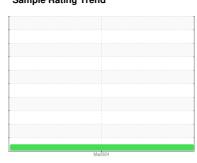


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id **2244**Component

Biogas Engine

LO-ASH ENGINE OIL SAE 40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

Fuel content negligible. There is no indication of any contamination in the oil.

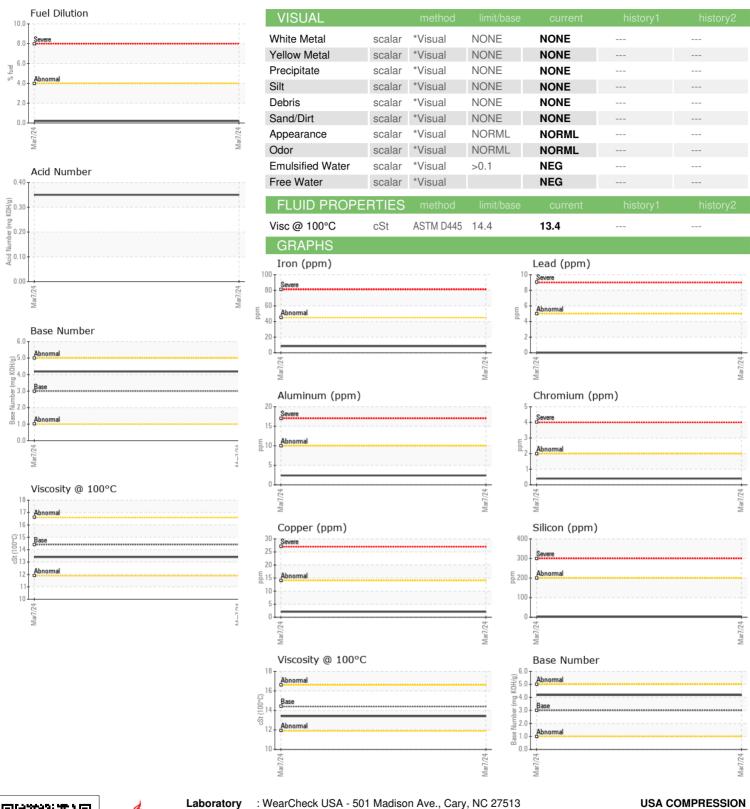
Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION method limit/base current history1 history2					Mar2024		
Sample Number Client Info PCA0111219	SAMPLE INFOR	MATION	method			history1	history2
Client Info			Client Info		PCA0111219		
Machine Age hrs Client Info O O O O O O O O O							
Oil Changed Oil Changed Client Info N/A	·	hre					
Contamped Client Info N/A NORMAL CONTAMINATION Method Imit/base current history1 history2							
CONTAMINATION method limit/base current history1 history2	•	1110			-		
Water			Ollotte IIIIo				
Water WC Method WC Method NEG WEAR METALS method Imit/base current history1 history2	·	ION	method	limit/base	current	historv1	history2
WEAR METALS							
WEAR METALS				7 011			
Chromium	•	S		limit/hase		history1	history2
Chromium							
Nickel							
Titanium							
Silver				<i>></i> ∠			
Aluminum				<u> </u>			
Lead							
Copper ppm ASTM D5185m >14 2 Tin ppm ASTM D5185m >13 0 Vanadium ppm ASTM D5185m 0 Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 37 <1							
Tin							
Vanadium ppm ASTM D5185m 0 Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 37 <1 Barium ppm ASTM D5185m 12 0 Molybdenum ppm ASTM D5185m 200 2 Manganese ppm ASTM D5185m 200 2 Magnesium ppm ASTM D5185m 5 33 Calcium ppm ASTM D5185m 1600 1369 Phosphorus ppm ASTM D5185m 300 324 Zinc ppm ASTM D5185m 2600 2610 Sulfur ppm ASTM D5185m 200 3	• •						
ADDITIVES				>13			
ADDITIVES							
Boron		ррпп	ASTIVI DOTOSIII		<u> </u>		
Barium	VDDITI//E6						
Molybdenum ppm ASTM D5185m 200 2 Magnesium ppm ASTM D5185m 0 Calcium ppm ASTM D5185m 5 33 Calcium ppm ASTM D5185m 1600 13699 Phosphorus ppm ASTM D5185m 300 324 Zinc ppm ASTM D5185m 400 410 Sulfur ppm ASTM D5185m 2600 2610 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >200 3 Sodium ppm ASTM D5185m >20 2 Fuel % ASTM D5185m >20 2 Fuel % ASTM D3524 >4.0 0.2<	ADDITIVES					history1	nistory2
Manganese ppm ASTM D5185m 0 Magnesium ppm ASTM D5185m 5 33 Calcium ppm ASTM D5185m 1600 1369 Phosphorus ppm ASTM D5185m 300 324 Zinc ppm ASTM D5185m 400 410 Sulfur ppm ASTM D5185m 2600 2610 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >200 3 Sodium ppm ASTM D5185m >20 2 Fuel % ASTM D5185m >20 2 Fuel % ASTM D3524 >4.0 0.2 Fuel % ASTM D7844 0.1			ASTM D5185m	37	<1		
Magnesium ppm ASTM D5185m 5 33 Calcium ppm ASTM D5185m 1600 1369 Phosphorus ppm ASTM D5185m 300 324 Zinc ppm ASTM D5185m 400 410 Sulfur ppm ASTM D5185m 2600 2610 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >200 3 Sodium ppm ASTM D5185m >20 2 Potassium ppm ASTM D5185m >20 2 Fuel % ASTM D3524 >4.0 0.2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7414 >20	Boron Barium		ASTM D5185m ASTM D5185m	37 12	<1 0		
Calcium ppm ASTM D5185m 1600 1369 Phosphorus ppm ASTM D5185m 300 324 Zinc ppm ASTM D5185m 400 410 Sulfur ppm ASTM D5185m 2600 2610 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >200 3 Sodium ppm ASTM D5185m >20 2 Potassium ppm ASTM D5185m >20 2 Fuel % ASTM D3524 >4.0 0.2 Soot % % *ASTM D7844 0.1 Nitration Abs/cm *ASTM D7624 >20 4.4 Sulfation Abs/.1mm *ASTM D7414 >25	Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	37 12	<1 0 2		
