Lubricant Analysis Report

Oil Analyzers INC.

North America: +1-877-458-3315

Overall report severity based on comments.

Account Information	Component Information	Sample Information
Account Number: OILANA-7502-2630	Component ID: BLUE BRUTE E	Tracking Number: 18195Z01147
Company Name: STEVE NEW	Secondary ID: 2013 RAM 2500	Lab Number: I-147418
Contact:	Component Type: DIESEL ENGINE	Lab Location: Indianapolis
Address: 624 NE 74 STREET	Manufacturer: CUMMINS	Data Analyst: FLG
MIAMI, FL 33138 US	Model: ISB6.7	Sampled: 19-Oct-2018
Phone Number: 305-297-2767	Application: AUTOMOTIVE	Received: 25-Oct-2018
	Sump Capacity: 3 gal	Completed: 26-Oct-2018

Filter Information	Miscellaneous Information	Product Information
Filter Type: FULLFLOW & BYPASS		Product Manufacturer: KENDALL
Micron Rating: 0		Product Name: SUPER-D XA
		Viscosity Grade: SAE 15W40

Comments	Data indicates no abnormal findings. Resample at normal interval. Lubricant and filter change acknowledged.

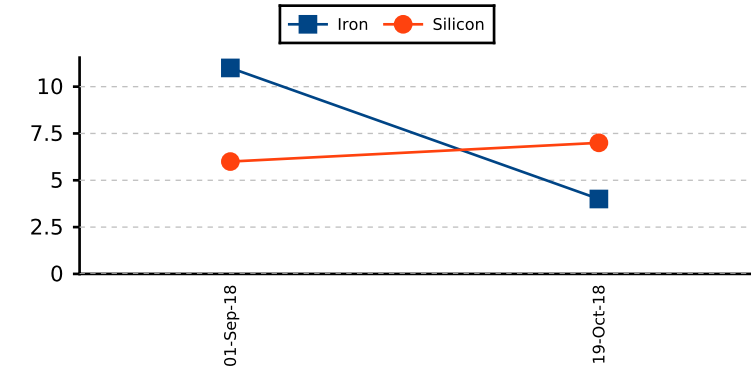
	Wear Metals (ppm)										Contaminant Metals (ppm)			Multi-Source Metals (ppm)						Additive Metals (ppm)				
Sample #	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
1	11	0	0	1	1	0	0	0	0	0	6	6	1	89	4	0	0	0	96	405	1665	0	927	1082
2	4	0	1	0	0	0	0	0	0	0	7	2	1	93	0	1	0	0	122	411	1657	0	1006	1109

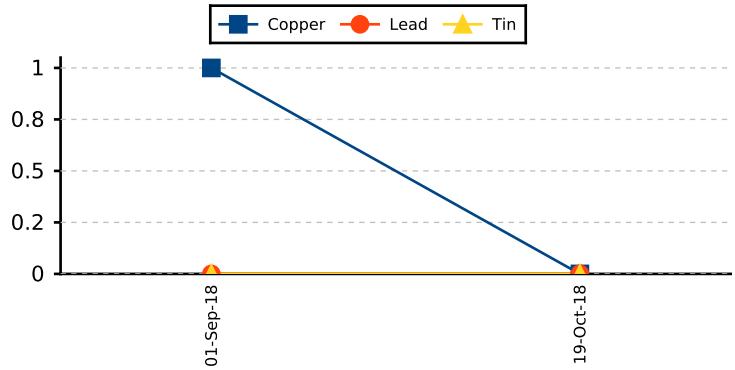
	Sample Information							Contaminants			Fluid Properties					
Sample #	Date Sampled	Date Received	Lube Time mi	Unit Time mi	Lube Change	Lube Added gal	Filter Change	Fuel Dilution % Vol	Soot % Vol	Water % Vol	Viscosity 40°C cSt	Viscosity 100 °C cSt	Acid Number mg KOH/g	Base No. D4739 mg KOH/g	Oxidation abs/cm	Nitration abs/0.1 mm
1	01-Sep-2018	10-Sep-2018	3616	47616	No	0	No	**8.4 - GC**	0.4 - E2412	<.1 - FTIR		12.2		4.94	15	9
2	19-Oct-2018	25-Oct-2018	980	48856	Yes	0	Yes	<1 - Estimate	0.2 - E2412	<.1 - FTIR		13.4		5.90	12	7

