

OIL ANALYSIS REPORT





Machine Id

Component Diesel Engine

Fluid

PETRO CANADA DURON SHP 15W40 (12 QTS)

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.

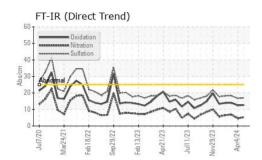
Fluid Condition

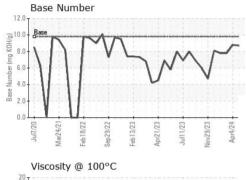
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

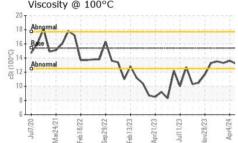
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0122114	GFL0115742	GFL0112369
Sample Date		Client Info		01 Jul 2024	04 Apr 2024	29 Feb 2024
Machine Age	hrs	Client Info		13211	13134	13109
Oil Age	hrs	Client Info		102	25	374
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	18	7	33
Chromium	ppm	ASTM D5185m	>20	<1	<1	1
Nickel	ppm	ASTM D5185m	>2	<1	<1	<1
Titanium	ppm	ASTM D5185m	>2	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	3	2	4
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>330	<1	<1	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	<1	<1
Cadmium	ppm	ASTM D5185m		<1	<1	0
						0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm		limit/base 0			-
		method		current	history1	history2
Boron	ppm	method ASTM D5185m	0	current 12	history1 12	history2 7
Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0	current 12 <1	history1 12 0	history2 7 0
Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 12 <1 63	history1 12 0 59	history2 7 0 63
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 12 <1 63 <1	history1 12 0 59 <1	history2 7 0 63 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 12 <1 63 <1 838 1072 916	history1 12 0 59 <1 861 1043 955	history2 7 0 63 <1 887 1019 1010
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	current 12 <1 63 <1 838 1072	history1 12 0 59 <1 861 1043	history2 7 0 63 <1 887 1019 1010 1200
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	current 12 <1 63 <1 838 1072 916	history1 12 0 59 <1 861 1043 955	history2 7 0 63 <1 887 1019 1010
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270	current 12 <1 63 <1 838 1072 916 1112	history1 12 0 59 <1 861 1043 955 1137	history2 7 0 63 <1 887 1019 1010 1200
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	current 12 <1 63 <1 838 1072 916 1112 2589	history1 12 0 59 <1 861 1043 955 1137 2979	history2 7 0 63 <1 887 1019 1010 1200 2912
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	12 <1 63 <1 838 1072 916 1112 2589 current	history1 12 0 59 <1 861 1043 955 1137 2979 history1 5 1	history2 7 0 63 <1 887 1019 1010 1200 2912 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	12 <1 63 <1 838 1072 916 1112 2589 current 5	history1 12 0 59 <1 861 1043 955 1137 2979 history1 5	history2 7 0 63 <1 887 1019 1010 1200 2912 history2 8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base	current 12 <1 63 <1 838 1072 916 1112 2589 current 5 2	history1 12 0 59 <1 861 1043 955 1137 2979 history1 5 1 3 history1	history2 7 0 63 <1 887 1019 1010 1200 2912 history2 8 3 2 history2
Boron 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	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	current 12 <1 63 <1 838 1072 916 1112 2589 current 5 2 2 current 0.1	history1 12 0 59 <1 861 1043 955 1137 2979 history1 5 1 3 history1 0.1	history2 7 0 63 <1 887 1019 1010 1200 2912 history2 8 3 2 history2 0 0.3
Boron 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 t ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25	current 12 <1 63 <1 838 1072 916 1112 2589 current 5 2 2 2 current	history1 12 0 59 <1 861 1043 955 1137 2979 history1 5 1 3 history1 0.1 4.6	history2 7 0 63 <1 887 1019 1010 1200 2912 history2 8 3 2 history2 0.3 6.8
Boron 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	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	current 12 <1 63 <1 838 1072 916 1112 2589 current 5 2 2 current 0.1	history1 12 0 59 <1 861 1043 955 1137 2979 history1 5 1 3 history1 0.1	history2 7 0 63 <1 887 1019 1010 1200 2912 history2 8 3 2 history2 0 0.3
Boron 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 TS ppm ppm ppm spm	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 1imit/base >20	current 12 <1 63 <1 838 1072 916 1112 2589 current 5 2 current 0.1 5.3	history1 12 0 59 <1 861 1043 955 1137 2979 history1 5 1 3 history1 0.1 4.6	history2 7 0 63 <1 887 1019 1010 1200 2912 history2 8 3 2 history2 0.3 6.8
Boron 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 TS ppm ppm ppm spm	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 <u>imit/base</u> >6 >20 20	current 12 <1 63 <1 838 1072 916 1112 2589 current 5 2 current 0.1 5.3 17.0	history1 12 0 59 <1 861 1043 955 1137 2979 history1 5 1 3 history1 0.1 4.6 16.7	history2 7 0 63 <1 887 1019 1010 1200 2912 history2 8 3 2 history2 0.3 6.8 18.3



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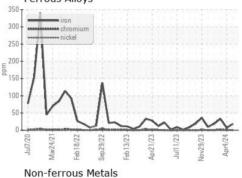


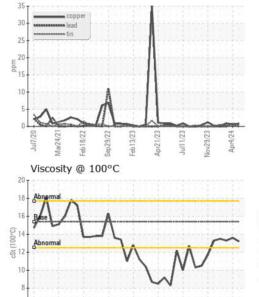


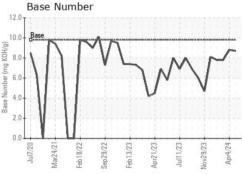


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	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	15.4	13.2	13.6	13.3
GRAPHS						

Ferrous Alloys







Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 010 - Stockbridge Sample No. : GFL0122114 : 02 Jul 2024 Received 1280 Rum Creek Parkway Lab Number : 06225973 Tested : 03 Jul 2024 Stockbridge, GA Unique Number : 11109466 Diagnosed : 03 Jul 2024 - Wes Davis US 30281 Test Package : FLEET Contact: JOSHUA TINKER Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. joshuatinker@gflenv.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T:

Sep 29/22 Feb 13/23

Feb 18/22

Jul11/23

v29/23

Apr4/24

6

Mar24/21

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

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Submitted By: JOSHUA TINKER Page 2 of 2

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