	PPM	3.9	0.0	0.2	2.0	0.7	1.8	0	1.8	0	>3	>6	>6	>10	>10				
Copper	D-6595	PPM	3.3	0.5	2.5	0.4	6.6	1.7	0	1.7	0	>8	>14	>3	>6	>6				
Tin	D-6595	PPM	0.0	0.0	0.0	2.3	0.0	2.5	0	2.5	0	>1	>2	>2	>5	>5				
Aluminum	D-6595	PPM	2.6	3.2	2.5	2.5	4.0	16.3	0	16.3	0	>2	>4	>3	>6	>6				
Nickel	D-6595	PPM	0.0	0.0	0.5	1.3	0.0	0.0	0	0.0	0	>1	>2	>1	>2	>2				
Silver	D-6595	PPM	0.0	0.1	0.0	0.0	0.0	0.0	0	0.0	0									
Molybdenum	D-6595	PPM	1.0	0.0	1.1	5.3	1.3	5.1	0	5.1	0	>4	>7	>4	>7	>7				
Titanium	D-6595	PPM	0.0	0.5	0.0	0.1	0.0	0.0	0	0.0	0									
Oil Condition											New Oil									
Viscosity @ 40 °C	D-445	cSt									13.4	<11	<13	>15.5	>16.2	>16.2				
Viscosity @ 100 °C	D-445	cSt	16.0		16.8		13.7		13.7		7.0			>15.2	>17.7	>17.7				
Oxidation	FTIR	Abs	19.8		17.9		14.1		14.1		5.0			>8.9	>10.5	>10.5				
Nitration	FTIR	Abs	8.2		7.1		7.2		7.2		0.61			>2.51	>3.32	>3.32				
TAN	D-974	mg KOH/g	1.89		1.21		1.64		1.64											
TBN	D-4739	mg KOH/g																		
Contamination											New Oil									
Water	FTIR	% (Wt.)	0.075		0.070		0.060		0.060		0.040			>0.088	>0.149	>0.149				
Fuel	FTIR	% (Wt.)	0.00		0.00		0.00		0.00											
Glycol	FTIR	Abs	0		0		0		0											
Soot	FTIR	% (Wt.)	0.00		0.00		0.00		0.00											
Sodium	D-6595	PPM	2		1		2		2											
Silicon	D-6595	PPM	2.2	0.6	2.3	2.5	2.2	2.5	2.5											
Additive Element											New Oil									
Boron	D-6595	PPM	0		0		1		1		0									
Magnesium	D-6595	PPM	5		5		6		6		4									
Calcium	D-6595	PPM	1129		1050		1673		1673		1166	<583	<875	>1458	>1749	>1749				
Barium	D-6595	PPM	0		6		0		0		0									
Phosphorus	D-6595	PPM	232		195		299		299		230	<115	<173	>288	>345	>345				
Zinc	D-6595	PPM	305	56	269	38	423	165	165		315	<157	<236	>393	>471	>471				
Additional Test											New Oil									
Flash Point	Seta Flash	°C																		
Viscosity Index	D-2270																			
Other																				

Note: Alarm Limits are variable and dependent upon dataset size and to be used as general guideline.
 No Sign or **N** : NORMAL , **C** or **▲** : CAUTION (first level warning limit) , **A** or **■** : ACTION required (second level warning limit)
U-Caution : Upper CAUTION Level **L-Caution** : Lower CAUTION Level First level warning limit in Upper level and/or Lower level
U-Action : Upper ACTION required Level **L-Action** : Lower ACTION required Level Second level warning limit in Upper level and/or Lower level
 Accuracy of interpretation and recommendation are based on representatives sample and information supplied No warranty is expressed or implied for this report.

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Oil type / Viscosity : CITGO 32046

Site Name :

Lube System Capacity : 400 Liters

Location :

Overall Condition Rating

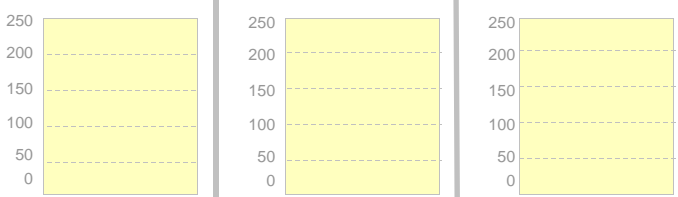
Wear Condition	Oil Condition	Contamination
		
