

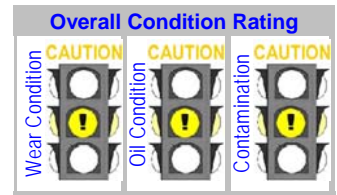
Customer Code : **8888**
 Customer Name : **ABC Manufacturing Co.,Ltd**
 Address : 123 Sukhumvit Road , Map Ta Phut Rayong 21150

Unit ID Number : **K 5801 D Lube Oil Tank**

Unit Type : Engine Turbine Gas
 Unit Make : Solar Turbines
 Unit Model: CENTAUR 50
 Oil type / Viscosity : PTT Terbin 46
 Site Name :
 Location :

Test code : 894 913 914

Lube System Capacity : 1800 Liters



Recommendations and Notes

Note abnormal wear metals.
 Anti-Oxidant Additive test (ASTM D6971) indicates that the phenolic-type of additive is nearly depleted. This additive is usually used for varnish and sludge control.
 Particle count indicates that oil cleanliness level is near to unacceptable range.
 Varnish Potential Index (VPI) is in the moderate range and indicate the presence of sludge, varnish and other insoluble matter in the oil sytem.
 Recommend short sampling intervals of this sample point to monitor the abnormal conditions.

AS / Andy Sitton

Condition History			Current Sample			Previous Sample			Alarm Limit Range							
			Wear	Oil	Cont.	Wear	Oil	Cont.	Wear	Oil	Cont.	Limit Name (Equipment / Oil) :				
FocusLab ID Date sampled Hours on Oil Hours on Unit Bottle ID			▲	▲	▲	▲	N	A	▲	N	▲	Engine Turbine Gas Solar Shell Turbo T46				
			72227	70681	69200											
			16-Mar-07	13-Feb-07	10-Jan-07											
			36426.8	35666.7	34898.7											
Not Given			Not Given			Not Given										
862290			856656			856643										
Wear Condition										New Oil	RDE fine		RFS coarse			
Wear Element	Method	Unit	RDE fine	RFS coarse	RDE fine	RFS coarse	RDE fine	RFS coarse	RDE fine	RFS coarse	U-Caution	U-Action	U-Caution	U-Action		
Iron	D-6595	PPM	0.6	0.0	0.7	0.0	0.6	0.8	>1	>2	>2	>4	>1	>2		
Chromium	D-6595	PPM	0.3	0.0	0.3	0.0	0.2	0.0	>1	>2	>1	>2	>1	>2		
Lead	D-6595	PPM	29.9 A	53.6 A	32.5 A	0.0	31.5 A	22.6 A	>1	>2	>3	>5	>1	>2		
Copper	D-6595	PPM	0.2	0.4	0.2	0.0	0.2	0.1	>1	>2	>1	>2	>1	>2		
Tin	D-6595	PPM	1.6	0.0	0.8	0.0	0.8	0.0	>2	>3	>1	>2	>1	>2		
Aluminum	D-6595	PPM	0.5	0.0	0.4	0.0	0.4	0.0	>1	>2	>1	>2	>1	>2		
Nickel	D-6595	PPM	0.1	0.0	0.0	0.0	0.0	0.0	>1	>2	>1	>2	>1	>2		
Silver	D-6595	PPM	0.0	0.0	0.0	0.0	0.0	0.1								
Molybdenum	D-6595	PPM	0.1	0.0	0.6	0.0	0.0	0.0								
Titanium	D-6595	PPM	0.0	0.0	0.0	0.0	0.1	0.3								
Oil Condition										New Oil	L-Action	L-Caution	U-Caution	U-Action		
Viscosity @40 °C	D-445	cSt	46.7		47.0		46.9		47.3	<42.5	<44.9	>49.6	>52			
Viscosity @100 °C	D-445	cSt														
Oxidation	FTIR	Abs	5.1		5.6		4.1		4.0			>6	>7			
Nitration	FTIR	Abs	2.9		3.9		2.5		3.0			>8	>13			
TAN	D-974	mg KOH/g.	0.11						0.15			>0.3	>0.44			
TBN	D-4739	mg KOH/g.														
Contamination										New Oil			U-Caution	U-Action		
Water	T-H2O Check™	%(Wt.)	0.009		0.006		0.009		0.002			>0.018	>0.033			
Sodium	D-6595	PPM	9		9		9									
Silicon	D-6595	PPM	0.3	0.0	0.5	0.0	0.3	1.2								
											RDE fine	RFS coarse				
											>3	>5	>3	>6		
Additive Element										New Oil						
Boron	D-6595	PPM	0		0		0									
Magnesium	D-6595	PPM	0		0		0									
Calcium	D-6595	PPM	0		0		1									
Barium	D-6595	PPM	0		0		0									
Phosphorus	D-6595	PPM	10		11		8									
Zinc	D-6595	PPM	2	3	2	1	2	1								
Additional Test										New Oil	L-Action	L-Caution	U-Caution	U-Action		
Flash Point	D-3828	°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.

