

OIL ANALYSIS REPORT

Sample Rating Trend



VISCOSITY



Machine Id 10795 Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (11 GAL)

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. 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.

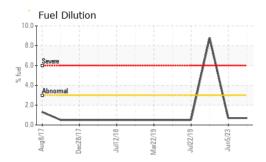
▲ Fluid Condition

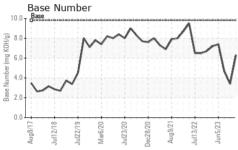
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

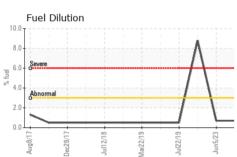
GAL)	g2017 Jul2018 Jul2019 Mar2020 Jul2020 Dxc2020 Aug/2021 Jul2022 Jun2023					
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0103419	GFL0074633	GFL0092491
Sample Date		Client Info		15 Feb 2024	21 Nov 2023	05 Sep 2023
Machine Age	hrs	Client Info		32976	32422	15707
Oil Age	hrs	Client Info		554	450	570
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				ATTENTION	ATTENTION	ATTENTION
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	>75	16	31	16
Chromium	ppm	ASTM D5185m	>5	<1	1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	3	2	3
Lead	ppm	ASTM D5185m	>25	0	2	<1
Copper	ppm	ASTM D5185m	>100	<1	<1	1
Tin	ppm	ASTM D5185m	>4	<1	0	<1
Vanadium	ppm	ASTM D5185m		0	<1	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
					,	
Boron	ppm	ASTM D5185m	0	9	6	<1
	ppm					
Boron		ASTM D5185m	0	9	6	<1
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	9 0	6	<1
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	9 0 56	6 0 30	<1 0 36
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	9 0 56 0	6 0 30 0	<1 0 36 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	9 0 56 0 715	6 0 30 0 440	<1 0 36 <1 540
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	9 0 56 0 715 880	6 0 30 0 440 523	<1 0 36 <1 540 653
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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	9 0 56 0 715 880 831	6 0 30 0 440 523 617	<1 0 36 <1 540 653 675
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270	9 0 56 0 715 880 831 988	6 0 30 0 440 523 617 717	<1 0 36 <1 540 653 675 839
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	9 0 56 0 715 880 831 988 2375	6 0 30 0 440 523 617 717 1469	<1 0 36 <1 540 653 675 839 2226
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	9 0 56 0 715 880 831 988 2375	6 0 30 0 440 523 617 717 1469	<1 0 36 <1 540 653 675 839 2226 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	9 0 56 0 715 880 831 988 2375 current	6 0 30 0 440 523 617 717 1469 history1	<1 0 36 <1 540 653 675 839 2226 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	9 0 56 0 715 880 831 988 2375 current 5	6 0 30 0 440 523 617 717 1469 history1	<1 0 36 <1 540 653 675 839 2226 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	9 0 56 0 715 880 831 988 2375 current 5 4	6 0 30 0 440 523 617 717 1469 history1 4 8 0	<1 0 36 <1 540 653 675 839 2226 history2 4 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0	9 0 56 0 715 880 831 988 2375 current 5 4 <1	6 0 30 0 440 523 617 717 1469 history1 4 8 0 <1.0	<1 0 36 <1 540 653 675 839 2226 history2 4 4 <1 0.7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm	ASTM D5185m	0 0 60 0 1010 1150 1270 2060 limit/base >25 >20 >3.0	9 0 56 0 715 880 831 988 2375 current 5 4 <1	6 0 30 0 440 523 617 717 1469 history1 4 8 0 <1.0	<1 0 36 <1 540 653 675 839 2226 history2 4 <1 0.7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0	9 0 56 0 715 880 831 988 2375 current 5 4 <1 <1.0 current 0.5	6 0 30 0 440 523 617 717 1469 history1 4 8 0 <1.0 history1 0.9	<1 0 36 <1 540 653 675 839 2226 history2 4 <1 0.7 history2
Boron 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 D7624	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base	9 0 56 0 715 880 831 988 2375 current 5 4 <1 <1.0 current 0.5 7.1	6 0 30 0 440 523 617 717 1469 history1 4 8 0 <1.0 history1 0.9 6.3	<1 0 36 <1 540 653 675 839 2226 history2 4 4 <1 0.7 history2 0.5 5.4
Boron 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 D7624	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base >6 >20 >30	9 0 56 0 715 880 831 988 2375 current 5 4 <1 <1.0 current 0.5 7.1 18.3	6 0 30 0 440 523 617 717 1469 history1 4 8 0 <1.0 history1 0.9 6.3 16.0	<1 0 36 <1 540 653 675 839 2226 history2 4 <1 0.7 history2 0.5 5.4 15.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI	ppm	ASTM D5185m ASTM D7624 *ASTM D7624 *ASTM D7415 method	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base >6 >20 >30 limit/base	9 0 56 0 715 880 831 988 2375 current 5 4 <1 <1.0 current 0.5 7.1 18.3 current	6 0 30 0 440 523 617 717 1469 history1 4 8 0 <1.0 history1 0.9 6.3 16.0 history1	<1 0 36 <1 540 653 675 839 2226 history2 4 4 <1 0.7 history2 0.5 5.4 15.0 history2



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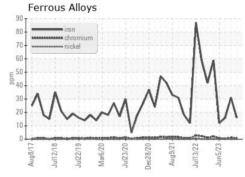


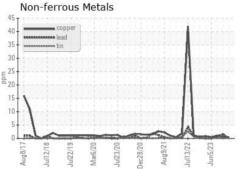


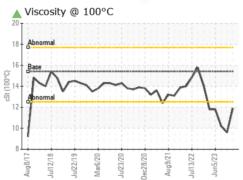
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

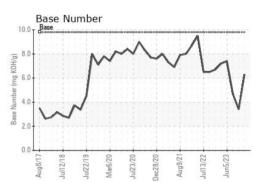
FLUID PROPERTIES		method	iimit/base		nistory i	nistory	
Visc @ 100°C	cSt	ASTM D445	15.4	11.9	9.6	▲ 10.2	

GRAPHS













Laboratory Sample No. Lab Number : 06091628

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0103419

Tested Unique Number : 10884481 Diagnosed

Received : 16 Feb 2024 : 19 Feb 2024

: 19 Feb 2024 - Don Baldridge

GFL Environmental - 095 - Atlanta West 2699 Cochran Industrial Blvd

Douglasville, GA US 30127-1332

T: (800)207-6618

Contact: Darrell Welch darrell.welch@gflenv.com

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.

Test Package: FLEET (Additional Tests: FuelDilution)

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