NORMAL	CAUTION	NORMAL

		Current Sample		Previous Sample			Alarm Limit Range				
FocusLab ID		68686		67366		65359	Limit Name (Equipment / Oil) :				
Date sampled		11-Dec-06		06-Nov-06		09-Oct-06	Engine Nat Gas Cat G3516 NA w Citgo (UGCT)				
Hours on Oil		1212		535		2999					
Hours on Unit		66009		65332		64797					
Bottle ID		855942		855593		854513					
Particle Count NAS 1638: Number of Particles Per 100 Milliliter (Counts/100ml)							New Oil	U-Caution	U-Action		
Size Range	No. of Particles	Class	No. of Particles	Class	No. of Particles	Class	Class	No. of Particles	Class	No. of Particles	Class
5-15 microns	36,800	8	68,500	9	8,978,500	12					
15-25 microns	3,300	7	6,300	8	816,700	12 A	<8		<9		<10
25-50 microns	900	7	1,800	8	232,800	12					
50-100 microns	100	7	100	7	23500	12					
>100 microns	<100	5	<100	6	1500	12					
Particle Count ISO 4406:1999: Number of Particles Per Milliliter (Counts/ml)											
Size Range	No. of Particles	Class	No. of Particles	Class	No. of Particles	Class					
>4 microns	1,095	17	2,043	18	267,714	25					
>6 microns	308	15	575	16	75,398	23					
>14 microns	42	13	81	14	10,584	21					
ISO 4406 Result	17/15/13		18/16/14		25/23/21						

Recommendations and Notes

Particle count shows oil cleanliness level acceptable.

Option Test: Varnish Potential Index™ (VPI™), Testing for Predicting Varnish and Varnish build up

VPI™ Value Condition	VPI™ Severity Limit Range Guideline		
	New Oil	U-Caution	U-Action
			

Option Test: RUL (Remain Useful Life), Testing for monitoring Percent Remaining Anti-Oxidant (AO) by ASTM D-6971

% Remaining Antioxidant Additive	New Oil		
	New Oil	U-Caution	U-Action
	100	<50	<25

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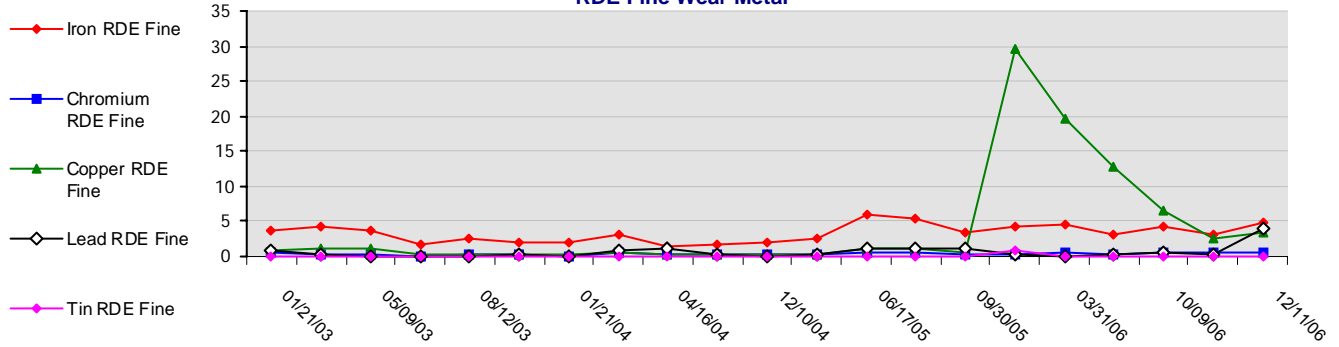
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Lube System Capacity : 400 Liters

