

OIL ANALYSIS REPORT

Sample Rating Trend

DIRT



2 (S/N GZJ00315) Component

Natural Gas Engine

PETRO CANADA SENTRON

FRON CG 40 (145	GAL)	n2022 Jul202	2 Aug2022 Sep2022	Oct2022 Dec2022 Jan2023	eb2023	
SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0699066	WC0699021	WC0699018
Sample Date		Client Info		27 Mar 2023	20 Mar 2023	13 Mar 2023
Machine Age	hrs	Client Info		117470	117302	117136
Oil Age	hrs	Client Info		429	260	94
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				ABNORMAL	ABNORMAL	NORMAL
CONTAMINATION	١	method	limit/base	current	history1	history2
Water		WC Method	>0.1	NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	3	1	1
Chromium	ppm	ASTM D5185m	>4	<1	<1	0
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>9	2	2	2
Lead	ppm	ASTM D5185m	>30	0	0	<1
Copper	ppm	ASTM D5185m	>35	1	<1	<1
Tin	ppm	ASTM D5185m	>4	3	<1	1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 0	history1 0	history2 1
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m ASTM D5185m	0	0	0	1
Boron Barium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	0 0	0	1 0
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 1 2	0 0 1	0 0 <1	1 0 1
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1 2 1 9 2712	0 0 1 <1	0 0 <1 <1	1 0 1 <1 14 2680
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1 2 1 9 2712 292	0 0 1 <1 16 2964 280	0 0 <1 12 2641 242	1 0 1 <1 14
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1 2 1 9 2712	0 0 1 <1 16 2964	0 0 <1 <1 12 2641	1 0 1 <1 14 2680
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	0 1 2 1 9 2712 292	0 0 1 <1 16 2964 280	0 0 <1 12 2641 242	1 0 1 <1 14 2680 256
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1 2 1 9 2712 292 342	0 0 1 <1 16 2964 280 353	0 0 <1 <1 12 2641 242 309	1 0 1 <1 14 2680 256 312
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1 2 1 9 2712 292 342 2575 Limit/base	0 0 1 <1 16 2964 280 353 3908	0 0 <1 <1 12 2641 242 309 3508	1 0 1 <1 14 2680 256 312 3598
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 1 2 1 9 2712 292 342 2575 Limit/base	0 0 1 <1 2964 280 353 3908 current	0 0 <1 <1 12 2641 242 309 3508 history1	1 0 1 <1 2680 256 312 3598 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 1 2 1 9 2712 292 342 2575 Limit/base	0 0 1 <1 2964 280 353 3908 current 205	0 0 <1 12 2641 242 309 3508 history1 ▲ 137	1 0 1 <1 14 2680 256 312 3598 history2 67
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 1 2 1 9 2712 292 342 2575 Iimit/base >+100	0 0 1 <1 2964 280 353 3908 current 205 <1	0 0 <1 12 2641 242 309 3508 history1 ▲ 137 <1	1 0 1 <1 14 2680 256 312 3598 history2 67 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 1 2 1 9 2712 292 342 2575 Iimit/base >+100 >20	0 0 1 <1 16 2964 280 353 353 3908 current 205 <1 <1	0 0 <1 12 2641 242 309 3508 history1 ▲ 137 <1 0	1 0 1 <1 14 2680 256 312 3598 history2 67 0 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 1 2 1 9 2712 292 342 2575 limit/base >+100 >20 >4.0	0 0 1 <1 2964 280 353 3908 <u>current</u> 205 <1 <1 <1 0.5	0 0 <1 <1 12 2641 242 309 3508 history1 ▲ 137 <1 0 0.3	1 0 1 <1 2680 256 312 3598 history2 67 0 <1 0.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel	ppm	ASTM D5185m ASTM D5185m	0 1 2 1 9 2712 292 342 2575 limit/base >+100 >20 >4.0 limit/base	0 0 1 <1 2964 280 353 3908 current 205 <1 <1 <1 0.5 current	0 0 <1 12 2641 242 309 3508 history1 ▲ 137 <1 0 0.3 history1	1 0 1 <1 2680 256 312 3598 history2 67 0 <1 0.3 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm %	ASTM D5185m ASTM D5185m	0 1 2 1 9 2712 292 342 2575 limit/base >+100 >20 >4.0 limit/base	0 0 1 <1 2964 280 353 3908 <i>current</i> 205 <1 <1 <1 0.5 <i>current</i>	0 0 <1 <12 2641 242 309 3508 history1 ▲ 137 <1 0 0.3 history1 0.1	1 0 1 <1 2680 256 312 3598 history2 67 0 <1 0.3 history2 0.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 1 2 1 9 2712 292 342 2575 limit/base >+100 >20 S20 S20	0 0 1 <1 2964 280 353 3908 current 205 <1 <1 0.5 current 0.1 5.2	0 0 <1 <1 2641 242 309 3508 history1 ▲ 137 <1 0 0.3 history1 0.1 4.9	1 0 1 <1 2680 256 312 3598 history2 67 0 <1 0.3 history2 0.1 4.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 1 2 1 9 2712 292 342 2575 Iimit/base >+100 >20 >4.0 Iimit/base >20 >4.0	0 0 1 1 4 2964 280 353 3908 current 205 <1 <1 <1 0.5 current 0.1 5.2 18.8	0 0 <1 12 2641 242 309 3508 history1 ▲ 137 <1 0 0.3 history1 0.1 4.9 17.3	1 0 1 <1 2680 256 312 3598 history2 67 0 <1 0.3 history2 0.1 4.2 15.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 1 2 1 9 2712 292 342 2575 Imit/base >20 >4.0 Imit/base >20 >30 Imit/base	0 0 1 1 <10 2964 280 353 3908 current 205 <1 <1 0.5 current 0.1 5.2 18.8 current	0 0 <1 <12 2641 242 309 3508 history1 ▲ 137 <1 0 0.3 history1 0.1 4.9 17.3 history1	1 0 1 <1 2680 256 312 3598 history2 67 0 <1 0.3 history2 0.1 4.2 15.4 history2

