

OIL ANALYSIS REPORT

Sample Rating Trend









Machine Id **419008-1361**

Component **Diesel Engine**

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: Sample only)

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

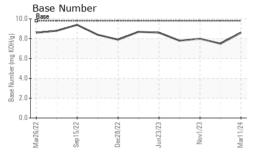
Fluid Condition

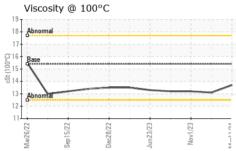
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Machine Age	N SHP 15W40 (- GAL)	Mar 2022	Sep2022 Dec2022	Jun2023 Nov2023	Mar2024		
Sample Date	SAMPLE INFORT	MATION	method	limit/base	current	history1	history2	
Machine Age	Sample Number		Client Info		GFL0101614	GFL0101623	GFL0094843	
Oil Age hrs Client Info 95 452 514 Oil Changed Client Info Not Changed Not Changed	Sample Date		Client Info		11 Mar 2024	22 Feb 2024	01 Nov 2023	
Oil Changed Client Info Not Changed NORMAL NORMAL NORMAL NORMAL NORMAL	Machine Age	hrs	Client Info		7588	7493	6962	
NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2	Oil Age	hrs	Client Info		95	452	514	
Fuel	Oil Changed		Client Info		Not Changd	Changed	Not Changd	
Fuel	Sample Status				NORMAL	NORMAL	NORMAL	
Water WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG NEG WEAR METALS method limil/base current history1 history2 Iron ppm ASTM D5185m >120 1 10 10 Chromium ppm ASTM D5185m >20 0 0 <1 Nickel ppm ASTM D5185m >5 0 0 <1 Silver ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >20 1 2 2 Aluminum ppm ASTM D5185m >40 <1 0 2 Copper ppm ASTM D5185m >40 <1 4 2 Tin ppm ASTM D5185m >40 <1 1 1 Vanadium ppm ASTM D5185m 0 0 0 0 <td col<="" th=""><th>CONTAMINAT</th><th>ION</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></td>	<th>CONTAMINAT</th> <th>ION</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0	
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG	
Irron	Glycol		WC Method		NEG	NEG	NEG	
Chromium ppm ASTM D5185m >20 0 0 <1 Nickel ppm ASTM D5185m >5 0 0 <1	WEAR METAL	S	method	limit/base	current	history1	history2	
Nickel	Iron	ppm	ASTM D5185m	>120	1	10	10	
Description	Chromium	ppm	ASTM D5185m	>20	0	0	<1	
Description	Nickel	ppm	ASTM D5185m	>5	0	0	<1	
Aluminum	Titanium	ppm	ASTM D5185m	>2	0	0	0	
Aluminum	Silver	ppm	ASTM D5185m	>2	0	0	<1	
Copper ppm ASTM D5185m >330 <1 4 2 Tin ppm ASTM D5185m >15 <1	Aluminum	ppm	ASTM D5185m	>20	1	2	2	
Copper	Lead	ppm	ASTM D5185m	>40	<1	0	2	
Tin	Copper		ASTM D5185m	>330	<1	4	2	
Vanadium ppm ASTM D5185m 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 7 4 5 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 <1 <1 <1 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 875 962 919 Calcium ppm ASTM D5185m 1070 978 1110 1022 Phosphorus ppm ASTM D5185m 1270 1151 1295 1248 Sulfur ppm ASTM D5185m 1270 1151 1295 1248 Sulfur ppm ASTM D5185m >25 3 4		ppm	ASTM D5185m	>15	<1	<1	1	
ADDITIVES	Vanadium		ASTM D5185m		0	0	<1	
Boron ppm ASTM D5185m 0 0 0 0 0 0 0 0 0	Cadmium	ppm	ASTM D5185m		0	0	0	
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 55 64 60 Manganese ppm ASTM D5185m 0 <1	ADDITIVES		method	limit/base	current	history1	history2	
Molybdenum ppm ASTM D5185m 60 55 64 60 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 875 962 919 Calcium ppm ASTM D5185m 1070 978 1110 1022 Phosphorus ppm ASTM D5185m 1150 982 1099 953 Zinc ppm ASTM D5185m 1270 1151 1295 1248 Sulfur ppm ASTM D5185m 2060 3359 3138 2997 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 4 Sodium ppm ASTM D5185m >20 <1 3 3 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 >4	Boron	ppm	ASTM D5185m	0	7	4	5	
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 875 962 919 Calcium ppm ASTM D5185m 1070 978 1110 1022 Phosphorus ppm ASTM D5185m 1150 982 1099 953 Zinc ppm ASTM D5185m 1270 1151 1295 1248 Sulfur ppm ASTM D5185m 2060 3359 3138 2997 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 4 Sodium ppm ASTM D5185m >20 <1	Barium	ppm	ASTM D5185m	0	0	0	0	
Magnesium ppm ASTM D5185m 1010 875 962 919 Calcium ppm ASTM D5185m 1070 978 1110 1022 Phosphorus ppm ASTM D5185m 1150 982 1099 953 Zinc ppm ASTM D5185m 1270 1151 1295 1248 Sulfur ppm ASTM D5185m 2060 3359 3138 2997 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 4 Sodium ppm ASTM D5185m >20 <1 4 2 Potassium ppm ASTM D5185m >20 <1 3 3 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7624 >20 5.1 7.3 7.7 Sulfation Abs/cmm *ASTM D7415 >30	Molybdenum	ppm	ASTM D5185m	60	55	64	60	