Customer Code : **8888**

Unit ID Number : **K 5801 D Lube Oil Tank**

Customer Name : **ABC Manufacturing Co.,Ltd**

Unit Type : Engine Turbine Gas

Address : 123 Sukhumvit Road , Map Ta Phut Rayong 21150

Unit Make : Solar Turbines

Unit Model: CENTAUR 50

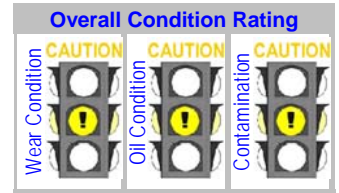
Oil type / Viscosity : PTT Terbin 46

Site Name :

Location :

Test code : 894 913 914

Lube System Capacity : 1800 Liters



		Current Sample		Previous Sample			Alarm Limit Range					
FocusLab ID		72227		70681		69200	Limit Name (Equipment / Oil) :					
Date sampled		16-Mar-07		13-Feb-07		10-Jan-07	Engine Turbine Gas Solar Shell Turbo T46					
Hours on Oil		36426.8		35666.7		34898.7						
Hours on Unit		Not Given		Not Given		Not Given						
Bottle ID		862290		856656		856643						
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	39,400	8	97,500	9	12,600	6						
15-25 microns	3,600	7 C	8,900	8 A	1,100	5	<6		<7		<8	
25-50 microns	1,000	8	2,500	9	300	6						
50-100 microns	100	7	200	8	<100	5						
>100 microns	<100	5	<100	6	<100	3						
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	1,182	17	2,923	19	375	16						
>6 microns	331	16	818	17	105	14						
>14 microns	46	13	114	14	14	11						
ISO 4406 Result	17/16/13		19/17/14		16/14/11							

Recommendations and Notes

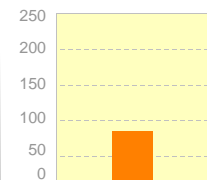
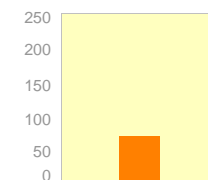
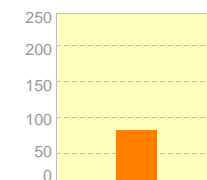
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Option Test: Varnish Potential Index™ (VPI™), Testing for Predicting Varnish and Varnish build up

VPI™ Value Condition	84 C Moderate	77 C Moderate	85 Moderate	VPI™ Severity Limit Range Guideline		
				New Oil	U-Caution	U-Action
				<10	<49	<99

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

% Remaining Antioxidant	30.7	New Oil		
		U-Caution	U-Action	
		<50	<25	

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Unit Model: CENTAUR 50

Oil type / Viscosity : PTT Terbin 46

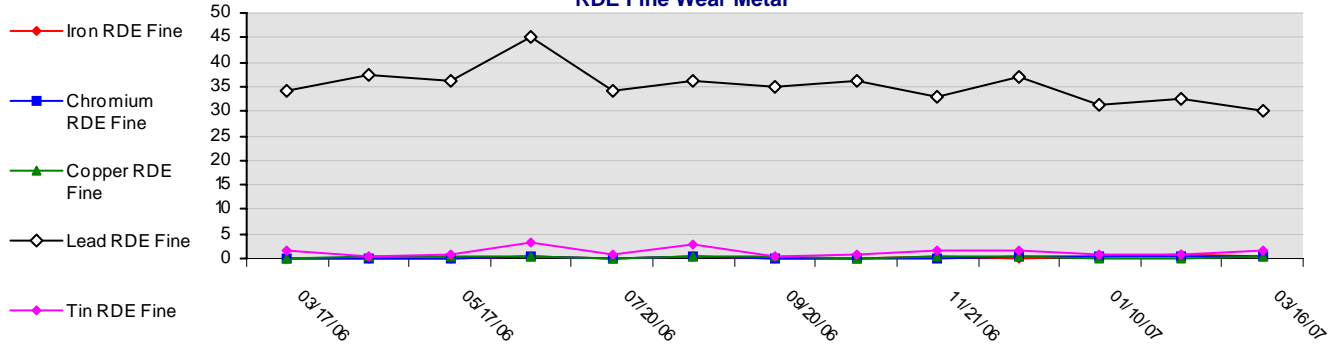
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Location :