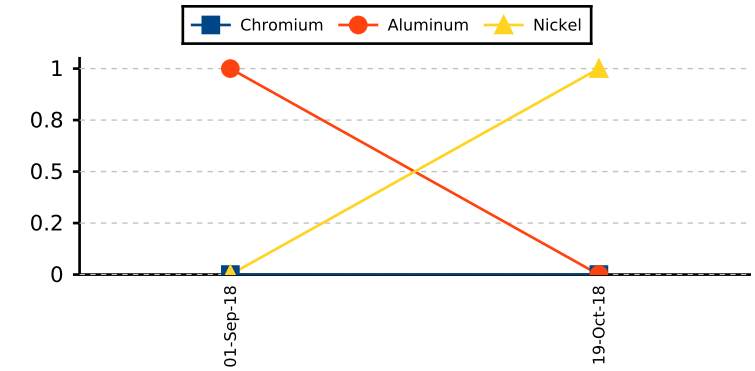
	Particle Count (particles/mL)										Additional Testing
Sample #	ISO Code Based On 4/6/14	> 4 µm	> 6 µm	> 10 µm	> 14 µm	> 21 µm	> 38 µm	> 70 µm	> 100 µm	Test Method	
1	//										
2	//										

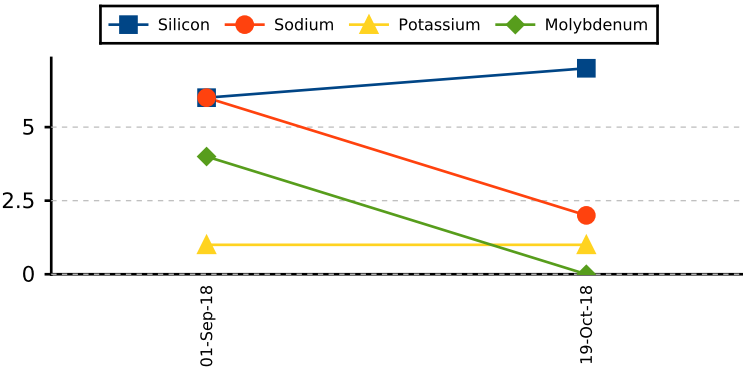
Comments are advisory only and are based on the assumption that the sample and data submitted are valid. Missing fluid or component information limits the evaluation. No warranty is expressed or implied. Measurement uncertainty available upon request.

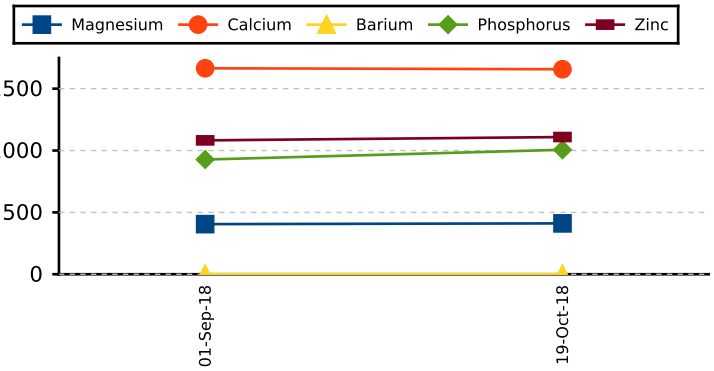
Historical Comments		
	1	Check for source of FUEL LEAK. Fuel is at a SEVERE LEVEL. Fuel dilution may be caused by component faults related to injectors, ignition/timing, or excessive blow-by. Additional causes include heavy throttle application, engine lugging, frequent short trips and excessive idling. LUBRICANT and FILTER CHANGE is suggested if not done at sampling time. FUEL DILUTION has caused viscosity to decrease slightly below grade; FUEL DILUTION reduces the viscosity of the lubricant which decreases FILM STRENGTH and LUBRICITY and may lead to increased wear. Resample at half interval.

