

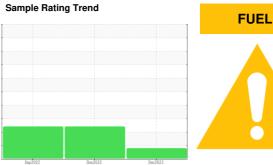
OIL ANALYSIS REPORT



Machine Id 923016 Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- GAL)



DIAGNOSIS

Recommendation

The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

All component wear rates are normal.

Contamination

There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

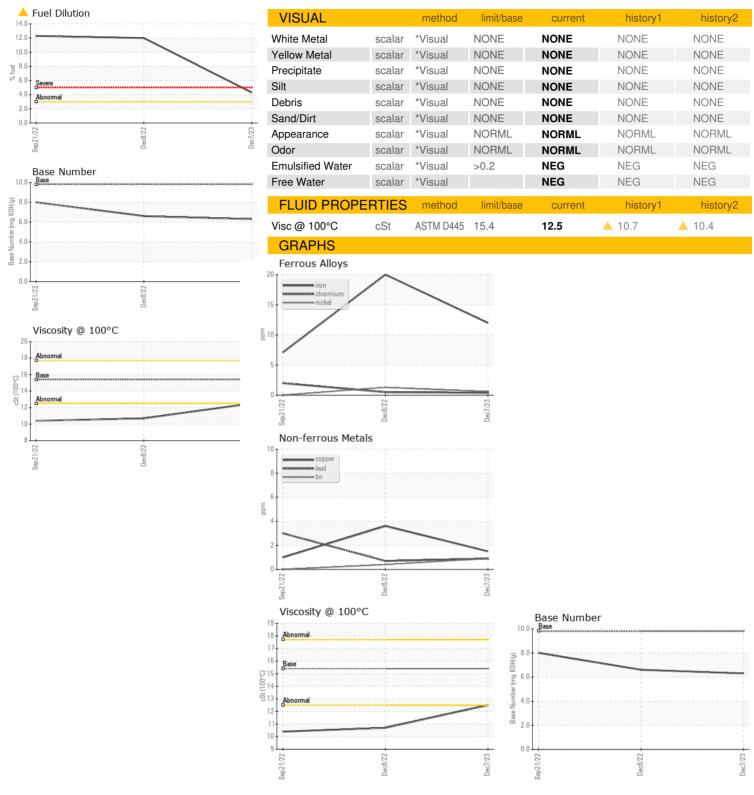
Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