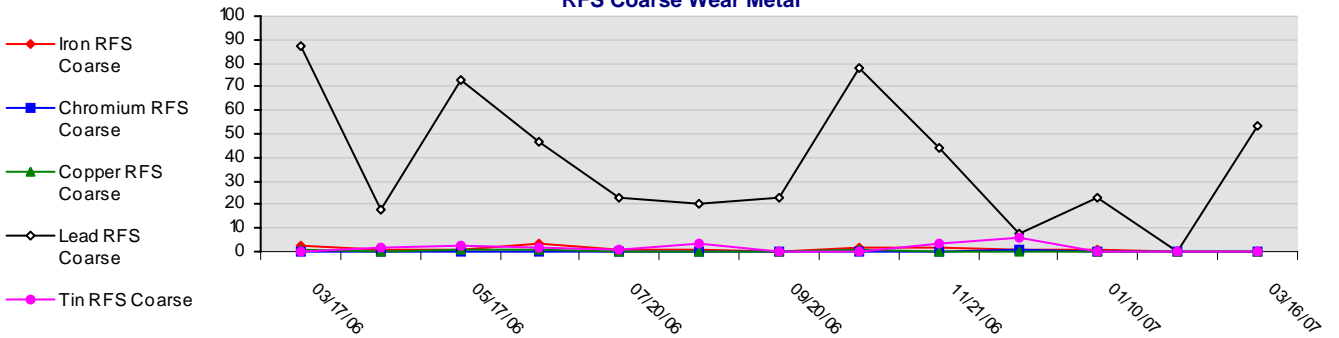
Lube System Capacity : 1800 Liters

Wear Condition

RDE Fine Wear Metal

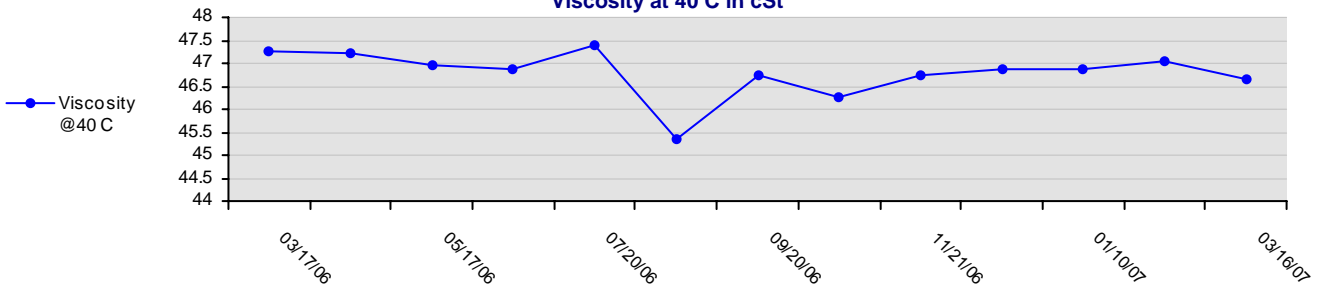


RFS Coarse Wear Metal

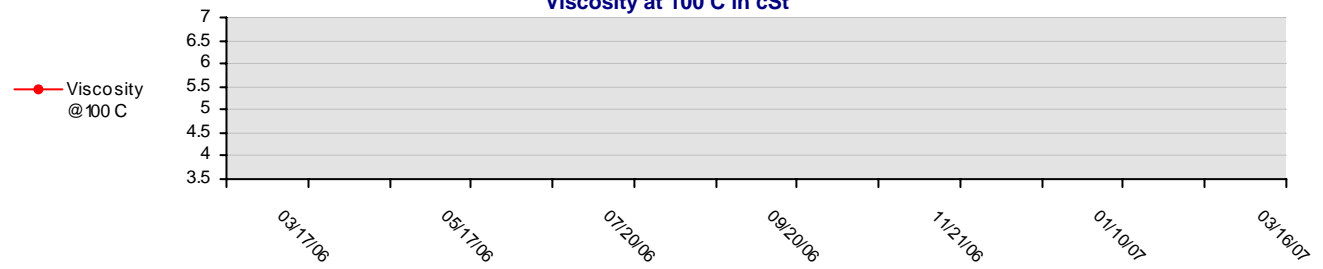


Oil Condition

Viscosity at 40 C in cSt



Viscosity at 100 C in cSt



