

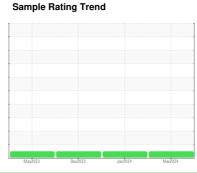
OIL ANALYSIS REPORT

Area (99295V)
223036

Diesel Engine

Fluid

PETRO CANADA DURON SHP 15W40 (--- 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

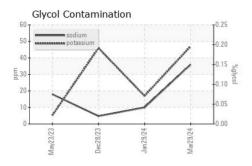
Fluid Condition

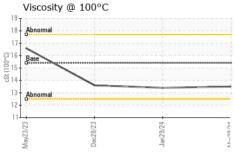
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

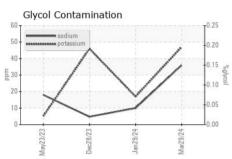
			3 Dec2023	Jan2024 M		
SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0095314	GFL0104994	GFL0104998
Sample Date		Client Info		29 Mar 2024	29 Jan 2024	28 Dec 2023
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATI	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
WEAR METALS	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	12	25	52
Chromium	ppm	ASTM D5185m	>20	<1	1	2
Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Titanium	ppm	ASTM D5185m	>2	9	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>25	4	12	28
Lead	ppm	ASTM D5185m	>40	<1	<1	<1
Copper	ppm	ASTM D5185m	>330	2	2	2
Tin		ASTM D5185m	>15	<1	1	<1
Vanadium	ppm	ASTM D5185m	>10	<1	<1	0
Cadmium	ppm	ASTM D5185m		<1	<1	0
	ppm	ASTIVI DOTOSITI		<1	< 1	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	22	<1	3
Boron Barium	ppm ppm		0	22 0	<1 0	3
Barium	ppm	ASTM D5185m	0	0	0	0
Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m	0 60	0 74	0 58	0 60
Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0	0 74 <1	0 58 <1	0 60 1
Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010	0 74 <1 1120	0 58 <1 1017	0 60 1 992
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070	0 74 <1 1120 1381	0 58 <1 1017 1062	0 60 1 992 1063
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150	0 74 <1 1120 1381 1201	0 58 <1 1017 1062 1012	0 60 1 992 1063 1071
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 60 0 1010 1070 1150 1270	0 74 <1 1120 1381 1201 1555	0 58 <1 1017 1062 1012 1203	0 60 1 992 1063 1071 1323
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 ASTM D5185m	0 60 0 1010 1070 1150 1270 2060	0 74 <1 1120 1381 1201 1555 4357	0 58 <1 1017 1062 1012 1203 2728	0 60 1 992 1063 1071 1323 3008
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 60 0 1010 1070 1150 1270 2060	0 74 <1 1120 1381 1201 1555 4357 current	0 58 <1 1017 1062 1012 1203 2728 history1	0 60 1 992 1063 1071 1323 3008
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060	0 74 <1 1120 1381 1201 1555 4357 current	0 58 <1 1017 1062 1012 1203 2728 history1	0 60 1 992 1063 1071 1323 3008 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base	0 74 <1 1120 1381 1201 1555 4357 current 10 36	0 58 <1 1017 1062 1012 1203 2728 history1 9	0 60 1 992 1063 1071 1323 3008 history2 9
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base	0 74 <1 1120 1381 1201 1555 4357 current 10 36 47	0 58 <1 1017 1062 1012 1203 2728 history1 9 10	0 60 1 992 1063 1071 1323 3008 history2 9 5 46
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	0 74 <1 1120 1381 1201 1555 4357 current 10 36 47 NEG current	0 58 <1 1017 1062 1012 1203 2728 history1 9 10 17 NEG	0 60 1 992 1063 1071 1323 3008 history2 9 5 46 NEG
