

Customer Code : **8888**

Unit ID Number : **OH Truck No 05 ENG**

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

Unit Type : Engine Diesel

Address : 123 Sukhumvit Road , Map Ta Phut Rayong 21150

Unit Make : CUMMINS

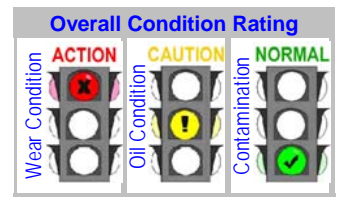
Unit Model : QST-30-C-1200

Test code : 802

Oil type / Viscosity : SHELL RIMULA X 15W-40

Site Name :

Location :



Lube System Capacity :

### Recommendations and Notes

Dirt (silicon) is present and resulting in abrasive wear.  
 Copper(Cu), Tin(Sn), and Lead(Pb) are probably from wear of plane bearings or journal bearings.  
 Recommend check to determine how dirt is entering the system and correct the problem to prevent further dirt entry.  
 Recommend resample this component again, immediately upon receipt of this report, to monitor the abnormalities closely.

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) :								
<b>FocusLab ID</b> Date sampled Hours on Oil Hours on Unit Bottle ID			<span style="color: red; font-weight: bold;">A</span>	<span style="color: orange; font-weight: bold;">C</span>	<span style="color: green; font-weight: bold;">N</span>	<span style="color: green; font-weight: bold;">N</span>	<span style="color: orange; font-weight: bold;">C</span>	<span style="color: green; font-weight: bold;">N</span>	<span style="color: green; font-weight: bold;">N</span>	<span style="color: green; font-weight: bold;">N</span>	Engine Diesel Cummins RIMULA15w40 (ITD)									
			66592	13-Nov-06		61968	11-Aug-06		60072	03-Jul-06										
			143			206			265											
			19009			18540			18108											
			857986			853570			852994											
Wear Condition			RDE fine		RFS coarse		RDE fine		RFS coarse		RDE fine		RFS coarse							
Wear Element	Method	Unit									New Oil	U-Caution	U-Action	L-Caution	L-Action					
Iron	D-6595	PPM	6.0	4.0	3.4	0.9	2.9	2.4	3	>12	>18	>8	>15							
Chromium	D-6595	PPM	0.0	0.5	0.3	0.2	0.0	0.1	0	>1	>2	>1	>2							
Lead	D-6595	PPM	6.3 <span style="color: red;">C</span>	3.1	0.7	1.6	0.6	4.1 <span style="color: red;">C</span>	0	>6	>8	>4	>7							
Copper	D-6595	PPM	36.6 <span style="color: red;">A</span>	2.9 <span style="color: red;">A</span>	1.0	0.1	0.9	0.4	0	>10	>17	>1	>2							
Tin	D-6595	PPM	2.1 <span style="color: red;">A</span>	2.6	0.0	2.8	0.0	1.7	0	>1	>2	>3	>5							
Aluminum	D-6595	PPM	1.4	0.0	1.9	0.0	1.4	0.0	2	>2	>3	>1	>2							
Nickel	D-6595	PPM	0.0	0.5	0.0	0.0	0.0	0.0	0	>1	>1	>1	>2							
Silver	D-6595	PPM	0.0	0.1	0.0	0.0	0.0	0.1	0											
Molybdenum	D-6595	PPM	0.5	0.0	0.0	0.0	0.5	0.0	0											
Titanium	D-6595	PPM	0.0	0.0	0.0	0.0	0.0	0.0	0											
Oil Condition			RDE fine		RFS coarse		RDE fine		RFS coarse		New Oil		L-Action		L-Caution		U-Caution		U-Action	
Viscosity @ 40 °C	D-445	cSt	92.7 <span style="color: red;">C</span>		84.4 <span style="color: red;">A</span>				12.5		105.1	<89.3	<94.6	>110.4	>115.6					
Viscosity @ 100 °C	D-445	cSt	12.9 <span style="color: red;">C</span>		12.6 <span style="color: red;">C</span>						14.3	<12.1	<12.9	>15	>15.7					
Oxidation	FTIR	Abs	13.7		13.4				13.8		12.0			>15	>17					
Nitration	FTIR	Abs	7.4		7.7				8.0		6.0			>9	>11					
TAN	D-974	mg KOH/g.									10.6	<2.5	<5.3							
TBN	D-4739	mg KOH/g.																		
Contamination			RDE fine		RFS coarse		RDE fine		RFS coarse		New Oil		U-Caution		U-Action					
Water	FTIR	% (Wt.)	0.061		0.069				0.074		0.050			>0.13	>0.22					
Fuel	FTIR	% (Wt.)	0.10		0.10				0.30		0.00			>3	>5					
Glycol	FTIR	Abs	0		0				0		0.00			>0.75	>1.5					
Soot	FTIR	% (Wt.)	0.00		0.00				0.05											
Sodium	D-6595	PPM	8		12				19		5									
Silicon	D-6595	PPM	11.3 <span style="color: red;">*</span>	5.2 <span style="color: red;">A</span>	2.6	0.4	2.5	2.0			12	>20	>25	>3	>5					
Additive Element			RDE fine		RFS coarse		RDE fine		RFS coarse		New Oil		L-Action		L-Caution		U-Caution		U-Action	
Boron	D-6595	PPM	8		12				10		20									
Magnesium	D-6595	PPM	10		18				9		20									
Calcium	D-6595	PPM	3582		3883				3869		4100	<2050	<3075	>5125	>6150					
Barium	D-6595	PPM	0		0				0		0									
Phosphorus	D-6595	PPM	873 <span style="color: red;">C</span>		1208				1105		1200	<600	<900	>1500	>1800					
Zinc	D-6595	PPM	1335	181	1313	139	1261	357			1364	<682	<1022	>1704	>2045					
Additional Test			RDE fine		RFS coarse		RDE fine		RFS coarse		New Oil		L-Action		L-Caution		U-Caution		U-Action	
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 C : CAUTION ( first level warning limit ) , A or A : 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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Unit ID Number : **OH Truck No 05 ENG**