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Unit Make : Solar Turbines

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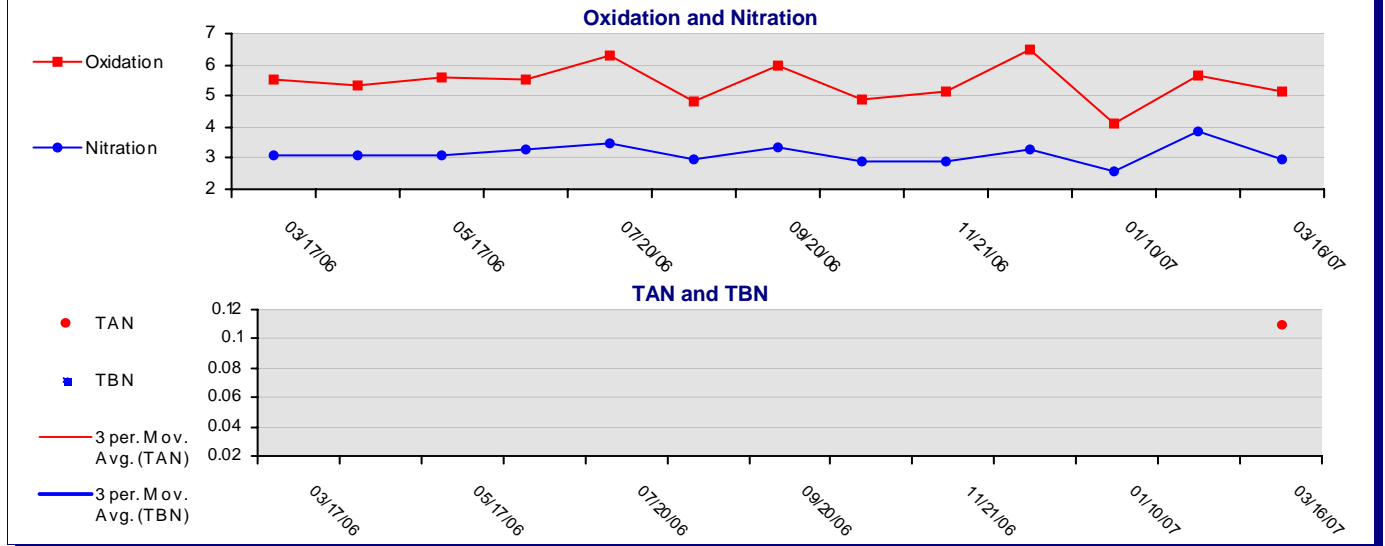
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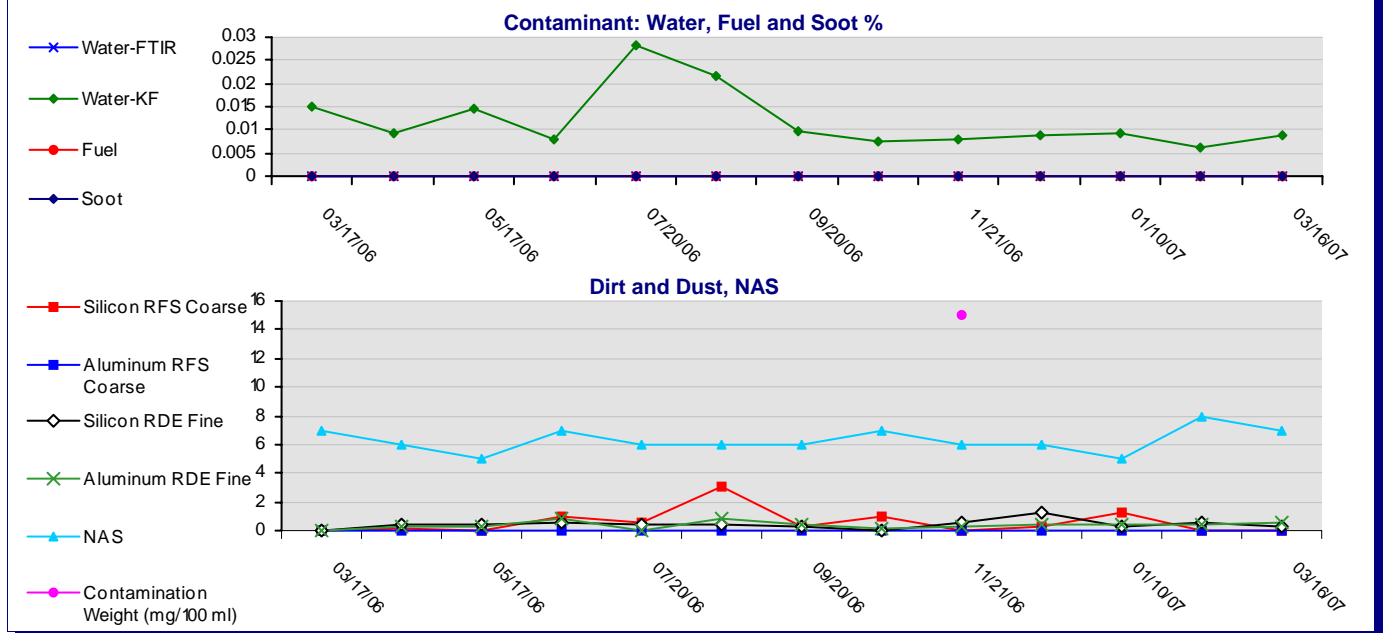
Lube System Capacity : 1800 Liters

Location :

Oil Condition



Contamination



Others