Phosphorus ppm ASTM D5185m 300 324 Zinc ppm ASTM D5185m 400 410 Sulfur ppm ASTM D5185m 2600 2610 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >200 3 Sodium ppm ASTM D5185m >20 2 Potassium ppm ASTM D5185m >20 2 Fuel % ASTM D5185m >20 2 Fuel % ASTM D3524 >4.0 0.2 Fuel % ASTM D7844 0.1 Soot % % *ASTM D7624 >20 4.4 Nitration Abs/.1mm *ASTM D7415 >30	Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	37 12 200	<1 0 2 0		
Zinc ppm ASTM D5185m 400 410 Sulfur ppm ASTM D5185m 2600 2610 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >200 3 Sodium ppm ASTM D5185m >20 2 Potassium ppm ASTM D5185m >20 2 Fuel % ASTM D3524 >4.0 0.2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 Nitration Abs/.1mm *ASTM D7624 >20 4.4 Sulfation Abs/.1mm *ASTM D7415 >30 15.5 FLUID DEGRADATION method limit/base	Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	37 12 200	<1 0 2 0 33		
Sulfur ppm ASTM D5185m 2600 2610 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >200 3 Sodium ppm ASTM D5185m <1 Potassium ppm ASTM D5185m >20 2 Fuel % ASTM D5185m >20 2 Fuel % ASTM D5185m >20 2 Fuel % ASTM D3524 >4.0 0.2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 Soot % % *ASTM D7415 >30 15.5 Sulfation Abs/.1mm *ASTM D7414 >25 10.0	Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	37 12 200 5 1600	<1 0 2 0 33 1369		
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >200 3 Sodium ppm ASTM D5185m <1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	37 12 200 5 1600 300	<1 0 2 0 33 1369 324		
Silicon ppm ASTM D5185m >200 3 Sodium ppm ASTM D5185m <1 Potassium ppm ASTM D5185m >20 2 Fuel % ASTM D3524 >4.0 0.2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 Nitration Abs/cm *ASTM D7624 >20 4.4 Sulfation Abs/.1mm *ASTM D7415 >30 15.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 10.0 Acid Number (AN) mg KOH/g ASTM D8045 0.35	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	37 12 200 5 1600 300 400	<1 0 2 0 33 1369 324 410		
Sodium	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	37 12 200 5 1600 300 400	<1 0 2 0 33 1369 324 410		
Potassium ppm ASTM D5185m >20 2 Fuel % ASTM D3524 >4.0 0.2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 Nitration Abs/cm *ASTM D7624 >20 4.4 Sulfation Abs/.1mm *ASTM D7415 >30 15.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 10.0 Acid Number (AN) mg KOH/g ASTM D8045 0.35	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	37 12 200 5 1600 300 400 2600	<1 0 2 0 33 1369 324 410 2610		
Fuel % ASTM D3524 >4.0 0.2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 Nitration Abs/cm *ASTM D7624 >20 4.4 Sulfation Abs/.1mm *ASTM D7415 >30 15.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 10.0 Acid Number (AN) mg KOH/g ASTM D8045 0.35	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	37 12 200 5 1600 300 400 2600 limit/base	<1 0 2 0 33 1369 324 410 2610 current	 history1	history2
INFRA-RED	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m	37 12 200 5 1600 300 400 2600 limit/base >200	<1 0 2 0 33 1369 324 410 2610 current 3	 history1	history2