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

Unit Type : Engine Diesel

Address : 123 Sukhumvit Road , Map Ta Phut Rayong 21150

Unit Make : CUMMINS

Unit Model : QST-30-C-1200

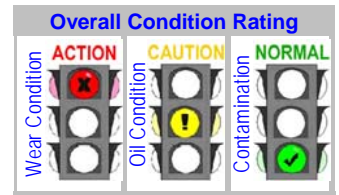
Test code : 802

Oil type / Viscosity : SHELL RIMULA X 15W-40

Site Name :

Lube System Capacity :

Location :



FocusLab ID : 66592    Date sampled : 13-Nov-06    Hours on Oil : 143    Hours on Unit : 19009    Bottle ID : 857986

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[Section 1 : Main Page](#)

พบฝุ่นละออง (ซิลิกอน) ส่งผลให้เกิดการสึกหรอแบบขูดขีด (abrasive wear)

ค่าทองแดง ตะกั่ว ดีบุก น่าจะมาจากการสึกหรอของแบริ่งภายใน

แนะนำให้ตรวจสอบว่าที่มาของสิ่งสกปรกเข้าสู่ระบบได้อย่างไร และแก้ไขเพื่อป้องกันสิ่งสกปรกไม่ให้เข้าสู่ระบบอีกต่อไป

แนะนำให้เก็บตัวอย่างซ้ำอีกทันทีที่ได้รับรายงานนี้ เพื่อเฝ้าติดตามสิ่งผิดปกติอย่างใกล้ชิด

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[Section 3 : Analytical Ferrography Page](#)

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[Section 4 : Gravimetric Page](#)

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Unit Make : CUMMINS

Unit Model : QST-30-C-1200

Oil type / Viscosity : SHELL RIMULA X 15W-40

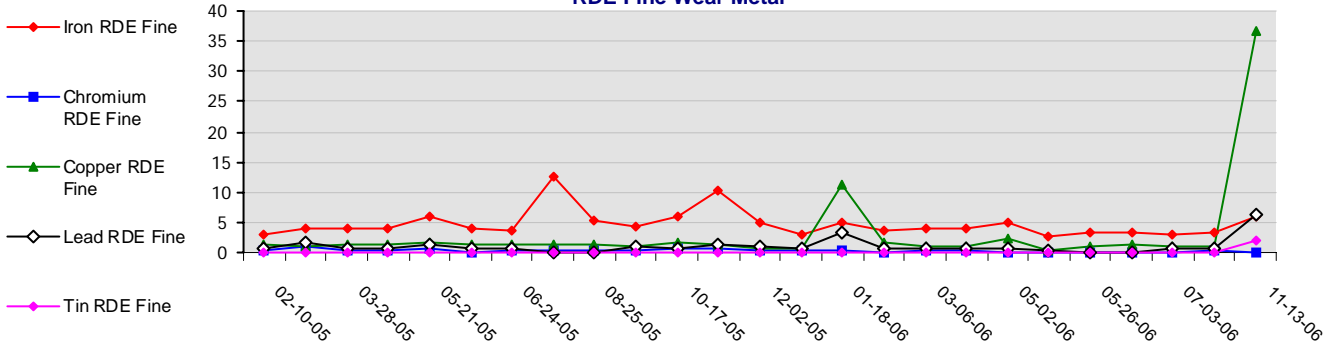
Site Name :

Lube System Capacity :

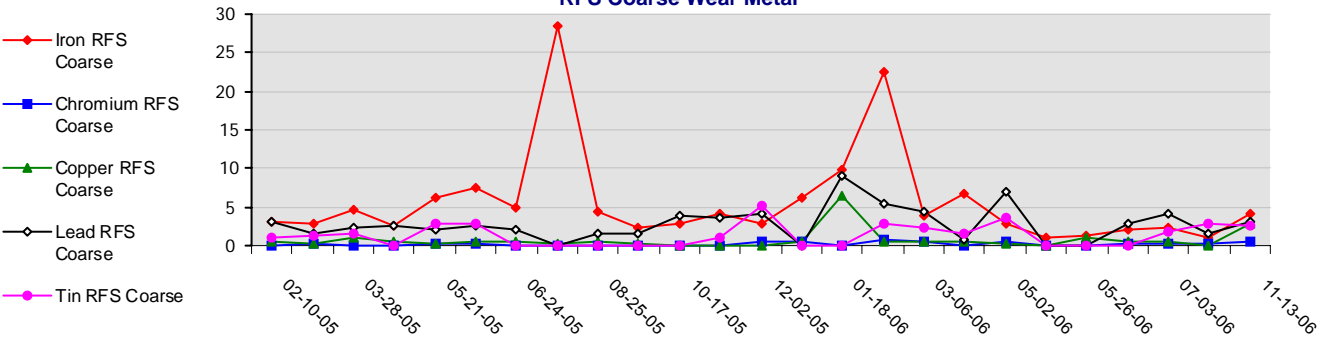
Location :