Calcium ppm ASTM D5185m 1070 978 1110 1022 Phosphorus ppm ASTM D5185m 1150 982 1099 953 Zinc ppm ASTM D5185m 1270 1151 1295 1248 Sulfur ppm ASTM D5185m 2060 3359 3138 2997 CONTAMINANTS method limit/base current history1 history2 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 4 Sodium ppm ASTM D5185m >20 <1	Manganese	ppm	ASTM D5185m	0	<1	<1	<1	
Phosphorus ppm ASTM D5185m 1150 982 1099 953 Zinc ppm ASTM D5185m 1270 1151 1295 1248 Sulfur ppm ASTM D5185m 2060 3359 3138 2997 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 4 Sodium ppm ASTM D5185m >20 <1	Magnesium	ppm	ASTM D5185m	1010	875	962	919	
Zinc ppm ASTM D5185m 1270 1151 1295 1248 Sulfur ppm ASTM D5185m 2060 3359 3138 2997 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 4 Sodium ppm ASTM D5185m >20 <1	Calcium	ppm	ASTM D5185m	1070	978	1110	1022	
Sulfur ppm ASTM D5185m 2060 3359 3138 2997 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 4 Sodium ppm ASTM D5185m <1	Phosphorus	ppm	ASTM D5185m	1150	982	1099	953	
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 4 4 Sodium ppm ASTM D5185m <1	Zinc	ppm	ASTM D5185m	1270	1151	1295	1248	
Silicon ppm ASTM D5185m >25 3 4 4 Sodium ppm ASTM D5185m <1 4 2 Potassium ppm ASTM D5185m >20 <1 3 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.5 0.6 Nitration Abs/cm *ASTM D7624 >20 5.1 7.3 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 17.3 18.7 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.3 14.1 14.6	Sulfur	ppm	ASTM D5185m	2060	3359	3138	2997	
Sodium ppm ASTM D5185m <1 4 2 Potassium ppm ASTM D5185m >20 <1 3 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.5 0.6 Nitration Abs/cm *ASTM D7624 >20 5.1 7.3 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 17.3 18.7 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.3 14.1 14.6	CONTAMINAN	TS	method	limit/base	current	history1	history2	
Potassium ppm ASTM D5185m >20 <1 3 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.5 0.6 Nitration Abs/cm *ASTM D7624 >20 5.1 7.3 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 17.3 18.7 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.3 14.1 14.6	Silicon	ppm	ASTM D5185m	>25	3	4	4	
INFRA-RED	Sodium	ppm	ASTM D5185m		<1	4	2	
Soot % % *ASTM D7844 >4 0.2 0.5 0.6 Nitration Abs/cm *ASTM D7624 >20 5.1 7.3 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 17.3 18.7 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.3 14.1 14.6	Potassium	ppm	ASTM D5185m	>20	<1	3	3	
Nitration Abs/cm *ASTM D7624 >20 5.1 7.3 7.7 Sulfation Abs/.1mm *ASTM D7415 >30 17.3 18.7 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.3 14.1 14.6	INFRA-RED		method	limit/base	current	history1	history2	
Sulfation Abs/.1mm *ASTM D7415 >30 17.3 18.7 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.3 14.1 14.6	Soot %	%	*ASTM D7844	>4	0.2	0.5	0.6	
Sulfation Abs/.1mm *ASTM D7415 >30 17.3 18.7 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.3 14.1 14.6	Nitration	Abs/cm	*ASTM D7624	>20	5.1	7.3	7.7	
Oxidation Abs/.1mm *ASTM D7414 >25 13.3 14.1 14.6								
	FLUID DEGRAD	OATION	method	limit/base	current	history1	history2	
	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.3	14.1	14.6	
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.6	7.5	8.0	



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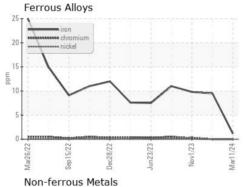


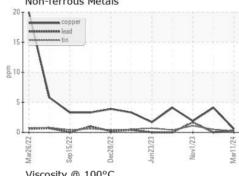


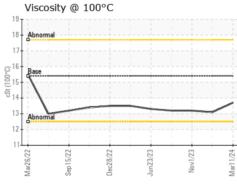
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

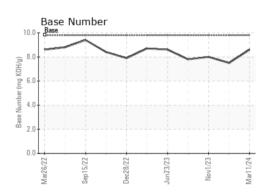
FLUID PROPI	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.7	13.1	13.2

GRAPHS













Certificate L2367

Laboratory Sample No.

: GFL0101614 Lab Number : 06117676 Unique Number: 10926509 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 13 Mar 2024

Tested Diagnosed

: 14 Mar 2024 : 15 Mar 2024 - Don Baldridge

GFL Environmental - 625 - Harrison Hauling 4102 Industrial Pkwy

Harrison, MI US 48625

Contact: Glenda Standen gstanden@gflenv.com

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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