

OIL ANALYSIS REPORT

Sample Rating Trend





420096 - SW4024

Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- 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

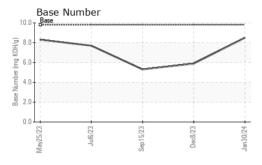
Fluid Condition

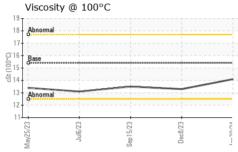
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number Client Info GFL0108108 GFL0094106 GFL0094106 GFL0094106 GR Dec 2023 15 Sep 202 Machine Age hrs Client Info 0 134132 125340 Oil Age hrs Client Info 0 134132 125340 Oil Changed Client Info Not Changed Changed Changed NORMAL N	N SHP 15W40 (-	GAL)	May2023	Jul2023	Sep2023 Dec2023	Jan2024	
Sample Date	SAMPLE INFOR	RMATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 9202 134132 125340	Sample Number		Client Info		GFL0108108	GFL0094060	GFL0094100
Dil Age	Sample Date		Client Info		30 Jan 2024	08 Dec 2023	15 Sep 2023
Contained Client Info Not Changed Normal Normal	Machine Age	hrs	Client Info		9202	134132	125340
NORMAL NORMAL NORMAL NORMAL CONTAMINATION method minit/base current history1 history2 history3 history4 history4 history4 history4 history4 history5 hi	Oil Age	hrs	Client Info		0	134132	125340
CONTAMINATION	Oil Changed		Client Info		Not Changd	Changed	Changed
Water	Sample Status				NORMAL	NORMAL	NORMAL
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 >120 7 5 4 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >5 <1 <1 0 Silver ppm ASTM D5185m >2 <1 <1 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 2 2 2 Lead ppm ASTM D5185m >40 <1 <1 1 Copper ppm ASTM D5185m >330 <1 2 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	CONTAMINAT	ΓΙΟΝ	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 history2	Water		WC Method	>0.2	NEG	NEG	NEG
Chromium	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METAL	_S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>120	7	5	4
Titanium	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Titanium ppm ASTM D5185m >2 <1 <1 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 2 2 2 2 Lead ppm ASTM D5185m >330 <1 <1 1 Copper ppm ASTM D5185m >330 <1 2 <1 Tin ppm ASTM D5185m 0 <1 <1 <1 Vanadium ppm ASTM D5185m 0 <1 <1 <1 Vanadium ppm ASTM D5185m 0 <1 <1 <1 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	Nickel	ppm	ASTM D5185m	>5	<1	<1	0
Silver	Titanium		ASTM D5185m	>2	<1	<1	0
Lead	Silver				0	0	0
Lead	Aluminum		ASTM D5185m	>20		2	2
Copper ppm ASTM D5185m >330 <1 2 <1 Tin ppm ASTM D5185m >15 <1					<1	<1	
Tin							
Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m <1 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 13 0 0 Molybdenum ppm ASTM D5185m 0 64 48 41 Manganese ppm ASTM D5185m 0 <1 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 938 23 14 Calcium ppm ASTM D5185m 1070 1046 2517 2654 Phosphorus ppm ASTM D5185m 1270 1235 1207 1340 Sulfur ppm ASTM D5185m 2060 3067 3540 3965 CONTAMINANTS method limit/base current <th< td=""><td>• •</td><td></td><td></td><td></td><th></th><td></td><td></td></th<>	• •						
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Boron					_		
Barium ppm ASTM D5185m 0 13 0 0 Molybdenum ppm ASTM D5185m 60 64 48 41 Manganese ppm ASTM D5185m 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Barium	Boron	ppm	ASTM D5185m	0	0	0	0
Molybdenum ppm ASTM D5185m 60 64 48 41 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 938 23 14 Calcium ppm ASTM D5185m 1070 1046 2517 2654 Phosphorus ppm ASTM D5185m 1150 957 1014 1117 Zinc ppm ASTM D5185m 1270 1235 1207 1340 Sulfur ppm ASTM D5185m 2060 3067 3540 3965 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 15 7 12 Sodium ppm ASTM D5185m >20 2 5 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844	Barium	ppm	ASTM D5185m	0	13	0	0
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 938 23 14 Calcium ppm ASTM D5185m 1070 1046 2517 2654 Phosphorus ppm ASTM D5185m 1150 957 1014 1117 Zinc ppm ASTM D5185m 1270 1235 1207 1340 Sulfur ppm ASTM D5185m 2060 3067 3540 3965 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 15 7 12 Sodium ppm ASTM D5185m >20 2 5 1 Potassium ppm ASTM D5185m >20 2 5 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624	Molybdenum				64	48	41
Magnesium ppm ASTM D5185m 1010 938 23 14 Calcium ppm ASTM D5185m 1070 1046 2517 2654 Phosphorus ppm ASTM D5185m 1150 957 1014 1117 Zinc ppm ASTM D5185m 1270 1235 1207 1340 Sulfur ppm ASTM D5185m 2060 3067 3540 3965 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 15 7 12 Sodium ppm ASTM D5185m >20 2 5 1 Potassium ppm ASTM D5185m >20 2 5 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.5 0.2 0.2 Nitration Abs/:nm *ASTM D7415	•		ASTM D5185m	0	<1	<1	<1
Calcium ppm ASTM D5185m 1070 1046 2517 2654 Phosphorus ppm ASTM D5185m 1150 957 1014 1117 Zinc ppm ASTM D5185m 1270 1235 1207 1340 Sulfur ppm ASTM D5185m 2060 3067 3540 3965 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 15 7 12 Sodium ppm ASTM D5185m >20 3 2 Potassium ppm ASTM D5185m >20 2 5 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.5 0.2 0.2 Nitration Abs/cm *ASTM D7415 >30 18.9 19.8 20.2 FLUID DEGRADATION *ASTM D7414	-					23	14
Phosphorus ppm ASTM D5185m 1150 957 1014 1117 Zinc ppm ASTM D5185m 1270 1235 1207 1340 Sulfur ppm ASTM D5185m 2060 3067 3540 3965 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 15 7 12 Sodium ppm ASTM D5185m >0 3 2 Potassium ppm ASTM D5185m >20 2 5 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.5 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 6.5 8.2 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 18.9 19.8 20.2 FLUID DEGRADATION method <td< td=""><td></td><td></td><td></td><td></td><th></th><td></td><td>2654</td></td<>							2654
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Sulfur ppm ASTM D5185m 2060 3067 3540 3965 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 15 7 12 Sodium ppm ASTM D5185m 0 3 2 Potassium ppm ASTM D5185m >20 2 5 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.5 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 6.5 8.2 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 18.9 19.8 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.1 12.0 13.1							
Silicon ppm ASTM D5185m >25 15 7 12 Sodium ppm ASTM D5185m 0 3 2 Potassium ppm ASTM D5185m >20 2 5 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.5 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 6.5 8.2 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 18.9 19.8 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.1 12.0 13.1							
Sodium ppm ASTM D5185m 0 3 2 Potassium ppm ASTM D5185m >20 2 5 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.5 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 6.5 8.2 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 18.9 19.8 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.1 12.0 13.1	CONTAMINAN	NTS	method	limit/base	current	history1	history2
Sodium ppm ASTM D5185m 0 3 2 Potassium ppm ASTM D5185m >20 2 5 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.5 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 6.5 8.2 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 18.9 19.8 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.1 12.0 13.1	Silicon	ppm	ASTM D5185m	>25	15	7	12
Potassium ppm ASTM D5185m >20 2 5 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.5 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 6.5 8.2 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 18.9 19.8 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.1 12.0 13.1	Sodium		ASTM D5185m		0	3	2
Soot % % *ASTM D7844 >4 0.5 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 6.5 8.2 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 18.9 19.8 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.1 12.0 13.1	Potassium		ASTM D5185m	>20			
Nitration Abs/cm *ASTM D7624 >20 6.5 8.2 8.3 Sulfation Abs/.1mm *ASTM D7615 >30 18.9 19.8 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.1 12.0 13.1	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 18.9 19.8 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.1 12.0 13.1	Soot %	%	*ASTM D7844	>4	0.5	0.2	0.2
Sulfation Abs/.1mm *ASTM D7415 >30 18.9 19.8 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.1 12.0 13.1	Nitration	Abs/cm	*ASTM D7624	>20	6.5	8.2	8.3
Oxidation Abs/.1mm *ASTM D7414 >25 14.1 12.0 13.1							
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.1	12.0	13.1
	Base Number (BN)		ASTM D2896		8.5	5.9	5.3