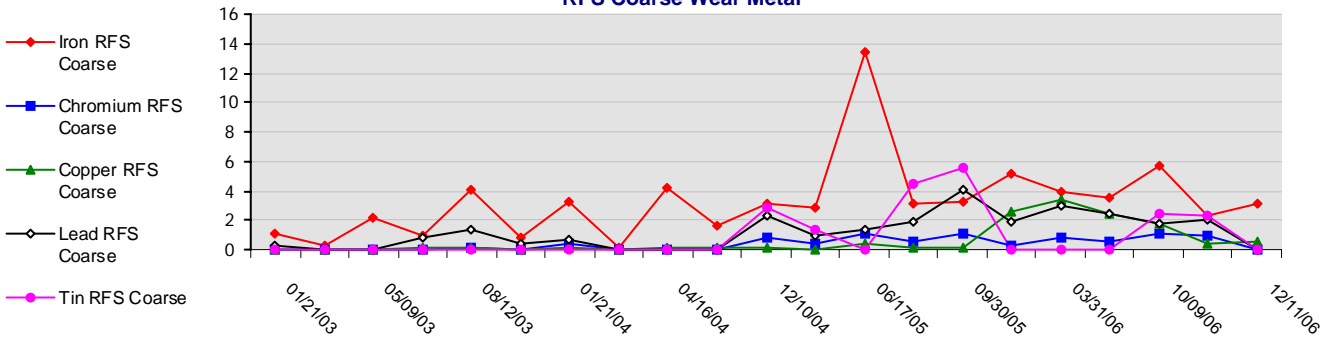
Location :

