

OIL ANALYSIS REPORT

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Sample Rating Trend

NORMAL

FREIGHTLINER 11198C

Natural Gas Engine

PETRO CANADA DURON GEO LD 15W40 (9 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

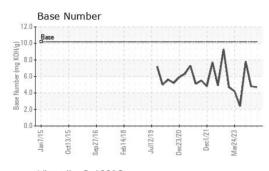
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

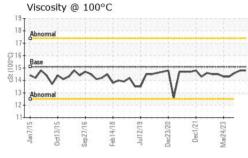
2015	Oct		5	Sep.	2010	5	Feb	201	18		Jula	2019	9	D	ec20	20		Jec2	021		Mará		
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SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0087544	GFL0087476	GFL0071812
Sample Date		Client Info		14 Sep 2023	05 Sep 2023	21 Jun 2023
Machine Age	hrs	Client Info		2559	2517	2186
Oil Age	hrs	Client Info		575	533	202
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	12	12	8
Chromium	ppm	ASTM D5185m	>4	3	3	2
Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>9	2	2	<1
Lead	ppm	ASTM D5185m	>30	2	<1	<1
Copper	ppm	ASTM D5185m	>35	24	25	18
Tin	ppm	ASTM D5185m	>4	2	0	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	50	5	5	21
Doron	ppm			0	÷	
Barium	ppm	ASTM D5185m	5	44	0	0
						0 54
Barium	ppm	ASTM D5185m ASTM D5185m	5	44	0	
Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	5 50	44 50	0 54	54
Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	5 50 0	44 50 1	0 54 <1	54 <1
Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	5 50 0 560	44 50 1 503	0 54 <1 572	54 <1 532
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	5 50 0 560 1510	44 50 1 503 1434	0 54 <1 572 1698	54 <1 532 1556
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	5 50 0 560 1510 780	44 50 1 503 1434 613	0 54 <1 572 1698 692	54 <1 532 1556 754
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	5 50 0 560 1510 780 870	44 50 1 503 1434 613 884	0 54 <1 572 1698 692 972	54 <1 532 1556 754 953
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	5 50 0 560 1510 780 870 2040	44 50 1 503 1434 613 884 2396	0 54 <1 572 1698 692 972 2770	54 <1 532 1556 754 953 2824
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	5 50 0 560 1510 780 870 2040 limit/base	44 50 1 503 1434 613 884 2396 current	0 54 <1 572 1698 692 972 2770 history1	54 <1 532 1556 754 953 2824 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	5 50 0 560 1510 780 870 2040 limit/base >+100	44 50 1 503 1434 613 884 2396 current 7	0 54 <1 572 1698 692 972 2770 history1 5	54 <1 532 1556 754 953 2824 history2 5
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	5 50 0 560 1510 780 870 2040 limit/base >+100	44 50 1 503 1434 613 884 2396 current 7 8	0 54 <1 572 1698 692 972 2770 history1 5 8	54 <1 532 1556 754 953 2824 history2 5 5 5
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	5 50 0 560 1510 780 870 2040 limit/base >+100	44 50 1 503 1434 613 884 2396 current 7 8 4	0 54 <1 572 1698 692 972 2770 history1 5 8 1	54 <1 532 1556 754 953 2824 history2 5 5 5 3
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	5 50 0 560 1510 780 870 2040 limit/base >+100	44 50 1 503 1434 613 884 2396 current 7 8 4 4	0 54 <1 572 1698 692 972 2770 history1 5 8 1 1 history1	54 <1 532 1556 754 953 2824 history2 5 5 5 3 3 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	5 50 0 560 1510 780 870 2040 limit/base >+100 >20 limit/base	44 50 1 503 1434 613 884 2396 current 7 8 4 4 current 0.1	0 54 <1 572 1698 692 972 2770 history1 5 8 1 1 history1 0	54 <1 532 1556 754 953 2824 history2 5 5 5 3 3 history2 0.1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	5 50 0 560 1510 780 870 2040 imit/base >+100 >20 imit/base	44 50 1 503 1434 613 884 2396 <u>current</u> 7 8 4 4 <u>current</u> 0.1 10.4	0 54 <1 572 1698 692 972 2770 history1 5 8 1 1 history1 0 10.2	54 <1 532 1556 754 953 2824 history2 5 5 5 3 3 history2 0.1 8.4
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	5 50 0 560 1510 780 870 2040 imit/base >2040 imit/base >20 imit/base	44 50 1 503 1434 613 884 2396 <u>current</u> 7 8 4 4 <u>current</u> 0.1 10.4 19.9	0 54 <1 572 1698 692 972 2770 history1 5 8 1 1 history1 0 10.2 20.1	54 <1 532 1556 754 953 2824 history2 5 5 5 3 3 history2 0.1 8.4 19.6



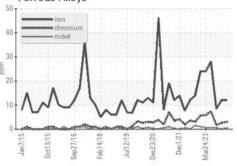
OIL ANALYSIS REPORT

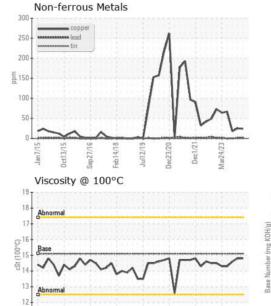




VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.1	14.8	14.8	14.6
GRAPHS						

Ferrous Alloys





Jul12/19

Received

Diagnosed

Diagnostician

Dec23/20

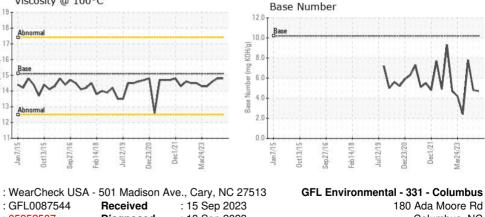
Dec1/21.

Mar24/23

: 15 Sep 2023

: 18 Sep 2023

: Wes Davis



Columbus, NC US 28722 Contact: Matt Segars matt.segars@gflenv.com T: (800)207-6618 F: (252)617-2494



Test Package : FLEET Certificate L2367 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. Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Sep27/16

Feb 14/18

11

Unique Number : 10648466

Laboratory

Sample No.

Lab Number

Jan7/15

: GFL0087544

: 05952507