OIL ANALYSIS REPORT

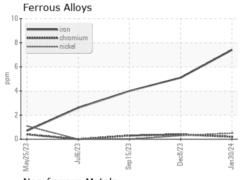


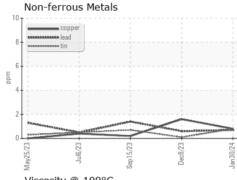


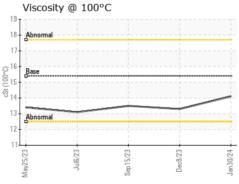
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

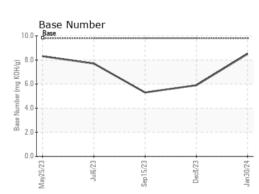
FLUID PROPERTIES		method				history2	
Visc @ 100°C	cSt	ASTM D445	15.4	14.1	13.3	13.5	

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number : 06086532

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0108108

Received **Tested** Unique Number: 10873977 Diagnosed Test Package : FLEET

: 12 Feb 2024 : 13 Feb 2024 : 13 Feb 2024 - Wes Davis

GFL Environmental - 983 - Sugar Land Hauling

16011 West Belfort Street Sugar Land, TX US 77498

Contact: Adrian Martinez adrianmartinez@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)

Report Id: GFL983 [WUSCAR] 06086532 (Generated: 02/13/2024 13:43:05) Rev: 1

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