Wear Condition

RDE Fine Wear Metal

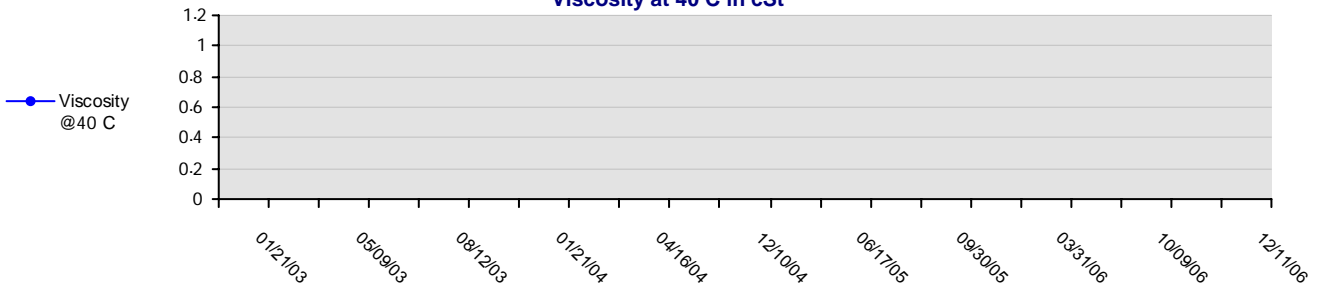


RFS Coarse Wear Metal

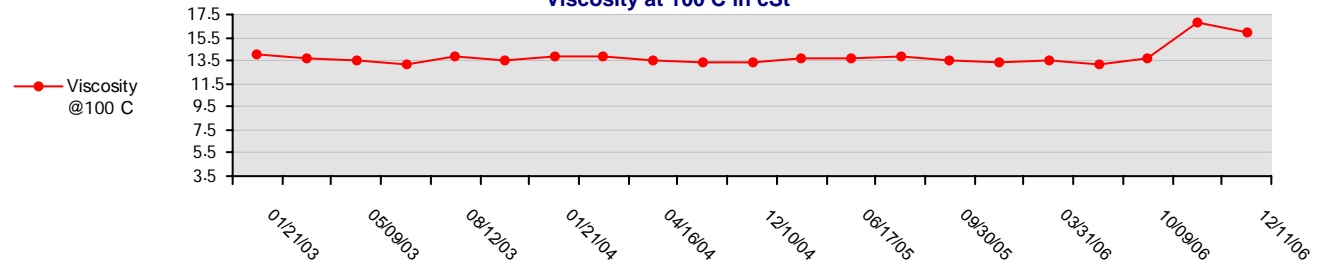


Oil Condition

Viscosity at 40 C in cSt



Viscosity at 100 C in cSt



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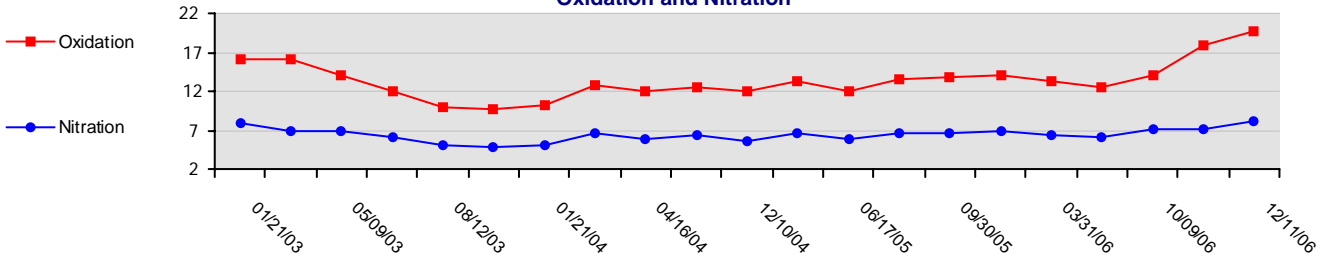
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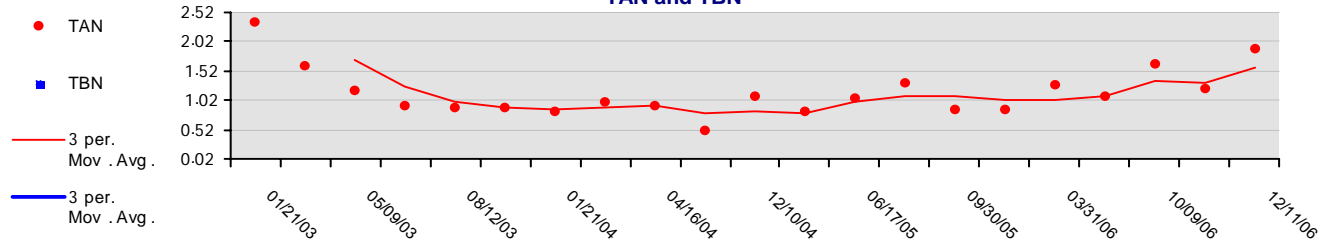
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Oil Condition

Oxidation and Nitration

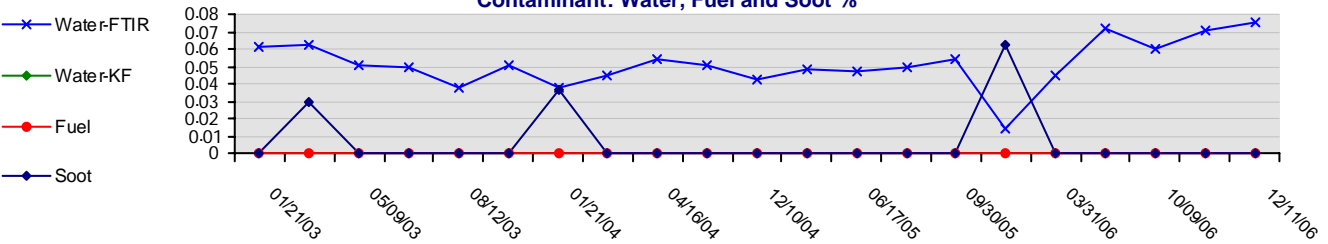


TAN and TBN

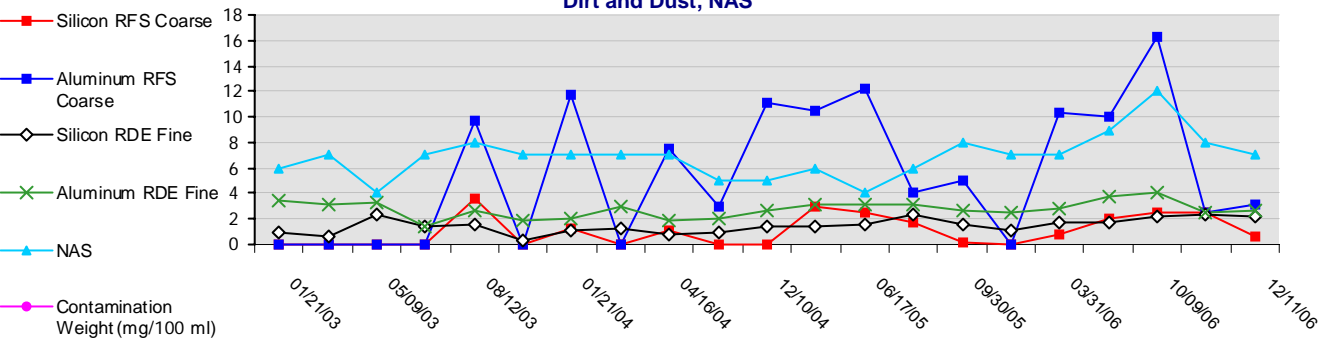


Contamination

Contaminant: Water, Fuel and Soot %



Dirt and Dust, NAS



Others

VPI and AO Additives

