

OIL ANALYSIS REPORT



Machine Id **2828**

Component Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (11 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.

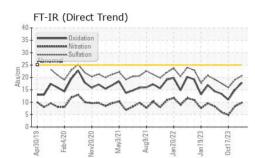
Fluid Condition

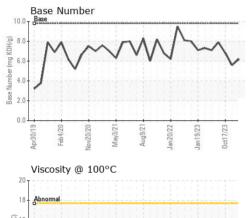
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

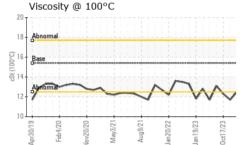
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0114505	GFL0074620	GFL0092473
Sample Date		Client Info		03 Apr 2024	08 Jan 2024	17 Oct 2023
Machine Age	hrs	Client Info		14028	13460	13016
Oil Age	hrs	Client Info		568	487	43
Oil Changed		Client Info		Changed	Changed	Not Changd
Sample Status				NORMAL	ATTENTION	ATTENTION
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	0.2	<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	12	9	2
Chromium	ppm	ASTM D5185m	>20	1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	2	1
Lead	ppm	ASTM D5185m	>40	2	0	<1
Copper	ppm	ASTM D5185m	>330	1	<1	0
Tin	ppm	ASTM D5185m	>15	<1	0	0
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 6	history1 2	history2 5
	ppm ppm					-
Boron		ASTM D5185m	0	6	2	5
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	6 0	2 0	5 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	6 0 65	2 0 58	5 0 56
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	6 0 65 <1	2 0 58 0	5 0 56 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	6 0 65 <1 870	2 0 58 0 818	5 0 56 0 762
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	6 0 65 <1 870 1072	2 0 58 0 818 959	5 0 56 0 762 902
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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	6 0 65 <1 870 1072 967	2 0 58 0 818 959 922	5 0 56 0 762 902 831
Boron 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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270	6 0 65 <1 870 1072 967 1181	2 0 58 0 818 959 922 1109	5 0 56 0 762 902 831 1057
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	0 0 60 0 1010 1070 1150 1270 2060	6 0 65 <1 870 1072 967 1181 2790	2 0 58 0 818 959 922 1109 2811	5 0 56 0 762 902 831 1057 2738
Boron 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	6 0 65 <1 870 1072 967 1181 2790 current	2 0 58 0 818 959 922 1109 2811 history1	5 0 56 0 762 902 831 1057 2738 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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 1010 1070 1150 1270 2060	6 0 65 <1 870 1072 967 1181 2790 current 6	2 0 58 0 818 959 922 1109 2811 history1 4	5 0 56 0 762 902 831 1057 2738 history2 3
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	0 0 60 1010 1070 1150 1270 2060 limit/base >25	6 0 65 <1 870 1072 967 1181 2790 Current 6 9	2 0 58 0 818 959 922 1109 2811 history1 4 3	5 0 56 0 762 902 831 1057 2738 history2 3 <
Boron 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	0 0 0 1010 1070 1150 1270 2060 limit/base >25	6 0 65 <1 870 1072 967 1181 2790 current 6 9 5	2 0 58 0 818 959 922 1109 2811 history1 4 3 2	5 0 56 0 762 902 831 1057 2738 history2 3 <1 2
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	6 0 65 <1 870 1072 967 1181 2790 current 6 9 5 5	2 0 58 0 818 959 922 1109 2811 history1 4 3 2 2 history1	5 0 56 0 762 902 831 1057 2738 history2 3 <1 2 2
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 limit/base >25 >20 limit/base	6 0 65 <1 870 1072 967 1181 2790 current 6 9 5 5 current 0.3	2 0 58 0 818 959 922 1109 2811 history1 4 3 2 2 history1 0.3	5 0 56 0 762 902 831 1057 2738 history2 3 <1 2 2 history2 0.1
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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20	6 0 65 <1 870 1072 967 1181 2790 current 6 9 5 current 0.3 9.8	2 0 58 0 818 959 922 1109 2811 history1 4 3 2 2 history1 0.3 8.4	5 0 56 0 762 902 831 1057 2738 history2 3 <1 2 3 <1 2 history2 0.1 4.8
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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >3 >20	6 0 65 <1 870 1072 967 1181 2790 <u>current</u> 6 9 5 5 <u>current</u> 0.3 9.8 20.7	2 0 58 0 818 959 922 1109 2811 history1 4 3 2 2 history1 0.3 8.4 19.1	5 0 56 0 762 902 831 1057 2738 history2 3 <1 2 history2 0.1 4.8 15.9



OIL ANALYSIS REPORT





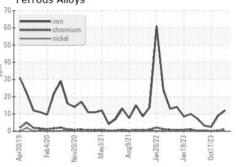


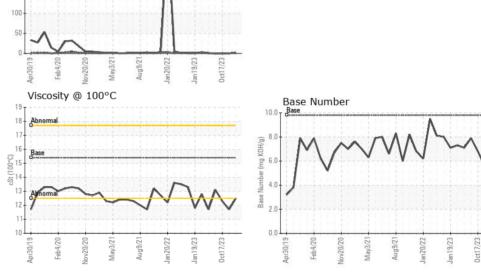
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	12.5	11.7	12.3
GRAPHS						

Ferrous Alloys

Non-ferrous Metals

300





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 095 - Atlanta West Sample No. : GFL0114505 Received : 05 Apr 2024 2699 Cochran Industrial Blvd Lab Number : 06139501 Tested : 05 Apr 2024 Douglasville, GA Unique Number : 10964309 Diagnosed : 05 Apr 2024 - Wes Davis US 30127-1332 Test Package : FLEET Contact: Darrell Welch Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. darrell.welch@gflenv.com T: (800)207-6618 * - 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)

Report Id: GFL095 [WUSCAR] 06139501 (Generated: 04/05/2024 17:47:45) Rev: 1

Submitted By: Darrell Welch

Page 2 of 2

E: