

OIL ANALYSIS REPORT

Sample Rating Trend





Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (40 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 INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0098977	GFL0099051	GFL0088416
Sample Date		Client Info		14 Nov 2023	25 Oct 2023	29 Aug 2023
Machine Age	hrs	Client Info		8323	8222	8061
Oil Age	hrs	Client Info		8323	7797	7797
Oil Changed		Client Info		Changed	Changed	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<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	>165	7	22	17
Chromium	ppm	ASTM D5185m	>5	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	<1	0
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	2	3	2
Lead	ppm	ASTM D5185m	>150	<1	1	0
Copper	ppm	ASTM D5185m	>90	2	8	6
Tin	ppm	ASTM D5185m	>5	0	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		<1	<1	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 0	history1 <1	history2 0
	ppm ppm					
Boron		ASTM D5185m	0	0	<1	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	0 9	<1 4	0 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	0 9 60	<1 4 60	0 0 57
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	0 9 60 <1	<1 4 60 <1	0 0 57 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	0 9 60 <1 894	<1 4 60 <1 877	0 0 57 <1 913
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	0 9 60 <1 894 1066	<1 4 60 <1 877 1088	0 0 57 <1 913 1067
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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	0 9 60 <1 894 1066 1051	<1 4 60 <1 877 1088 1014	0 0 57 <1 913 1067 993
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	0 0 60 0 1010 1070 1150 1270	0 9 60 <1 894 1066 1051 1187	<1 4 60 <1 877 1088 1014 1203	0 0 57 <1 913 1067 993 1235
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	0 0 60 1010 1070 1150 1270 2060	0 9 60 <1 894 1066 1051 1187 3384	<1 4 60 <1 877 1088 1014 1203 3247	0 0 57 <1 913 1067 993 1235 3442
Boron 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	0 0 60 1010 1070 1150 1270 2060	0 9 60 <1 894 1066 1051 1187 3384 current	<1 4 60 <1 877 1088 1014 1203 3247 history1	0 0 57 <1 913 1067 993 1235 3442 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	0 9 60 <1 894 1066 1051 1187 3384 current 4	<1 4 60 <1 877 1088 1014 1203 3247 history1 5	0 0 57 <1 913 1067 993 1235 3442 history2 4
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 ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	0 9 60 <1 894 1066 1051 1187 3384 <u>current</u> 4 1	<1 4 60 <1 877 1088 1014 1203 3247 history1 5 1	0 0 57 <1 913 1067 993 1235 3442 history2 4 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	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 ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >35	0 9 60 <1 894 1066 1051 1187 3384 <u>current</u> 4 1	<1 4 60 <1 877 1088 1014 1203 3247 history1 5 1 9	0 0 57 <1 913 1067 993 1235 3442 history2 4 5 5 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 >35	0 9 60 <1 894 1066 1051 1187 3384 current 4 1 4 2 4 2 4 2 4 2 2 4 2 2 2 2 2 2 2 2	<1 4 60 <1 877 1088 1014 1203 3247 history1 5 1 9 history1	0 0 57 <1 913 1067 993 1235 3442 history2 4 5 5 5
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 ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >35 >20 limit/base >7.5	0 9 60 <1 894 1066 1051 1187 3384 current 4 1 4 2 current 0.1	<1 4 60 <1 877 1088 1014 1203 3247 history1 5 1 9 history1 0.4	0 0 57 <1 913 1067 993 1235 3442 history2 4 5 5 5 history2 0.3
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 >35 >20 imit/base >7.5 >20	0 9 60 <1 894 1066 1051 1187 3384 <u>current</u> 4 1 4 <u>current</u> 0.1 5.9	<1 4 60 <1 877 1088 1014 1203 3247 history1 5 1 9 history1 0.4 9.1	0 0 57 <1 913 1067 993 1235 3442 history2 4 5 5 5 history2 0.3 8.2
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 >35 >20 imit/base >7.5 >20 >30	0 9 60 <1 894 1066 1051 1187 3384 <u>current</u> 4 1 4 1 4 0.1 5.9 18.5	<1 4 60 <1 877 1088 1014 1203 3247 history1 5 1 9 history1 0.4 9.1 21.3	0 0 57 <1 913 1067 993 1235 3442 history2 4 5 5 5 history2 0.3 8.2 20.6
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 D7844 *ASTM D7844	0 0 0 1010 1070 1150 2060 2060 2060 2060 2060 2060 2060 20	0 9 60 <1 894 1066 1051 1187 3384 <i>current</i> 4 1 4 1 4 <i>current</i> 0.1 5.9 18.5	<1 4 60 <1 877 1088 1014 1203 3247 history1 5 1 9 history1 0.4 9.1 21.3 history1	0 0 57 <1 913 1067 993 1235 3442 history2 4 5 5 history2 0.3 8.2 20.6 history2

Submitted By: GFL084, GFL842, GFL844, GFL846 - ROBERT THIBAULT



OIL ANALYSIS REPORT

*Visual

scalar *Visual

scalar

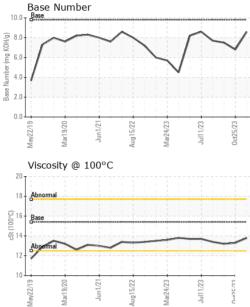
NONE

NONE

VISUAL

White Metal

Yellow Metal



	V			Precipitate		*Visual	NONE	NONE	NONE	NONE
				Silt	scalar	*Visual	NONE	NONE	NONE	NONE
				Debris Sand/Dirt	scalar	*Visual *Visual	NONE NONE	NONE NONE	NONE	NONE
22	23	23-	23	Appearance	scalar scalar	*Visual	NORML	NORML	NORML	NORML
Aug 15/22	Mar24/23	Jul11/23	0ct25/23	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	~			Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
				Free Water	scalar	*Visual	20.L	NEG	NEG	NEG
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				FLUID PROPE		method	limit/base	current 13.8	history1 13.3	history2 13.2
				Visc @ 100°C GRAPHS	cSt	ASTM D445	15.4	13.8	13.3	13.2
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				Ma Ma	Au	μ, Μ	õ	Ma	Aui	Jr
	I	Labora	tory	: WearCheck USA -	501 Madis	son Ave., Ca	ry, NC 2751	3 GFL En	vironmental - 0	84 - Clarksvil
ANAE	2	Sample	No.	: GFL0098977	Received	d : 20 l	Nov 2023			/liller Boulevar
CCREDITE BOXCI7025 TESTING LABORATORY		Lab Nu		: 06013151 : 10752295	Diagnos		Nov 2023			Clarksville, T
			Number Ackage		Diagnost		s Davis		Contact: ROBE	US 3704 ERT THIBAUL
Certificate 1996										
				contact Customer Serv are outside of the ISO						ult@gflenv.cor (931)552-727

NONE

NONE

NONE

NONE

NONE

NONE

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