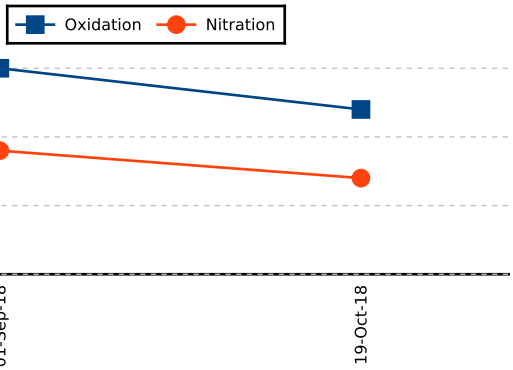

Iron
Silicon
10
7.5
5
2.5
0
01-Sep-18
19-Oct-18

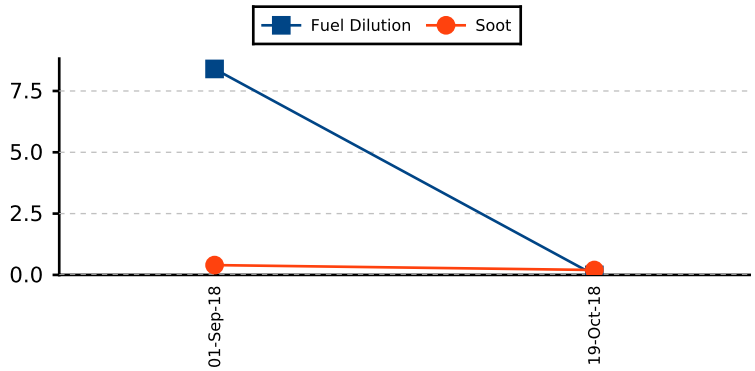

Copper
Lead
Tin
1
0.8
0.5
0.2
0
01-Sep-18
19-Oct-18

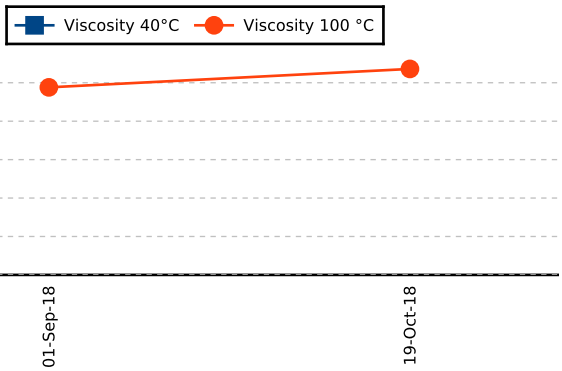

Chromium
Aluminum
Nickel
1
0.8
0.5
0.2
0
01-Sep-18
19-Oct-18

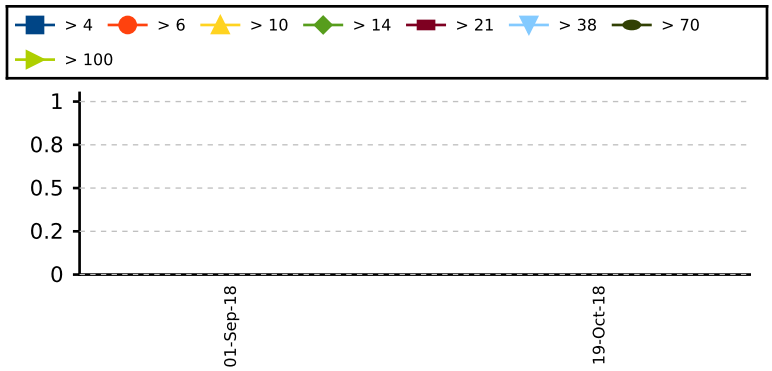

Silicon
Sodium
Potassium
Molybdenum
5
2.5
0
01-Sep-18
19-Oct-18

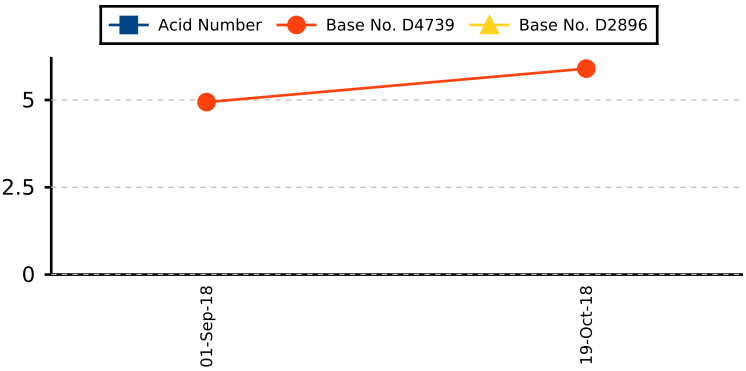

Magnesium
Calcium
Barium
Phosphorus
Zinc
1500
1000
500
0
01-Sep-18
19-Oct-18


Oxidation
Nitration
15
10
5
0
01-Sep-18
19-Oct-18


Fuel Dilution
Soot
7.5
5.0
2.5
0.0
01-Sep-18
19-Oct-18


Viscosity 40°C
Viscosity 100 °C
12.5
10.0
7.5
5.0
2.5
0.0
01-Sep-18
19-Oct-18


> 4
> 6
> 10
> 14
> 21
> 38
> 70
> 100
1
0.8
0.5
0.2
0
01-Sep-18
19-Oct-18


Acid Number
Base No. D4739
Base No. D2896
5
2.5
0
01-Sep-18
19-Oct-18