

OIL ANALYSIS REPORT

Sample Rating Trend





Component 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.

ethod		limi	t/bas	se	(curre	nt		history
lec2018 Ap	or2019	Aug2019	Nov2019	Mar2020	Jul2020	Nov2020	May2023	Nov2023	
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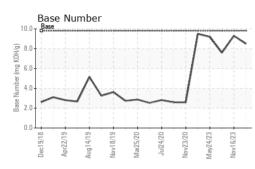


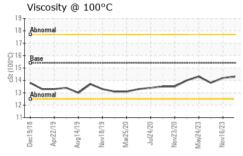
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0103979	GFL0100489	GFL0100525
Sample Date		Client Info		12 Feb 2024	16 Nov 2023	01 Nov 2023
Machine Age	hrs	Client Info		17326	16787	16693
Oil Age	hrs	Client Info		17326	16787	16693
Oil Changed		Client Info		Changed	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	>110	4	7	23
Chromium	ppm	ASTM D5185m	>4	<1	1	2
Nickel	ppm	ASTM D5185m	>2	0	<1	<1
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>2	0	2	<1
Aluminum	ppm	ASTM D5185m	>25	<1	1	2
Lead	ppm	ASTM D5185m	>45	0	1	4
Copper	ppm	ASTM D5185m	>85	<1	2	4
Tin	ppm	ASTM D5185m	>4	<1	1	2
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	1	<1
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	8	history1 0	11
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	8	0 0 47	11
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60 0	8 0	0	11 5 57 <1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	8 0 53 <1 875	0 0 47 1 794	11 5 57 <1 747
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	8 0 53 <1 875 1042	0 0 47 1 794 1016	11 5 57 <1 747 1291
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	8 0 53 <1 875 1042 972	0 0 47 1 794 1016 917	11 5 57 <1 747 1291 873
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	8 0 53 <1 875 1042 972 1186	0 0 47 1 794 1016 917 1204	11 5 57 <1 747 1291 873 1048
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	0 0 60 0 1010 1070 1150	8 0 53 <1 875 1042 972	0 0 47 1 794 1016 917	11 5 57 <1 747 1291 873
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	8 0 53 <1 875 1042 972 1186	0 0 47 1 794 1016 917 1204 2549 history1	11 5 57 <1 747 1291 873 1048 2479 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 0 1010 1070 1150 1270 2060	8 0 53 <1 875 1042 972 1186 3060 current 4	0 0 47 1 794 1016 917 1204 2549 history1 5	11 5 57 <1 747 1291 873 1048 2479 history2 18
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	8 0 53 <1 875 1042 972 1186 3060 <u>current</u> 4 2	0 0 47 1 794 1016 917 1204 2549 history1 5 3	11 5 57 <1 747 1291 873 1048 2479 history2 18 2
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 limit/base	8 0 53 <1 875 1042 972 1186 3060 current 4	0 0 47 1 794 1016 917 1204 2549 history1 5	11 5 57 <1 747 1291 873 1048 2479 history2 18
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 1010 1070 1150 1270 2060 limit/base	8 0 53 <1 875 1042 972 1186 3060 <u>current</u> 4 2	0 0 47 1 794 1016 917 1204 2549 history1 5 3	11 5 57 <1 747 1291 873 1048 2479 history2 18 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 TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >30	8 0 53 <1 875 1042 972 1186 3060 <u>current</u> 4 2 2	0 0 47 1 794 1016 917 1204 2549 history1 5 3 3 3 history1 0.3	11 5 57 <1 747 1291 873 1048 2479 history2 18 2 3 history2 0.5
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 Imit/base >30 20	8 0 53 <1 875 1042 972 1186 3060 current 4 2 2 2	0 0 47 1 794 1016 917 1204 2549 history1 5 3 3 3	11 5 57 <1 747 1291 873 1048 2479 history2 18 2 3 3 history2
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 Imit/base >30 20	8 0 53 <1 875 1042 972 1186 3060 current 4 2 2 2 2 current 0.2	0 0 47 1 794 1016 917 1204 2549 history1 5 3 3 3 history1 0.3	11 5 57 <1 747 1291 873 1048 2479 history2 18 2 3 history2 0.5
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 imit/base >30 >20 imit/base >3 >20	8 0 53 <1 875 1042 972 1186 3060 <u>current</u> 4 2 2 2 <u>current</u> 0.2 5.8	0 0 47 1 794 1016 917 1204 2549 history1 5 3 3 3 history1 0.3 5.6	11 5 57 <1 747 1291 873 1048 2479 history2 18 2 3 history2 0.5 9.3
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 >30 imit/base >3 20 >3	8 0 53 <1 875 1042 972 1186 3060 <u>current</u> 4 2 2 2 <u>current</u> 0.2 5.8 18.5	0 0 47 1 794 1016 917 1204 2549 history1 5 3 3 3 history1 0.3 5.6 18.3	11 5 57 <1 747 1291 873 1048 2479 history2 18 2 3 history2 0.5 9.3 21.0

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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 PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.3	14.2	13.8
GRAPHS						

Ferrous Alloys 4 40 35 30 편 25 전 20 15 10 5 0. Dec19/18 Aug14/19 Nov18/19 Mar25/20 00/20m av24/2 Apr22/1 Non-ferrous Metals 10 Jov16/23 Nov18/19 Aar75/70 C12 Cino Dr77 Dec19 1 Bny Viscosity @ 100°C Base Number 19 10.0 18 8 17 (B/HOX Bu) 16 (100°C) 15 14 B 6 (Numbe 4.0 Base 13 Abnorma 12 11 0.0 May24/23 Jul24/20 Nov16/23 Dec19/18 Aug 14/19 Vov18/19 Mar25/20 Nov23/20 Dec19/18 Aug14/19 Mar25/20 Nov23/20 Mav24/23 Vov16/23 Apr22/19 Apr22/19 Nov18/19 GFL Environmental - 865 - East Mount Hauling Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No. : GFL0103979 Received : 16 Feb 2024 7213 East Mount Houston Road Lab Number : 06091637 Tested : 19 Feb 2024 Houston, TX Unique Number : 10884490 Diagnosed : 19 Feb 2024 - Wes Davis US 77050 Test Package : FLEET Contact: Saul Castillo saul.castillo@gflenv.com



To discuss this sample report, contact Customer Service at 1-800-237-1369. s * - 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)

Certificate L2367

Submitted By: TECHNICIAN ACCOUNT

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