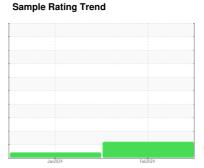


OIL ANALYSIS REPORT



Machine Id 913084 Component **Diesel Engine**

PETRO CANADA DURON SHP 15W40 (36 QTS)





DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. 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.

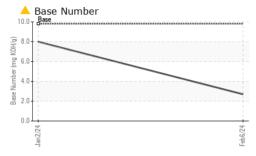
Fluid Condition

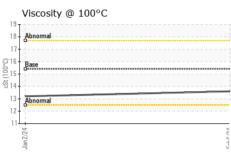
The BN level is low. The condition of the oil is acceptable for the time in service.

Client Info GFL0110092 GFL0104252 GRample Number Client Info GFeb 2024 02 Jan 2024 GRample Nather Client Info GFeb 2024 02 Jan 2024 GRample Nather Client Info Geo 127 Grample Status Glient Info Geo Changed Changed Changed Changed ABNORMAL GRAMPHAL GRAMPHAL	N SHP 15W40 (3	6 QTS)		Jan 2024	Feb 2024		
Cample Date Client Info 06 Feb 2024 02 Jan 2024	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age	Sample Number		Client Info		GFL0110092	GFL0104252	
Dil Changed	Sample Date		Client Info		06 Feb 2024	02 Jan 2024	
Client Info	Machine Age	hrs	Client Info		131	127	
CONTAMINATION method limit/base current history1 history2 value WC Method >3.0 <1.0 <1.0 <	Oil Age	hrs	Client Info		600	127	
CONTAMINATION method limit/base current history1 history2	Oil Changed		Client Info		Changed	Changed	
Water	Sample Status				ABNORMAL	ABNORMAL	
Water Glycol WC Method >0.2 NEG NEG	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 93 5 Chromium ppm ASTM D5185m >20 3 <1	Water		WC Method	>0.2	NEG	NEG	
Chromium	Glycol		WC Method		NEG	NEG	
Chromium ppm ASTM D5185m >20 3 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel	ron	ppm	ASTM D5185m	>120	93	5	
Silver	Chromium	ppm	ASTM D5185m	>20	3	<1	
Silver	Nickel			>5	8	0	
Silver	Titanium		ASTM D5185m	>2	<1	0	
Lead	Silver				<1	0	
Copper	Aluminum	ppm	ASTM D5185m	>20	3	2	
Vanadium	Lead	ppm	ASTM D5185m	>40	1	<1	
Vanadium	Copper	ppm	ASTM D5185m	>330	46	<1	
ADDITIVES					4	<1	
ADDITIVES	Vanadium	ppm	ASTM D5185m		<1	0	
Boron	Cadmium	ppm	ASTM D5185m		<1	0	
Sarium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 85 50 Manganese ppm ASTM D5185m 0 3 <1	Boron	ppm	ASTM D5185m	0	4	2	
Manganese ppm ASTM D5185m 0 3 <1 Magnesium ppm ASTM D5185m 1010 1247 856 Calcium ppm ASTM D5185m 1070 1508 898 Phosphorus ppm ASTM D5185m 1150 1337 1031 Zinc ppm ASTM D5185m 1270 1641 1179 Sulfur ppm ASTM D5185m 2060 3249 3152 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 12 8 Sodium ppm ASTM D5185m >20 5 3 Potassium ppm ASTM D5185m >20 5 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624	Barium	ppm	ASTM D5185m	0	<1	<1	
Magnesium ppm ASTM D5185m 1010 1247 856 Calcium ppm ASTM D5185m 1070 1508 898 Phosphorus ppm ASTM D5185m 1150 1337 1031 Zinc ppm ASTM D5185m 1270 1641 1179 Sulfur ppm ASTM D5185m 2060 3249 3152 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 12 8 Sodium ppm ASTM D5185m >20 5 3 Potassium ppm ASTM D5185m >20 5 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 16.1 3.9 Sulfation Abs/.1mm *ASTM D7414 </td <td>Molybdenum</td> <td>ppm</td> <td>ASTM D5185m</td> <td>60</td> <td>85</td> <td>50</td> <td></td>	Molybdenum	ppm	ASTM D5185m	60	85	50	
Calcium ppm ASTM D5185m 1070 1508 898 Phosphorus ppm ASTM D5185m 1150 1337 1031 Zinc ppm ASTM D5185m 1270 1641 1179 Sulfur ppm ASTM D5185m 2060 3249 3152 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 12 8 Sodium ppm ASTM D5185m >20 5 3 Potassium ppm ASTM D5185m >20 5 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.5 0 Nitration Abs/.1mm *ASTM D7415 >30 27.1 17.9 FLUID DEGRADATION *ASTM D7414 >	Manganese	ppm	ASTM D5185m	0	3	<1	
Phosphorus ppm ASTM D5185m 1150 1337 1031 Zinc ppm ASTM D5185m 1270 1641 1179 Sulfur ppm ASTM D5185m 2060 3249 3152 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 12 8 Sodium ppm ASTM D5185m 8 2 Potassium ppm ASTM D5185m >20 5 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.5 0 Nitration Abs/cm *ASTM D7624 >20 16.1 3.9 Sulfation Abs/.1mm *ASTM D7415 >30 27.1 17.9 FLUID DEGRADATION method limit/base	Magnesium	ppm	ASTM D5185m	1010	1247	856	
Zinc	Calcium	ppm	ASTM D5185m	1070	1508	898	
Sulfur ppm ASTM D5185m 2060 3249 3152 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 12 8 Sodium ppm ASTM D5185m 8 2 Potassium ppm ASTM D5185m >20 5 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.5 0 Nitration Abs/cm *ASTM D7624 >20 16.1 3.9 Sulfation Abs/.1mm *ASTM D7415 >30 27.1 17.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 29.0 13.0	Phosphorus	ppm	ASTM D5185m	1150	1337	1031	
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 12 8 Sodium ppm ASTM D5185m 8 2 Potassium ppm ASTM D5185m >20 5 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.5 0 Nitration Abs/cm *ASTM D7624 >20 16.1 3.9 Sulfation Abs/.1mm *ASTM D7415 >30 27.1 17.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 29.0 13.0	Zinc	ppm	ASTM D5185m	1270	1641	1179	
Solition ppm ASTM D5185m >25 12 8	Sulfur	ppm	ASTM D5185m	2060	3249	3152	
Sodium ppm ASTM D5185m 8 2 Potassium ppm ASTM D5185m >20 5 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.5 0 Nitration Abs/cm *ASTM D7624 >20 16.1 3.9 Sulfation Abs/.1mm *ASTM D7415 >30 27.1 17.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 29.0 13.0	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 5 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.5 0 Nitration Abs/cm *ASTM D7624 >20 16.1 3.9 Sulfation Abs/.1mm *ASTM D7415 >30 27.1 17.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 29.0 13.0	Silicon	ppm	ASTM D5185m	>25	12	8	
INFRA-RED	Sodium	ppm	ASTM D5185m		8	2	
Soot % % *ASTM D7844 >4 1.5 0 Nitration Abs/cm *ASTM D7624 >20 16.1 3.9 Sulfation Abs/.1mm *ASTM D7415 >30 27.1 17.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 29.0 13.0	Potassium	ppm	ASTM D5185m	>20	5	3	
Nitration Abs/cm *ASTM D7624 >20 16.1 3.9 Sulfation Abs/.1mm *ASTM D7415 >30 27.1 17.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 29.0 13.0	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 27.1 17.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 29.0 13.0	Soot %	%	*ASTM D7844	>4	1.5	0	
Sulfation Abs/.1mm *ASTM D7415 >30 27.1 17.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 29.0 13.0	Nitration	Abs/cm	*ASTM D7624	>20	16.1	3.9	
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30			
	FLUID DEGRAD	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	29.0	13.0	
	Base Number (BN)	mg KOH/g			<u>^</u> 2.7	8.0	