Sample Date Client Info 07 Dec 2023 08 Dec 2022 21 Sep 2022 Machine Age hrs Client Info 21435 19089 18627 Oil Age hrs Client Info 21435 19089 18627 Oil Changed Client Info Changed Not Changd Not Changd Sample Status ABNORMAL SEVERE SEVERE CONTAMINATION method limit/base current history1 history2 Water WC Method >0.2 NEG NEG NEG	N SHP 15W40 (- GAL)	Sej	2022	Dec2022 Dec20	23	
Sample Date Client Info 07 Dec 2023 08 Dec 2022 21 Sep 2022 Machine Age hrs Client Info 21435 19089 18627 18627 19089 18627 18627 19089 18627 18627 19089 18627 18627 19089 18627 18627 19089 18627 18627 19089 18627 186	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 21435 19089 18627	Sample Number		Client Info		GFL0080364	GFL0065042	GFL0056061
Dil Age	Sample Date		Client Info		07 Dec 2023	08 Dec 2022	21 Sep 2022
Client Info	•	hrs	Client Info		21435	19089	18627
ABNORMAL SEVERE SEVERE CONTAMINATION method limit/base current history1 history2	Oil Age	hrs	Client Info		21435	19089	18627
CONTAMINATION method limit/base current history1 history2 Water WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 ron ppm ASTM D5185m >120 12 20 7 Chromium ppm ASTM D5185m >20 <1	Oil Changed		Client Info		Changed	Not Changd	Not Changd
Water WC Method >0.2 NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 12 20 7 Chromium ppm ASTM D5185m >20 <1 <1 0 Nickel ppm ASTM D5185m >5 <1 1 0 Silver ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >20 9 19 10 Lead ppm ASTM D5185m >30 2 4 1 Copper ppm ASTM D5185m >30 2 4 1 Tin ppm ASTM D5185m 0 1 4 0 Cadmium ppm ASTM D5185m 0 1 4 0	Sample Status				ABNORMAL	SEVERE	SEVERE
WEAR METALS	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 12 20 7 2 Chromium ppm ASTM D5185m >20 <1	Water		WC Method	>0.2	NEG	NEG	NEG
Concord Con	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1 <1 2 Nickel ppm ASTM D5185m >5 <1 1 0 Titianium ppm ASTM D5185m >2 0 0 0 Siliver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >2 0 0 0 Lead ppm ASTM D5185m >40 <1 <1 3 Copper ppm ASTM D5185m >40 <1 <1 0 <1 Cadmium ppm ASTM D5185m 0 2 1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <th< td=""><td>WEAR METAL</td><td>S</td><td>method</td><td>limit/base</td><td>current</td><td>history1</td><td>history2</td></th<>	WEAR METAL	S	method	limit/base	current	history1	history2
Sickel	ron	ppm	ASTM D5185m	>120	12	20	7
Description	Chromium	ppm	ASTM D5185m	>20	<1	<1	2
Silver	Nickel	ppm	ASTM D5185m	>5	<1	1	0
Aluminum ppm ASTM D5185m >20 9 19 19 10 Lead ppm ASTM D5185m >40 <1 <1 3 Copper ppm ASTM D5185m >330 2 4 1 Tin ppm ASTM D5185m >15 <1 <1 0 Vanadium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 10 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 10 0 0 0 0 0 ASTM D5185m 10 0 951 806 804 Calcium ppm ASTM D5185m 1070 1031 932 926 Phosphorus ppm ASTM D5185m 1150 979 843 877 Zinc ppm ASTM D5185m 1270 1213 1060 1030 Bulfur ppm ASTM D5185m 2060 3101 2881 2692 CONTAMINANTS method limit/base current history1 history2 Billicon ppm ASTM D5185m >20 7 0 <1 CONTAMINANTS method limit/base current history1 history2 Boodium ppm ASTM D5185m >20 7 0 <1 Fuel % ASTM D5185m >20 9.8 9.4 10.5 Soot % % 'ASTM D584 >3 0 9.8 9.4 10.5 Sulfration Abs/.1mm 'ASTM D7414 >25 17.9 13.9 16.3	Titanium	ppm	ASTM D5185m	>2	0	0	0
Lead ppm ASTM D5185m >40 <1 <1 3 Copper ppm ASTM D5185m >330 2 4 1 Tin ppm ASTM D5185m >15 <1 <1 0 Vanadium ppm ASTM D5185m 0 0 0 <1 Cadmium ppm ASTM D5185m 0 1 4 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 4 0 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 4 1 -1 4 0 Magnesium ppm ASTM D5185m 0 4 1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper ppm ASTM D5185m >330 2 4 1 Fin ppm ASTM D5185m >15 <1	Aluminum	ppm	ASTM D5185m	>20	9	19	10
Tin	Lead	ppm	ASTM D5185m	>40	<1	<1	3
Vanadium ppm ASTM D5185m <1 0 <1 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 4 0 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 60 60 50 50 Manganese ppm ASTM D5185m 0 <1 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 951 806 804 Calcium ppm ASTM D5185m 1070 1031 932 926 Phosphorus ppm ASTM D5185m 1270 1213 1060 1030 Sulfur ppm ASTM D5185m 2060 3101 2881 2692 CONTAMINANTS me	Copper	ppm	ASTM D5185m	>330	2	4	1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 4 0 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 60 50 50 Magnesium ppm ASTM D5185m 0 <1	Γin	ppm	ASTM D5185m	>15	<1	<1	0
ADDITIVES	√anadium	ppm	ASTM D5185m		<1	0	<1