Soot % % *ASTM D7844 0.1 Nitration Abs/cm *ASTM D7624 >20 4.4 Sulfation Abs/.1mm *ASTM D7415 >30 15.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 10.0 Acid Number (AN) mg KOH/g ASTM D8045 0.35	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m	37 12 200 5 1600 300 400 2600 limit/base >200	<1 0 2 0 33 1369 324 410 2610 current 3 <1	history1	history2
Nitration Abs/cm *ASTM D7624 >20 4.4 Sulfation Abs/.1mm *ASTM D7415 >30 15.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 10.0 Acid Number (AN) mg KOH/g ASTM D8045 0.35	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m	37 12 200 5 1600 300 400 2600 limit/base >200	<1 0 2 0 33 1369 324 410 2610 current 3 <1	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 15.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 10.0 Acid Number (AN) mg KOH/g ASTM D8045 0.35	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m	37 12 200 5 1600 300 400 2600 limit/base >200 >20 >4.0	<1 0 2 0 33 1369 324 410 2610 current 3 <1 2 0.2	history1	history2
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 10.0 Acid Number (AN) mg KOH/g ASTM D8045 0.35	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm	ASTM D5185m	37 12 200 5 1600 300 400 2600 limit/base >200 >20 >4.0	<1 0 2 0 33 1369 324 410 2610 current 3 <1 2 0.2 current	history1 history1	history2 history2
Oxidation Abs/.1mm *ASTM D7414 >25 10.0 Acid Number (AN) mg KOH/g ASTM D8045 0.35	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm	ASTM D5185m	37 12 200 5 1600 300 400 2600 limit/base >200 >4.0 limit/base	<1 0 2 0 33 1369 324 410 2610 current 3 <1 2 0.2 current 0.1	history1 history1	history2 history2
Acid Number (AN) mg KOH/g ASTM D8045 0.35	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm	ASTM D5185m ASTM D7844 *ASTM D7844	37 12 200 5 1600 300 400 2600 limit/base >200 >4.0 limit/base	<1 0 2 0 33 1369 324 410 2610 current 3 <1 2 0.2 current 0.1 4.4	history1 history1	history2 history2
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D76145	37 12 200 5 1600 300 400 2600 limit/base >200 >4.0 limit/base	<1 0 2 0 33 1369 324 410 2610 current 3 <1 2 0.2 current 0.1 4.4 15.5	history1 history1	history2 history2
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m ASTM D78185m ASTM D7824 *ASTM D7624 *ASTM D7415 method	37 12 200 5 1600 300 400 2600 limit/base >200 >4.0 limit/base	<1 0 2 0 33 1369 324 410 2610 current 3 <1 2 0.2 current 0.1 4.4 15.5 current	history1 history1 history1 history1	history2 history2 history2 history2
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI Oxidation	ppm	ASTM D5185m ASTM D76185m ASTM D7624 *ASTM D7624 *ASTM D7415 method *ASTM D7414	37 12 200 5 1600 300 400 2600 limit/base >200 >4.0 limit/base	<1 0 2 0 33 1369 324 410 2610 current 3 <1 2 0.2 current 0.1 4.4 15.5 current 10.0	history1 history1 history1 history1	history2 history2 history2 history2



OIL ANALYSIS REPORT





Laboratory Sample No.

Lab Number **Unique Number** : 10928557

: PCA0111219 : 06119724

Received **Tested**

Diagnosed Test Package : MOB 2 (Additional Tests: FuelDilution, PercentFuel)

: 15 Mar 2024 : 18 Mar 2024

: 19 Mar 2024 - Don Baldridge

USA COMPRESSION 375 S MAIN STREET MANSFIELD, PA US 16933 Contact: JASON KUZNESKI

To discuss this sample report, contact Customer Service at 1-800-237-1369. * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. jkuzneski@usacompression.com T: F:

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)