0	1	2	3	4
NORMAL		ABNORMAL		CRITICAL

Overall report severity based on comments.

DG6417

Account Information	Component Information	Sample Information
Company Name: [redacted]	Component ID: 0562 E	Tracking Number: [redacted]
Address: [redacted] S	Secondary ID: 171064-0026E	Lab Number:
	Component Type: DIESEL ENGINE	Lab Location:
	Manufacturer: FORD F-450	Data Analyst:
	Model: Information Requested	Sampled: 10-Dec-2019
	Application: UNKNOWN	Submitted: 11-Dec-2019
	Sump Capacity: 13 gal	Received: 19-Dec-2019
		Completed: 20-Dec-2019

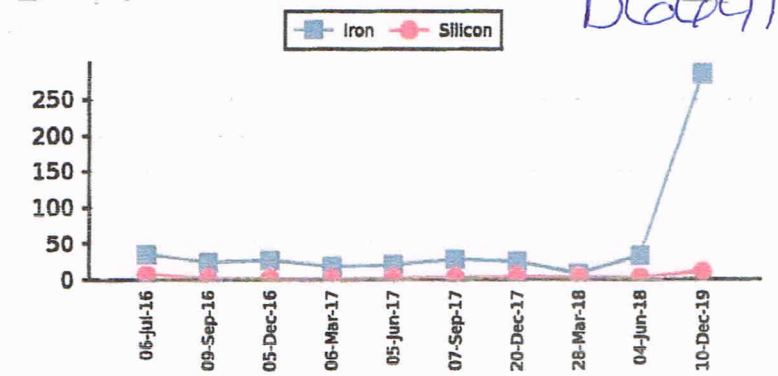
Filter Information	Miscellaneous Information	Product Information
Filter Type: Information Requested		Product Manufacturer: CITGO
Micron Rating: 0		Product Name: CITGARD 700 SYNTHETIC BLEND
		Viscosity Grade: SAE 15W40

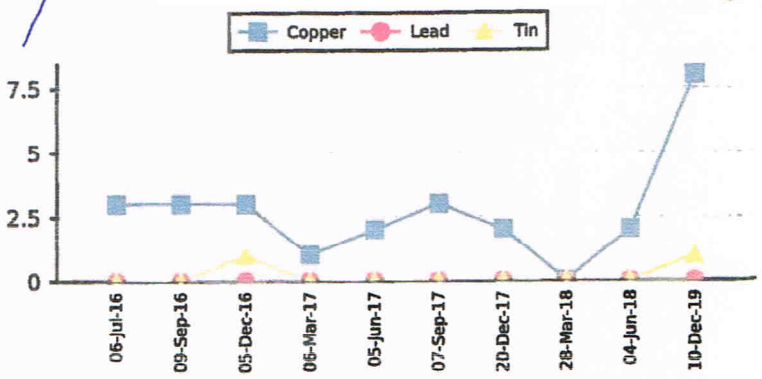
Comments Suggest checking compression and for engine breather passing oil (blow-by) or similar diagnostics and monitoring engine fault codes. We recommend an Analytical Ferrogram be performed for this sample to clarify the type of wear and/or contamination present. Please contact Customer Service for additional test information. Cylinder region metals (pistons, rings, liners etc.) are at a SIGNIFICANT LEVEL; Flagged data has been rechecked and confirmed. Please provide COMPONENT MODEL number to compare data to the correct standards for this component. Unit hours/miles/kilometers not provided for this sample. Lubricant and filter change acknowledged. Resample at half interval.