Boron ppm ASTM D5185m 0 1 4 0 0 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 60 50 50 Manganese ppm ASTM D5185m 0 <1 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 951 806 804 Calcium ppm ASTM D5185m 1070 1031 932 926 Phosphorus ppm ASTM D5185m 1150 979 843 877 Zinc ppm ASTM D5185m 1270 1213 1060 1030 Sulfur ppm ASTM D5185m 2060 3101 2881 2692 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 4 5 Sodium ppm ASTM D5185m >20 7 0 <1 Fuel % ASTM D3524 >3.0 ▲ 4.3 ● 12.0 ● 12.3 INFRA-RED method limit/base current history1 history2 Soot % % "ASTM D7844 >4 0.3 1 0.3 Nitration Abs/Imm "ASTM D7415 >30 19.7 19.3 20.2 FLUID DEGRADATION method limit/base current history1 history2 FLUID DEGRADATION method limit/base current history1 history2 Nitrotion Abs/Imm "ASTM D7415 >30 19.7 19.3 20.2	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 60 50 50 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 951 806 804 Calcium ppm ASTM D5185m 1070 1031 932 926 Phosphorus ppm ASTM D5185m 1150 979 843 877 Zinc ppm ASTM D5185m 1270 1213 1060 1030 Sulfur ppm ASTM D5185m 2060 3101 2881 2692 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 4 5 Sodium ppm ASTM D5185m 35 4 2 Potassium ppm ASTM D5185m >20	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 60 50 50 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m	0	1	4	0
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 951 806 804 Calcium ppm ASTM D5185m 1070 1031 932 926 Phosphorus ppm ASTM D5185m 1150 979 843 877 Zinc ppm ASTM D5185m 1270 1213 1060 1030 Sulfur ppm ASTM D5185m 2060 3101 2881 2692 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 4 5 Sodium ppm ASTM D5185m >20 7 0 <1 Fuel % ASTM D5185m >20 7 0 <1 Fuel % ASTM D5185m >20 7 0 <1 Fuel % ASTM D5185m >20	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 951 806 804 Calcium ppm ASTM D5185m 1070 1031 932 926 Phosphorus ppm ASTM D5185m 1150 979 843 877 Zinc ppm ASTM D5185m 1270 1213 1060 1030 Sulfur ppm ASTM D5185m 2060 3101 2881 2692 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 4 5 Solium ppm ASTM D5185m >20 7 0 <1	Molybdenum	ppm			60	50	50
Calcium ppm ASTM D5185m 1070 1031 932 926 Phosphorus ppm ASTM D5185m 1150 979 843 877 Zinc ppm ASTM D5185m 1270 1213 1060 1030 Sulfur ppm ASTM D5185m 2060 3101 2881 2692 CONTAMINANTS method limit/base current history1 history2 Golium ppm ASTM D5185m >25 6 4 5 Sodium ppm ASTM D5185m >20 7 0 <1	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 1150 979 843 877 Zinc ppm ASTM D5185m 1270 1213 1060 1030 Sulfur ppm ASTM D5185m 2060 3101 2881 2692 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 4 5 Sodium ppm ASTM D5185m >20 7 0 <1	Magnesium	ppm	ASTM D5185m	1010	951	806	804
Zinc ppm ASTM D5185m 1270 1213 1060 1030 Sulfur ppm ASTM D5185m 2060 3101 2881 2692 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 4 5 Sodium ppm ASTM D5185m >20 7 0 <1	Calcium	ppm	ASTM D5185m	1070	1031	932	926
Sulfur ppm ASTM D5185m 2060 3101 2881 2692 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 4 5 Sodium ppm ASTM D5185m 35 4 2 Potassium ppm ASTM D5185m >20 7 0 <1	Phosphorus	ppm	ASTM D5185m	1150	979	843	877
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 4 5 Sodium ppm ASTM D5185m 35 4 2 Potassium ppm ASTM D5185m >20 7 0 <1	Zinc	ppm	ASTM D5185m	1270	1213	1060	1030
Silicon ppm ASTM D5185m >25 6 4 5 Sodium ppm ASTM D5185m 35 4 2 Potassium ppm ASTM D5185m >20 7 0 <1 Fuel % ASTM D3524 >3.0 4.3 12.0 12.3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 1 0.3 Nitration Abs/cm *ASTM D7624 >20 9.8 9.4 10.5 Sulfation Abs/.1mm *ASTM D7415 >30 19.7 19.3 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.9 13.9 16.3	Sulfur	ppm	ASTM D5185m	2060	3101	2881	2692
Sodium ppm ASTM D5185m 35 4 2 Potassium ppm ASTM D5185m >20 7 0 <1	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 7 0 <1 Fuel % ASTM D3524 >3.0 ▲ 4.3 ■ 12.0 ■ 12.3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 1 0.3 Nitration Abs/cm *ASTM D7624 >20 9.8 9.4 10.5 Sulfation Abs/.1mm *ASTM D7415 >30 19.7 19.3 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.9 13.9 16.3	Silicon	ppm	ASTM D5185m	>25	6	4	5
Fuel	Sodium	ppm	ASTM D5185m		35	4	2
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 1 0.3 Nitration Abs/cm *ASTM D7624 >20 9.8 9.4 10.5 Sulfation Abs/.1mm *ASTM D7415 >30 19.7 19.3 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.9 13.9 16.3	Potassium	ppm	ASTM D5185m	>20	7	0	<1
Soot % *ASTM D7844 >4 0.3 1 0.3 Nitration Abs/cm *ASTM D7624 >20 9.8 9.4 10.5 Sulfation Abs/.1mm *ASTM D7415 >30 19.7 19.3 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.9 13.9 16.3	Fuel	%	ASTM D3524	>3.0	4.3	12.0	12.3
Nitration Abs/cm *ASTM D7624 >20 9.8 9.4 10.5 Sulfation Abs/.1mm *ASTM D7415 >30 19.7 19.3 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.9 13.9 16.3	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 19.7 19.3 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.9 13.9 16.3	Soot %	%	*ASTM D7844	>4	0.3	1	0.3
Sulfation Abs/.1mm *ASTM D7415 >30 19.7 19.3 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.9 13.9 16.3	Nitration	Abs/cm	*ASTM D7624	>20	9.8	9.4	10.5
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30			20.2
	FLUID DEGRAI	OATION	method	limit/base	current	history1	history2
	Oxidation	Ahs/ 1mm	*ASTM D7414	>25	17 0	13.9	16.3
		/ 100/	7101111 07 111	0	17.5	10.0	10.0



OIL ANALYSIS REPORT







Laboratory Sample No. Lab Number **Unique Number**

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0080364 : 06068238

: 10844915

Recieved : 23 Jan 2024 Diagnosed

: 25 Jan 2024 Diagnostician : Wes Davis Test Package : FLEET (Additional Tests: PercentFuel)

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

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