OIL ANALYSIS REPORT



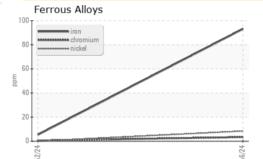


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Precipitate	scalar	*Visual	NONE	NONE	NONE	
Silt	scalar	*Visual	NONE	NONE	NONE	
Debris	scalar	*Visual	NONE	NONE	▲ MODER	
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Appearance	scalar	*Visual	NORML	NORML	NORML	
Odor	scalar	*Visual	NORML	NORML	NORML	
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
Free Water	scalar	*Visual		NEG	NEG	
FLUID PROPE	RTIFS	method	limit/hase	current	history1	history2

13.6

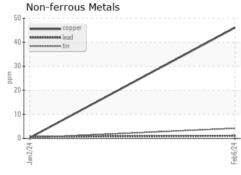
13.2

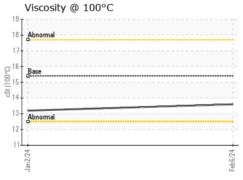
Visc @	100°C
GBA	рцс

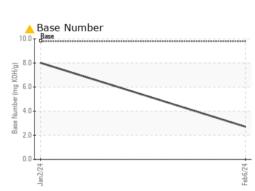


cSt

ASTM D445 15.4











Laboratory Sample No.

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

: GFL0110092 Lab Number : 06083386 Unique Number : 10870831

Received : 08 Feb 2024 **Tested** Diagnosed

: 08 Feb 2024 : 09 Feb 2024 - Don Baldridge

GFL Environmental - 410 - Michigan West

39000 Van Born Rd Wayne, MI US 48184

Contact: Belal Dgheish bdgheish@gflenv.com T: (734)714-2340

Test Package : FLEET Certificate L2367 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)