

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id **447** Component **Diesel Engine** Fluid **PETRO CANADA DURON HP 15W40 (--- GAL)**

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

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	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0906251	WC0868037	WC0792833
Sample Date		Client Info		10 Jul 2024	14 Nov 2023	21 Apr 2023
Machine Age	mls	Client Info		199506	190443	184605
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	٧	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 METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	19	91	81
Chromium	ppm	ASTM D5185m	>20	<1	2	2
Nickel	ppm	ASTM D5185m	>4	0	1	<1
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	4	10	8
Lead	ppm	ASTM D5185m	>40	<1	1	0
Copper	ppm	ASTM D5185m	>330	2	5	3
Tin	ppm	ASTM D5185m	>15	0	0	0
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 1	history1 10	history2 14
	ppm ppm		limit/base			
Boron		ASTM D5185m	limit/base	1 0 51	10 9 62	14 0 60
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	1 0	10 9	14 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	1 0 51	10 9 62 <1 764	14 0 60 1 797
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	1 0 51 0 788 1308	10 9 62 <1 764 1204	14 0 60 1 797 1165
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	1 0 51 0 788 1308 1060	10 9 62 <1 764 1204 998	14 0 60 1 797 1165 958
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	limit/base	1 0 51 0 788 1308 1060 1228	10 9 62 <1 764 1204 998 1161	14 0 60 1 797 1165 958 1201
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	limit/base	1 0 51 0 788 1308 1060	10 9 62 <1 764 1204 998	14 0 60 1 797 1165 958
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	1 0 51 0 788 1308 1308 1060 1228 2966 current	10 9 62 <1 764 1204 998 1161 3423 history1	14 0 60 1 797 1165 958 1201 3332 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	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		1 0 51 0 788 1308 1060 1228 2966 current 3	10 9 62 <1 764 1204 998 1161 3423 history1 7	14 0 60 1 797 1165 958 1201 3332 history2 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	limit/base >25	1 0 51 0 788 1308 1060 1228 2966 current 3 <	10 9 62 <1 764 1204 998 1161 3423 history1 7 1	14 0 60 1 797 1165 958 1201 3332 history2 6 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	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	limit/base	1 0 51 0 788 1308 1060 1228 2966 current 3	10 9 62 <1 764 1204 998 1161 3423 history1 7	14 0 60 1 797 1165 958 1201 3332 history2 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base	1 0 51 0 788 1308 1060 1228 2966 current 3 <1 2 2	10 9 62 <1 764 1204 998 1161 3423 history1 7 1 3 3 <i>history1</i>	14 0 60 1 797 1165 958 1201 3332 history2 6 2 <1 kistory2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3	1 0 51 0 788 1308 1060 1228 2966 <u>current</u> 3 <1 2 <u>current</u> 0.4	10 9 62 <1 764 1204 998 1161 3423 history1 7 1 3 3 <u>history1</u> 0.7	14 0 60 1 797 1165 958 1201 3332 history2 6 2 <1 <1 history2 0.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3 >20	1 0 51 0 788 1308 1060 1228 2966 current 3 3 <1 2 current 0.4 5.7	10 9 62 <1 764 1204 998 1161 3423 history1 7 1 3 <i>history1</i> 0.7 7.1	14 0 60 1 797 1165 958 1201 3332 history2 6 2 <1 2 <1 history2 0.4 5.8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3	1 0 51 0 788 1308 1060 1228 2966 <u>current</u> 3 <1 2 <u>current</u> 0.4	10 9 62 <1 764 1204 998 1161 3423 history1 7 1 3 3 <u>history1</u> 0.7	14 0 60 1 797 1165 958 1201 3332 history2 6 2 <1 <1 history2 0.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3 >20	1 0 51 0 788 1308 1060 1228 2966 current 3 3 <1 2 current 0.4 5.7	10 9 62 <1 764 1204 998 1161 3423 history1 7 1 3 <i>history1</i> 0.7 7.1	14 0 60 1 797 1165 958 1201 3332 history2 6 2 <1 2 <1 history2 0.4 5.8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3 >20 >30	1 0 51 0 788 1308 1060 1228 2966 <u>current</u> 3 <1 2 <u>current</u> 0.4 5.7 17.7	10 9 62 <1 764 1204 998 1161 3423 history1 7 1 3 3 history1 0.7 7.1 18.8	14 0 60 1 797 1165 958 1201 3332 history2 6 2 <1 6 2 <1 history2 0.4 5.8 17.6



Oxidation

Sulfation

Base Number

3

30

25

Abs/cm

10

10.0

6.

19 18

17

Ba

13 Abnormal

12

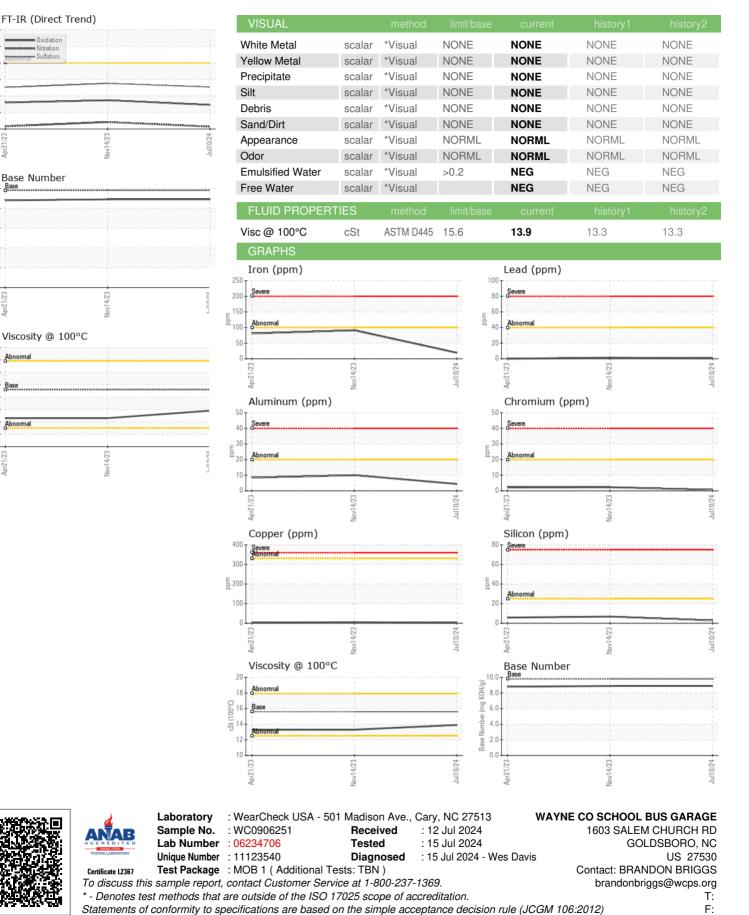
Apr21/23

(mg KOH/g)

Base

B

OIL ANALYSIS REPORT



Contact/Location: BRANDON BRIGGS - WAYGOL