### Wear Condition

**RDE Fine Wear Metal**

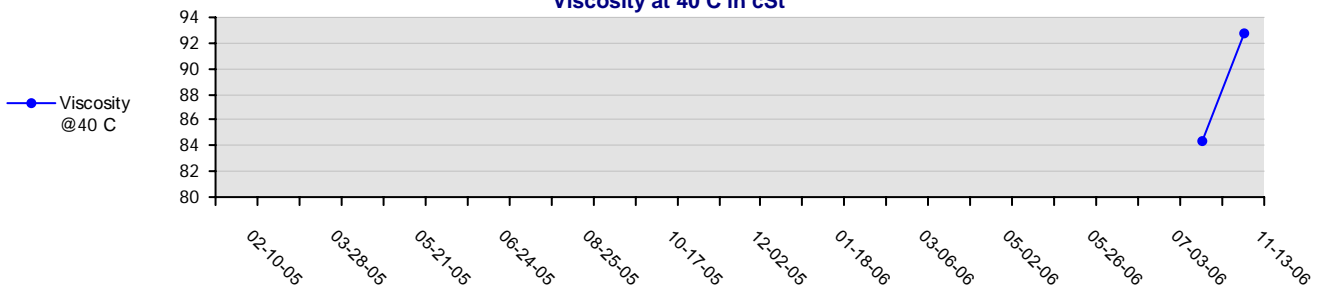


**RFS Coarse Wear Metal**

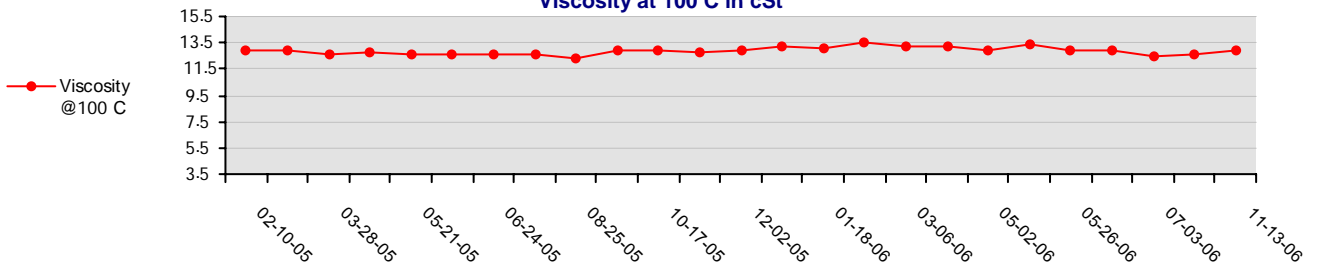


### Oil Condition

**Viscosity at 40 C in cSt**



**Viscosity at 100 C in cSt**



Customer Code : 8888

Unit ID Number : OH Truck No 05 ENG

Customer Name : ABC Manufacturing Co.,Ltd

Unit Type : Engine Diesel

Address : 123 Sukhumvit Road , Map Ta Phut Rayong 21150

Unit Make : CUMMINS

Unit Model : QST-30-C-1200

Oil type / Viscosity : SHELL RIMULA X 15W-40

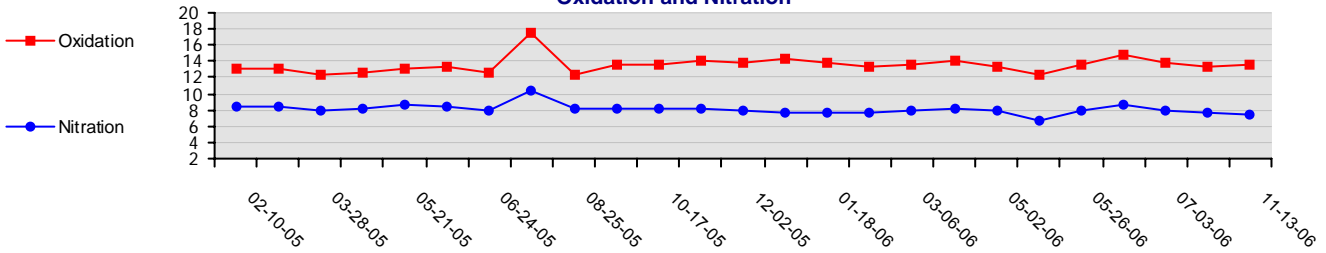
Site Name :

Lube System Capacity :