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot %	ppm	ASTM D5185m **ASTM D5185m ASTM D5185m **ASTM D5185m ASTM D5185m **ASTM D5185m **ASTM D5185m **ASTM D5185m **ASTM D7844	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	0 74 <1 1120 1381 1201 1555 4357 current 10 36 47 NEG current 0.1	0 58 <1 1017 1062 1012 1203 2728 history1 9 10 17 NEG history1 0.8	0 60 1 992 1063 1071 1323 3008 history2 9 5 46 NEG history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m *ASTM D7844 *ASTM D7844 *ASTM D7624	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20	0 74 <1 1120 1381 1201 1555 4357 current 10 36 47 NEG current 0.1 5.5	0 58 <1 1017 1062 1012 1203 2728 history1 9 10 17 NEG history1 0.8 9.3	0 60 1 992 1063 1071 1323 3008 history2 9 5 46 NEG history2 1.4
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7415	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	0 74 <1 1120 1381 1201 1555 4357 current 10 36 47 NEG current 0.1 5.5 16.4	0 58 <1 1017 1062 1012 1203 2728 history1 9 10 17 NEG history1 0.8 9.3 20.7	0 60 1 992 1063 1071 1323 3008 history2 9 5 46 NEG history2 1.4 9.7 21.3
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm	ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7624 *ASTM D7415 *Method	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20 >30 limit/base	0 74 <1 1120 1381 1201 1555 4357 current 10 36 47 NEG current 0.1 5.5 16.4 current	0 58 <1 1017 1062 1012 1203 2728 history1 9 10 17 NEG history1 0.8 9.3 20.7 history1	0 60 1 992 1063 1071 1323 3008 history2 9 5 46 NEG history2 1.4 9.7 21.3
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD Oxidation	ppm	ASTM D5185m *ASTM D7812 *ASTM D7844 *ASTM D7624 *ASTM D7415 *ASTM D7414	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20 >30 limit/base >25	0 74 <1 1120 1381 1201 1555 4357 current 10 36 47 NEG current 0.1 5.5 16.4 current 13.5	0 58 <1 1017 1062 1012 1203 2728 history1 9 10 17 NEG history1 0.8 9.3 20.7 history1 16.5	0 60 1 992 1063 1071 1323 3008 history2 9 5 46 NEG history2 1.4 9.7 21.3 history2 15.3
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm	ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7624 *ASTM D7415 *Method	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20 >30 limit/base >25	0 74 <1 1120 1381 1201 1555 4357 current 10 36 47 NEG current 0.1 5.5 16.4 current	0 58 <1 1017 1062 1012 1203 2728 history1 9 10 17 NEG history1 0.8 9.3 20.7 history1	0 60 1 992 1063 1071 1323 3008 history2 9 5 46 NEG history2 1.4 9.7 21.3



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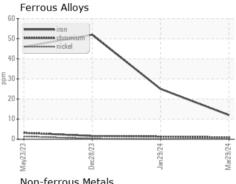


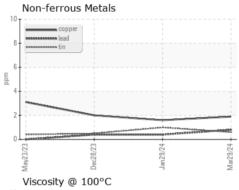


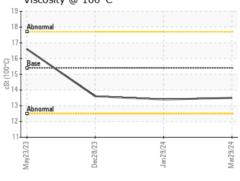
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

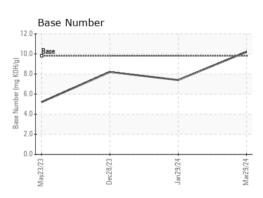
FLUID PROP	ERHES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.5	13.4	13.6

GRAPHS













Laboratory Sample No. Lab Number : 06134727

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0095314

Unique Number : 10954192

Test Package: FLEET (Additional Tests: Glycol)

Received **Tested** Diagnosed

: 01 Apr 2024 : 03 Apr 2024

: 03 Apr 2024 - Jonathan Hester

GFL Environmental - 893 - OK East Hauling 2100 Lilly Street

Seminole, OK US 74868 Contact: Roger Barlow rbarlow@gflenv.com

T: (405)204-6183

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)