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor. (Customer Sample Comment: Total oil added 35 gallons)

Fluic

Wear

All component wear rates are normal.

Contamination

Fuel content negligible. Elemental level of silicon (Si) above normal.

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.



OIL ANALYSIS REPORT

scalar

scalar

scalar

method

*Visual

*Visual

*Visua

limit/base

NONE

NONE

NONE

current

NONE

NONE

NONE

history1

NONE

NONE

NONE

history2

NONE

NONE

NONE

NONE

NONE

NONE

NORML

NORML

history2

NEG

NEG

13.3

Jec12/22

Pc12/27

Pc12/2

Dec12/22

an74/73

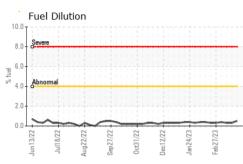
an24/23

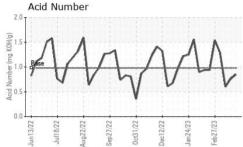
VISUAL

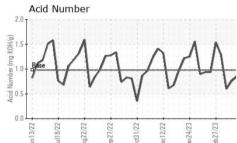
White Metal

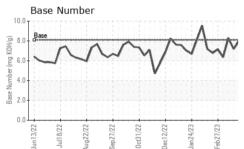
Yellow Metal

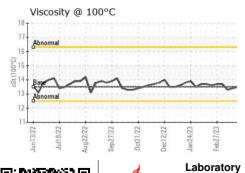
Precipitate

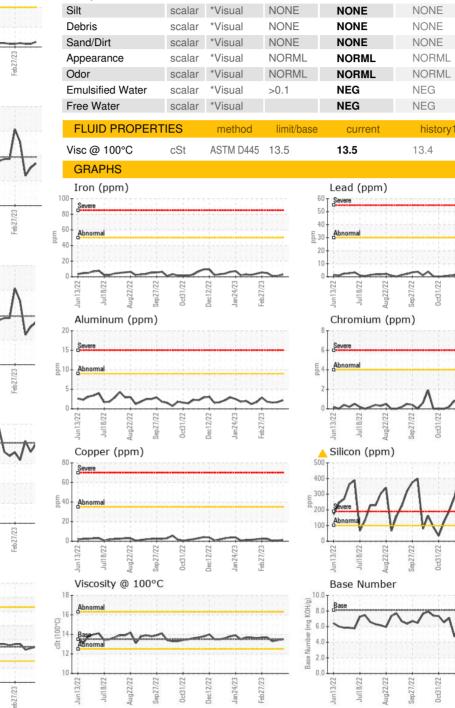










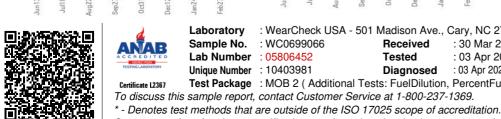


Received

Diagnosed

Tested

FINLEY BIOENERGY : WearCheck USA - 501 Madison Ave., Cary, NC 27513 74265 Bombing Range Road : 30 Mar 2023 : 03 Apr 2023 Boardman, OR US 97818 : 03 Apr 2023 - Doug Bogart Test Package : MOB 2 (Additional Tests: FuelDilution, PercentFuel) Contact: Blain Middleton bmiddleton@archaea.energy T: (541)481-3232 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:



: WC0699066

: 05806452

Submitted By: Blain Middleton

Page 2 of 2