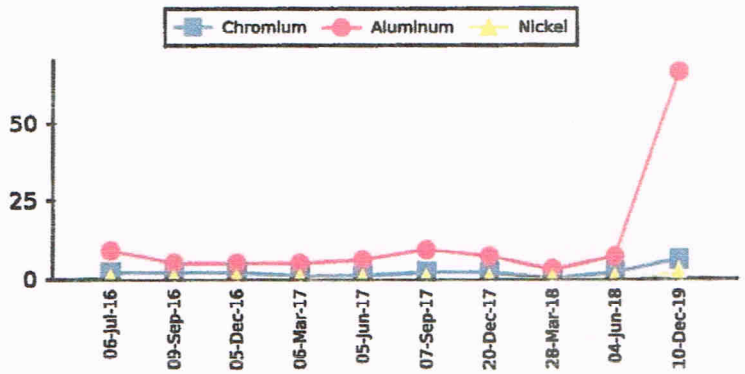
	Wear Metals (ppm)										Contaminant Metals (ppm)			Multi-Source Metals (ppm)						Additive Metals (ppm)				
Sample #	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
11	28	2	0	9	3	0	0	0	0		4	6	0		59	1			2	917	1051	0	875	1062
12	25	2	0	7	2	0	0	0	0		5	5	1		61	1			2	962	1078	0	918	1106
13	8	0	0	3	0	0	0	0	0		4	2	1		62	1			2	971	1016	0	991	1135
14	33	2	0	7	2	0	0	0	0		3	4	1		63	0			2	1000	1060	0	1001	1160
15	285	6	2	67	8	0	1	0	1	0	12	5	0	0	65	0	2	0	1	1004	1118	0	1047	1223

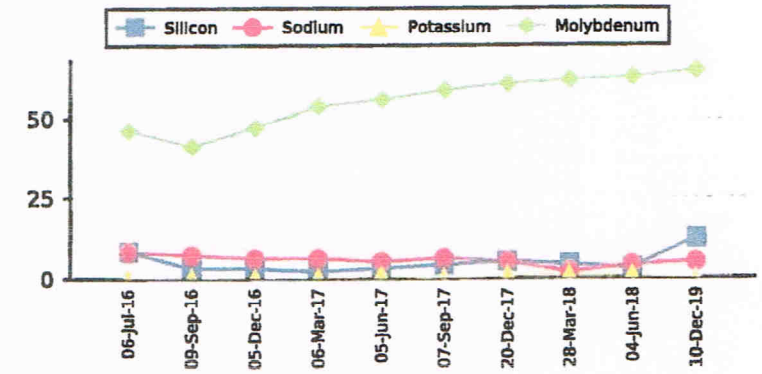
	Sample Information							Contaminants			Fluid Properties					
Sample #	Date Sampled	Date Received	Lube Time h	Unit Time h	Lube Change	Lube Added gal	Filter Change	Fuel Dilution % Vol	Soot % Vol	Water % Vol	Viscosity 40°C cSt	Viscosity 100 °C cSt	Acid Number mg KOH/g	Base No. D4739 mg KOH/g	Oxidation abs/cm	Nitration abs/0.1 mm
11	07-Sep-2017	28-Sep-2017	353	7334	Unk	0	Unk		1 - E2412	<.1 - FTIR		12.6				
12	20-Dec-2017	20-Dec-2017	7641	7641	Unk	0	Unk		0.8 - E2412	<.1 - FTIR		12.6				
13	28-Mar-2018	09-Apr-2018	7986	7986	Unk	0	Unk		0.3 - E2412	<.1 - FTIR		14.2				
14	04-Jun-2018	26-Jun-2018	8278	8278	Unk	0	Unk		0.7 - E2412	<.1 - FTIR		13.6				
15	10-Dec-2019	19-Dec-2019	229	0	Yes	0	Yes	<1 - Estimate	0.9 - E2412	<.1 - FTIR		14.0				

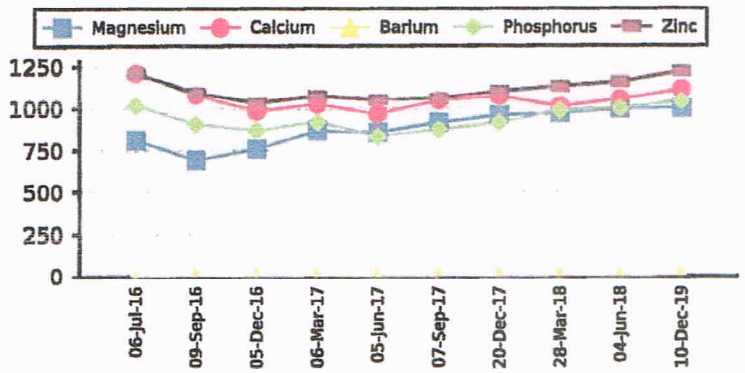
	Particle Count (particles/mL)									Additional Testing
Sample #	ISO Code Based On 4/6/14	> 4 µm	> 6 µm	> 10 µm	> 14 µm	> 21 µm	> 38 µm	> 70 µm	> 100 µm	Test Method
11	//									
12	//									
13	//									
14	//									
15	//									

