

OIL ANALYSIS REPORT

Sample Rating Trend





346M Component Diesel Engine

Machine Id

PETRO CANADA DURON SHP 15W40 (36 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 INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0104264	GFL0104135	GFL0059263
Sample Date		Client Info		04 Mar 2024	05 Dec 2023	19 Nov 2023
Machine Age	hrs	Client Info		26981	26462	25004
Oil Age	hrs	Client Info		600	1458	25004
Oil Changed		Client Info		Changed	N/A	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	0.4
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	13	71	11
Chromium	ppm	ASTM D5185m	>20	0	1	<1
Nickel	ppm	ASTM D5185m	>5	0	2	0
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	4	4	1
Lead	ppm	ASTM D5185m	>40	<1	1	<1
Copper	ppm	ASTM D5185m		2	8	39
Tin	ppm	ASTM D5185m	>15	- <1	0	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m			0	0
Gaumum	ppin	ASTIVI DUTOJITI		0	0	0
ADDITIVES	ppm	method	limit/base	current	history1	history2
ADDITIVES		method		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	0	current 0	history1 <1	history2 9
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0	current 0 0	history1 <1 0	history2 9 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 0 0 54	history1 <1	history2 9
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m	0 0 60	current 0 0 54 0	history1 <1 0 56	history2 9 0 52
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 0 0 54	history1 <1 0 56 2	history2 9 0 52 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	Current 0 0 54 0 976	history1 <1 0 56 2 1011	history2 9 0 52 <1 795
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	current 0 0 54 0 976 1060	history1 <1 0 56 2 1011 1078	history2 9 0 52 <1 795 941
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	current 0 54 0 976 1060 1048	history1 <1 0 56 2 1011 1078 988	history2 9 0 52 <1 795 941 877
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	current 0 0 54 0 976 1060 1048 1215	history1 <1 0 56 2 1011 1078 988 1237	history2 9 0 52 <1 795 941 877 1062
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method 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	Current 0 0 54 0 976 1060 1048 1215 3023	history1 <1 0 56 2 1011 1078 988 1237 2309	history2 9 0 52 <1 795 941 877 1062 2527
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method 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	Current 0 0 54 0 976 1060 1048 1215 3023 Current	history1 <1 0 56 2 1011 1078 988 1237 2309 history1	history2 9 0 52 <1 795 941 877 1062 2527 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	current 0 0 54 0 976 1060 1048 1215 3023 current 11	history1 <1 0 56 2 1011 1078 988 1237 2309 history1 5	history2 9 0 52 <1 795 941 877 1062 2527 history2 8
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	current 0 0 54 0 976 1060 1048 1215 3023 current 11 4	history1 <1 0 56 2 1011 1078 988 1237 2309 history1 5 4	history2 9 0 52 <1 795 941 877 1062 2527 history2 8 4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	current 0 0 54 0 976 1060 1048 1215 3023 current 11 4 <1	history1 <1 0 56 2 1011 1078 988 1237 2309 history1 5 4 <1	history2 9 0 52 <1 795 941 877 1062 2527 history2 8 4 <1
ADDITIVES 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 TS	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 <u>limit/base</u> >20	current 0 0 54 0 976 1060 1048 1215 3023 current 11 4 <1 current	history1 <1 0 56 2 1011 1078 988 1237 2309 history1 5 4 <1 history1	history2 9 0 52 <1 795 941 877 1062 2527 history2 8 4 <1 history2
ADDITIVES 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 TS ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 <u>limit/base</u> >20	current 0 0 54 0 976 1060 1048 1215 3023 current 11 4 <1 current 0.2	history1 <1 0 56 2 1011 1078 988 1237 2309 history1 5 4 <1 history1 1	history2 9 0 52 <1 795 941 877 1062 2527 history2 8 4 <1 history2 0.2
ADDITIVES 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	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 1imit/base >22 20	current 0 0 54 0 976 1060 1048 1215 3023 current 11 4 <1 current 0.2 7.1	history1 <1 0 56 2 1011 1078 988 1237 2309 history1 5 4 <1 history1 1 10.1	history2 9 0 52 <1 795 941 877 1062 2527 history2 8 4 <1 history2 0.2 6.0
ADDITIVES 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	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 <u>imit/base</u> >20 20	current 0 0 54 0 976 1060 1048 1215 3023 current 11 4 <1 current 0.2 7.1 18.8	history1 <1 0 56 2 1011 1078 988 1237 2309 history1 5 4 <1 history1 1 10.1 22.4	history2 9 0 52 <1 795 941 877 1062 2527 history2 8 4 <1 history2 0.2 6.0 20.0



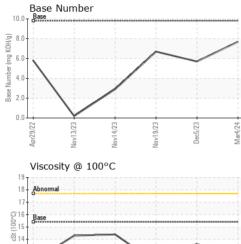
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Nov13/23

Nov14/23

lov19/23

OIL ANALYSIS REPORT



Dec5/23

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(00015) 15-14-

12 11-

Laboratory

Sample No.

Lab Number : 06109844

Apr29/22

: GFL0104264

		method	limit/base	current	history1	history
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	ERTIES	method	limit/base	current	history1	history
Visc @ 100°C	cSt	ASTM D445	15.4	12.8	13.6	12.1
80 - iron chromium						
70 60 50 40 30 20 10 0 226 527 527 527 527 527 527 527 527 527 527	Novi 972	Deci/23	Mad/24			
nickel		Dec5/23	Harris 42/betW			
nickel	ls		Mar4.24 Mar4.24			

8.0 (mg KOH/g)

6 (

0.0

Apr29/22

Nov13/23

Number (4 (Base 2.0

Mar4/24 -

: 06 Mar 2024

: 07 Mar 2024

: 07 Mar 2024 - Wes Davis

Dec5/23 -



Unique Number : 10913341 Diagnosed Test Package : FLEET Contact: Belal Dgheish Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. bdgheish@gflenv.com * - 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)

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

Nov14/23

Nov13/23

Nov19/23

Received

Tested

Nov14/23

Dec5/23 -

39000 Van Born Rd

T: (734)714-2340

Wayne, MI

US 48184

Nov19/23

GFL Environmental - 410 - Michigan West

Mar4/24 -

F: