

OIL ANALYSIS REPORT

Sample Rating Trend **FUEL**



426064-402205

Diesel Engine

Component

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

DIAGNOSIS

Recommendation

We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

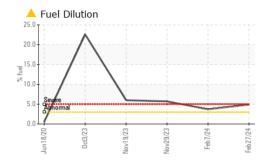
Fluid Condition

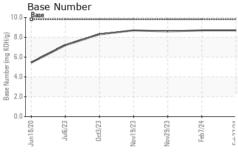
The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

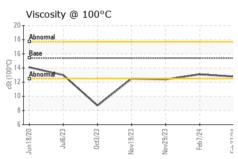
	,	Jun2020	0012023	Nov2023 Nov2023 Feb2024	Feb2024	
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0109315	GFL0109263	GFL0048350
Sample Date		Client Info		27 Feb 2024	07 Feb 2024	29 Nov 2023
Machine Age	hrs	Client Info		33308	33287	33247
Oil Age	hrs	Client Info		61	40	400
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Sample Status				ABNORMAL	ABNORMAL	SEVERE
CONTAMINAT	ION	method	limit/base	current	history1	history2
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	>120	4	6	3
Chromium	ppm	ASTM D5185m	>20	0	0	0
Nickel	ppm	ASTM D5185m	>5	0	0	0
Titanium	ppm	ASTM D5185m	>2	49	45	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	<1	2
Lead	ppm	ASTM D5185m	>40	0	0	<1
Copper	ppm	ASTM D5185m	>330	<1	1	4
Tin	ppm	ASTM D5185m	>15	0	<1	0
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	87	77	<1
Boron Barium	ppm ppm	ASTM D5185m ASTM D5185m		87 0	77 0	<1
				_		
Barium Molybdenum	ppm	ASTM D5185m	0	0	0	0
Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m	0	0 30	0 28	0 57
Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0	0 30 <1	0 28 <1	0 57 0
Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010	0 30 <1 715	0 28 <1 671	0 57 0 818
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 30 <1 715 1432	0 28 <1 671 1349	0 57 0 818 978
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 30 <1 715 1432 1117	0 28 <1 671 1349 1008	0 57 0 818 978 914
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 30 <1 715 1432 1117 1276	0 28 <1 671 1349 1008 1195	0 57 0 818 978 914 1064
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 30 <1 715 1432 1117 1276 3728	0 28 <1 671 1349 1008 1195 3471	0 57 0 818 978 914 1064 2876
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 30 <1 715 1432 1117 1276 3728	0 28 <1 671 1349 1008 1195 3471 history1	0 57 0 818 978 914 1064 2876 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060	0 30 <1 715 1432 1117 1276 3728 current	0 28 <1 671 1349 1008 1195 3471 history1	0 57 0 818 978 914 1064 2876 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25	0 30 <1 715 1432 1117 1276 3728 current 5	0 28 <1 671 1349 1008 1195 3471 history1 4	0 57 0 818 978 914 1064 2876 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25	0 30 <1 715 1432 1117 1276 3728 current 5 2 2	0 28 <1 671 1349 1008 1195 3471 history1 4 1	0 57 0 818 978 914 1064 2876 history2 3 0
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0	0 30 <1 715 1432 1117 1276 3728 current 5 2 2 4.9	0 28 <1 671 1349 1008 1195 3471 history1 4 1 <1	0 57 0 818 978 914 1064 2876 history2 3 0 3
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0	0 30 <1 715 1432 1117 1276 3728	0 28 <1 671 1349 1008 1195 3471 history1 4 1 <1 <1 ▲ 3.7 history1 0.2	0 57 0 818 978 914 1064 2876 history2 3 0 3 ▲ 5.7
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm	ASTM D5185m ASTM D3524	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base	0 30 <1 715 1432 1117 1276 3728	0 28 <1 671 1349 1008 1195 3471 history1 4 1 <1 <1	0 57 0 818 978 914 1064 2876 history2 3 0 3 ▲ 5.7 history2 0.3
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D76145	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base >4 >20	0 30 <1 715 1432 1117 1276 3728	0 28 <1 671 1349 1008 1195 3471 history1 4 1 <1 ▲ 3.7 history1 0.2 5.2	0 57 0 818 978 914 1064 2876 history2 3 0 3 ▲ 5.7 history2 0.3 4.6
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D76145	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base >4 >20 >30	0 30 <1 715 1432 1117 1276 3728	0 28 <1 671 1349 1008 1195 3471 history1 4 1 <1 <1 △ 3.7 history1 0.2 5.2 18.1	0 57 0 818 978 914 1064 2876 history2 3 0 3 ▲ 5.7 history2 0.3 4.6 17.2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm	ASTM D5185m Method ASTM D5185m ASTM D7624 *ASTM D7624 *ASTM D7624 *ASTM D7615 method	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base >4 >20 >30 limit/base	0 30 <1 715 1432 1117 1276 3728	0 28 <1 671 1349 1008 1195 3471 history1 4 1 <1 △ 3.7 history1 0.2 5.2 18.1 history1	0 57 0 818 978 914 1064 2876 history2 3 0 3 ▲ 5.7 history2 0.3 4.6 17.2 history2



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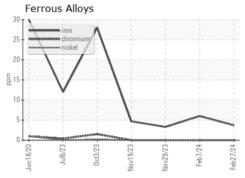


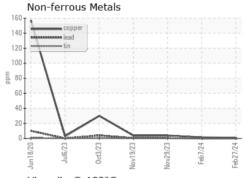


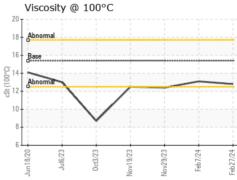
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

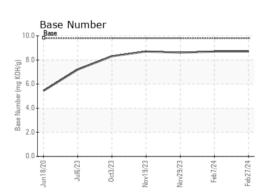
FLUID PROP	ERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	12.8	13.1	12.4

GRAPHS













Laboratory Sample No.

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

: GFL0109315 Lab Number : 06103491

Received **Tested** Unique Number : 10901721 Diagnosed

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

: 28 Feb 2024 : 04 Mar 2024

: 04 Mar 2024 - Wes Davis

GFL Environmental - 891 - Oklahoma City Hauling 1001 South Rockwell

Oklahoma City, OK US 73128 Contact: Andy Smith

Test Package: FLEET (Additional Tests: PercentFuel) To discuss this sample report, contact Customer Service at 1-800-237-1369. andrew.smith@gflenv.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (405)306-1651

Report Id: GFL891 [WUSCAR] 06103491 (Generated: 03/04/2024 07:58:58) Rev: 1

Submitted By: JUSTIN JOHNSON