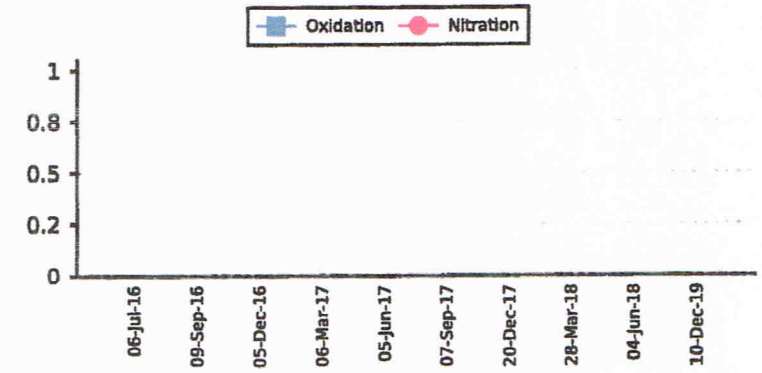

Iron
Silicon
250
200
150
100
50
0
06-Jul-16
09-Sep-16
05-Dec-16
06-Mar-17
05-Jun-17
07-Sep-17
20-Dec-17
28-Mar-18
04-Jun-18
10-Dec-19

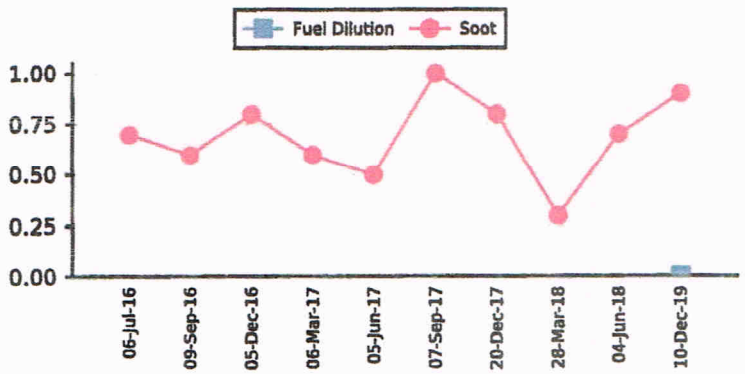

Copper
Lead
Tin
7.5
5
2.5
0
06-Jul-16
09-Sep-16
05-Dec-16
06-Mar-17
05-Jun-17
07-Sep-17
20-Dec-17
28-Mar-18
04-Jun-18
10-Dec-19

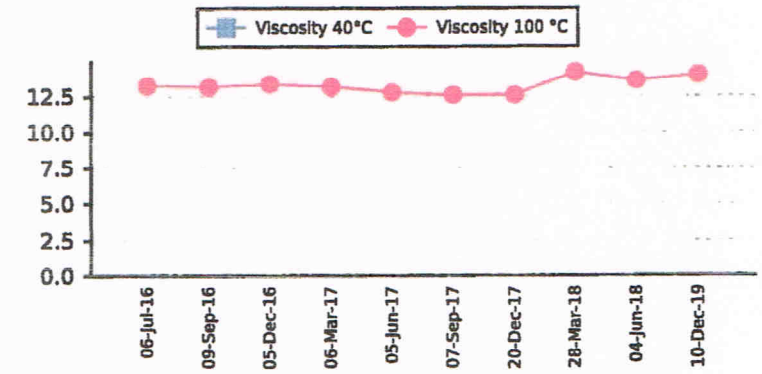

Chromium
Aluminum
Nickel
50
25
0
06-Jul-16
09-Sep-16
05-Dec-16
06-Mar-17
05-Jun-17
07-Sep-17
20-Dec-17
28-Mar-18
04-Jun-18
10-Dec-19

