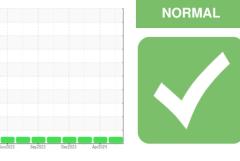


OIL ANALYSIS REPORT

SAMPLE INFORMATION method

Sample Rating Trend



(41-028) 227020-9991

Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- LTR)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

Area

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

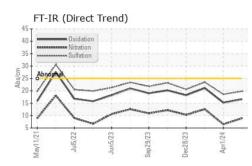
Fluid Condition

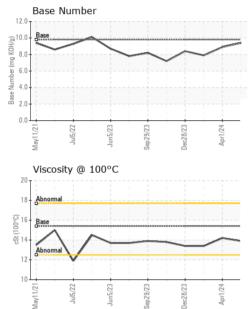
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number		Client Info		GFL0091904	GFL0112770	GFL0045463
Sample Date		Client Info		01 Jul 2024	01 Apr 2024	23 Jan 2024
Machine Age	hrs	Client Info		284548	3650	284548
Oil Age	hrs	Client Info		284548	0	133117
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	>5	<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	>100	9	6	13
Chromium	ppm	ASTM D5185m	>20	0	<1	0
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	2	3	2
Lead	ppm	ASTM D5185m	>40	3	2	10
Copper	ppm	ASTM D5185m	>330	<1	1	<1
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 2	history1 12	history2 6
	ppm ppm			current 2 0		history2 6 0
Boron Barium	ppm	ASTM D5185m	0	2 0	12	6
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 0 59	12 0 61	6 0
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 0 59 <1	12 0 61 <1	6 0 64 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	2 0 59 <1 999	12 0 61 <1 997	6 0 64 <1 1054
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 0 59 <1 999 1177	12 0 61 <1	6 0 64 <1 1054 1168
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	2 0 59 <1 999 1177 1081	12 0 61 <1 997 1127	6 0 64 <1 1054
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	2 0 59 <1 999 1177	12 0 61 <1 997 1127 1144	6 0 64 <1 1054 1168 1059
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	0 0 60 0 1010 1070 1150 1270	2 0 59 <1 999 1177 1081 1305	12 0 61 <1 997 1127 1144 1285	6 0 64 <1 1054 1168 1059 1317 3052
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	2 0 59 <1 999 1177 1081 1305 3632	12 0 61 <1 997 1127 1144 1285 3501	6 0 64 <1 1054 1168 1059 1317
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	2 0 59 <1 999 1177 1081 1305 3632 current	12 0 61 <1 997 1127 1144 1285 3501 history1	6 0 64 <1 1054 1168 1059 1317 3052 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	0 0 60 1010 1070 1150 1270 2060	2 0 59 <1 999 1177 1081 1305 3632 current 5	12 0 61 <1 997 1127 1144 1285 3501 history1 6	6 0 64 <1 1054 1168 1059 1317 3052 history2 6
Boron 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 ASTM D5185m method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	2 0 59 <1 999 1177 1081 1305 3632 current 5 2	12 0 61 <1 997 1127 1144 1285 3501 history1 6 3	6 0 64 <1 1054 1168 1059 1317 3052 history2 6 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25	2 0 59 <1 999 1177 1081 1305 3632 current 5 2 1 1 current	12 0 61 <1 997 1127 1144 1285 3501 history1 6 3 1 1 history1	6 0 64 <1 1054 1168 1059 1317 3052 history2 6 3 0 0
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Limit/base >20	2 0 59 <1 999 1177 1081 1305 3632 <i>current</i> 5 2 1 <i>current</i> 0.8	12 0 61 <1 997 1127 1144 1285 3501 history1 6 3 1 history1 0.4	6 0 64 <1 1054 1168 1059 1317 3052 history2 6 3 0 history2 1.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >3 >20	2 0 59 <1 999 1177 1081 1305 3632 current 5 2 1 1 current	12 0 61 <1 997 1127 1144 1285 3501 history1 6 3 3 1 history1 0.4 6.5	6 0 64 <1 1054 1168 1059 1317 3052 history2 6 3 0 history2 1.4 1.4 12.6
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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 20 3 20 3 20 3 20 20 20 20 20 20 20 20 20 20 20 20 20	2 0 59 <1 999 1177 1081 1305 3632 <i>current</i> 5 2 1 1 <i>current</i> 0.8 8.9 19.8	12 0 61 <1 997 1127 1144 1285 3501 history1 6 3 1 history1 0.4 6.5 18.6	6 0 64 <1 1054 1168 1059 1317 3052 history2 6 3 0 history2 1.4 1.4 12.6 23.5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 3 20 20 20 3 3 20 20 20 20 20 20 20 20 20 20 20 20 20	2 0 59 <1 999 1177 1081 1305 3632 <i>current</i> 5 2 1 <i>current</i> 0.8 8.9 19.8 <i>current</i>	12 0 61 <1 997 1127 1144 1285 3501 history1 6 3 3 1 6 3 1 1 0.4 6.5 18.6 18.6	6 0 64 <1 1054 1168 1059 1317 3052 history2 6 3 0 history2 1.4 12.6 23.5 history2
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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 20 3 20 3 20 3 20 20 20 20 20 20 20 20 20 20 20 20 20	2 0 59 <1 999 1177 1081 1305 3632 <i>current</i> 5 2 1 1 <i>current</i> 0.8 8.9 19.8	12 0 61 <1 997 1127 1144 1285 3501 history1 6 3 1 history1 0.4 6.5 18.6	6 0 64 <1 1054 1168 1059 1317 3052 history2 6 3 0 history2 1.4 1.4 12.6 23.5



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	>0.2	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	13.9	14.2	13.4
GRAPHS						

Ferrous Alloys

18

17

16

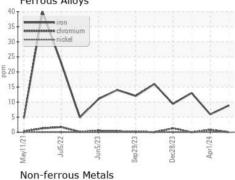
12

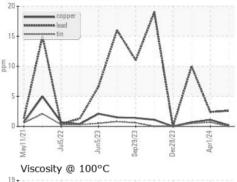
10

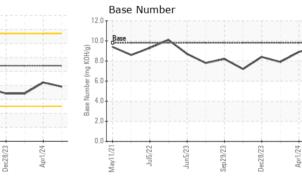
May11/21

Jul5/22 -

cSt (100°C)







Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 654 - Richmond Hauling Sample No. : GFL0091904 : 05 Jul 2024 11800 Lewis Road Received Lab Number : 06229446 Tested : 09 Jul 2024 Chester, VA Unique Number : 11112939 US 23831 Diagnosed : 09 Jul 2024 - Wes Davis Test Package : FLEET Contact: Jimmy Mayes Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. jmayes@gflenv.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: F: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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Submitted By: TECHNICIAN ACCOUNT