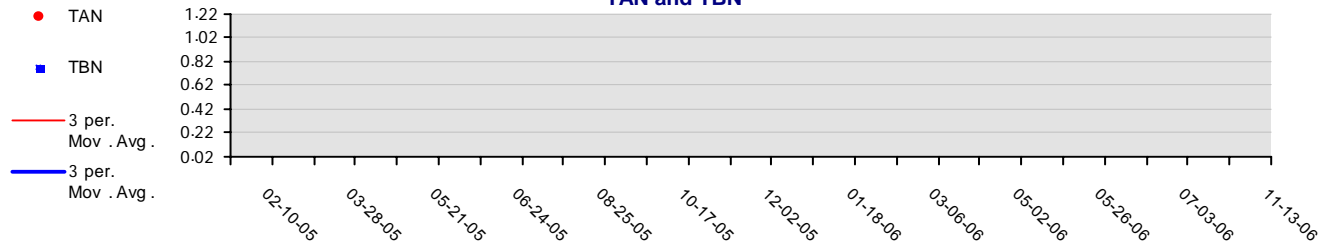
Location :

### Oil Condition

Oxidation and Nitration

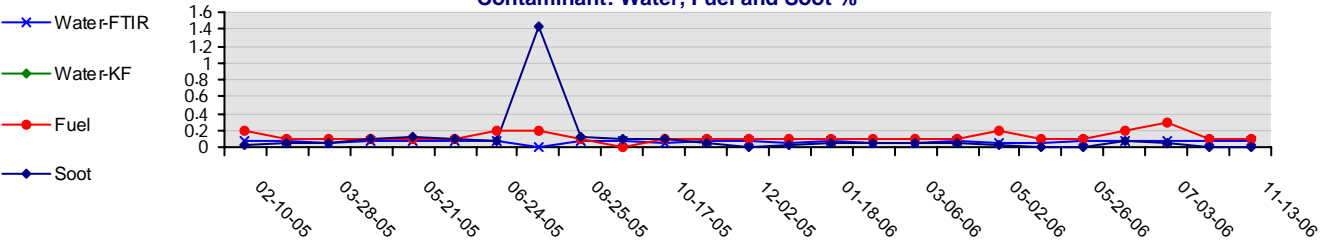


TAN and TBN

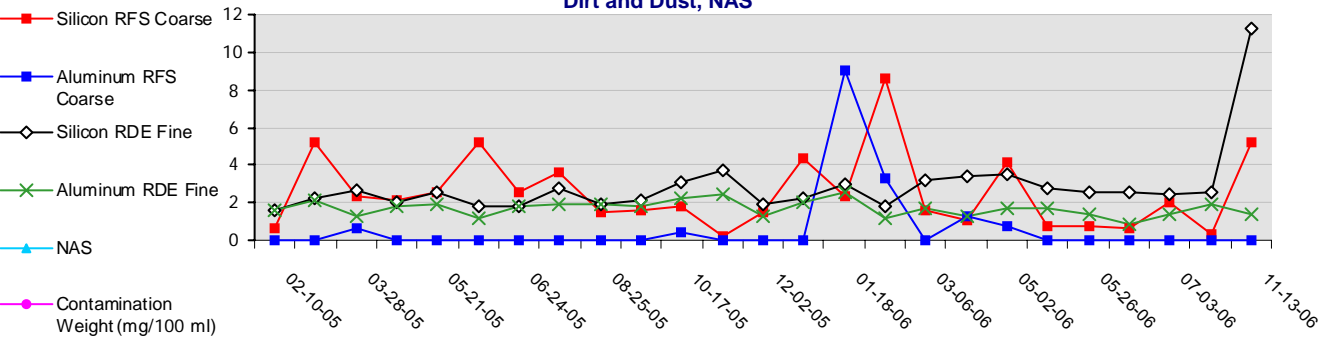


### Contamination

Contaminant: Water, Fuel and Soot %



Dirt and Dust, NAS



### Others

VPI and AO Additives