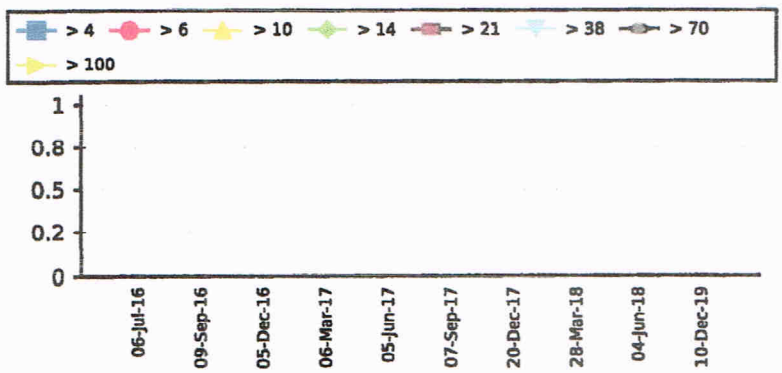

Silicon
Sodium
Potassium
Molybdenum
50
25
0
06-Jul-16
09-Sep-16
05-Dec-16
06-Mar-17
05-Jun-17
07-Sep-17
20-Dec-17
28-Mar-18
04-Jun-18
10-Dec-19

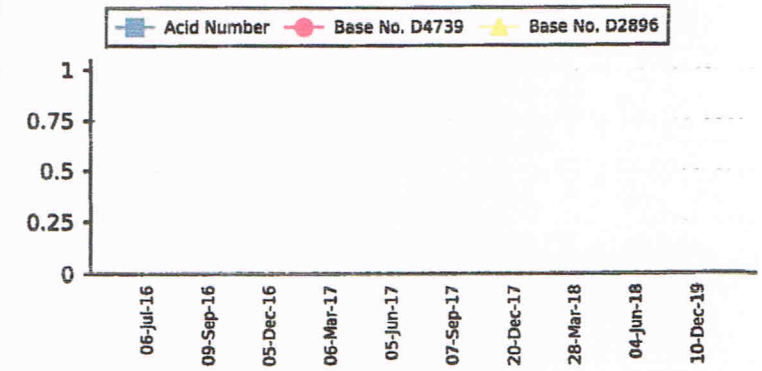

Magnesium
Calcium
Barium
Phosphorus
Zinc
1250
1000
750
500
250
0
06-Jul-16
09-Sep-16
05-Dec-16
06-Mar-17
05-Jun-17
07-Sep-17
20-Dec-17
28-Mar-18
04-Jun-18
10-Dec-19


Oxidation
Nitration
1
0.8
0.5
0.2
0
06-Jul-16
09-Sep-16
05-Dec-16
06-Mar-17
05-Jun-17
07-Sep-17
20-Dec-17
28-Mar-18
04-Jun-18
10-Dec-19


Fuel Dilution
Soot
1.00
0.75
0.50
0.25
0.00
06-Jul-16
09-Sep-16
05-Dec-16
06-Mar-17
05-Jun-17
07-Sep-17
20-Dec-17
28-Mar-18
04-Jun-18
10-Dec-19


Viscosity 40°C
Viscosity 100 °C
12.5
10.0
7.5
5.0
2.5
0.0
06-Jul-16
09-Sep-16
05-Dec-16
06-Mar-17
05-Jun-17
07-Sep-17
20-Dec-17
28-Mar-18
04-Jun-18
10-Dec-19


> 4
> 6
> 10
> 14
> 21
> 38
> 70
> 100
1
0.8
0.5
0.2
0
06-Jul-16
09-Sep-16
05-Dec-16
06-Mar-17
05-Jun-17
07-Sep-17
20-Dec-17
28-Mar-18
04-Jun-18
10-Dec-19


Acid Number
Base No. D4739
Base No. D2896
1
0.75
0.5
0.25
0
06-Jul-16
09-Sep-16
05-Dec-16
06-Mar-17
05-Jun-17
07-Sep-17
20-Dec-17
28-Mar-18
04-Jun-18
10-Dec-19