

OIL ANALYSIS REPORT



Machine Id 814058 Component **Diesel Engine**

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





DIAGNOSIS

Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Metal levels are typical for a new component breaking in.

Contamination

Fuel content negligible. Elemental level of silicon (Si) above normal indicating ingress of seal material.

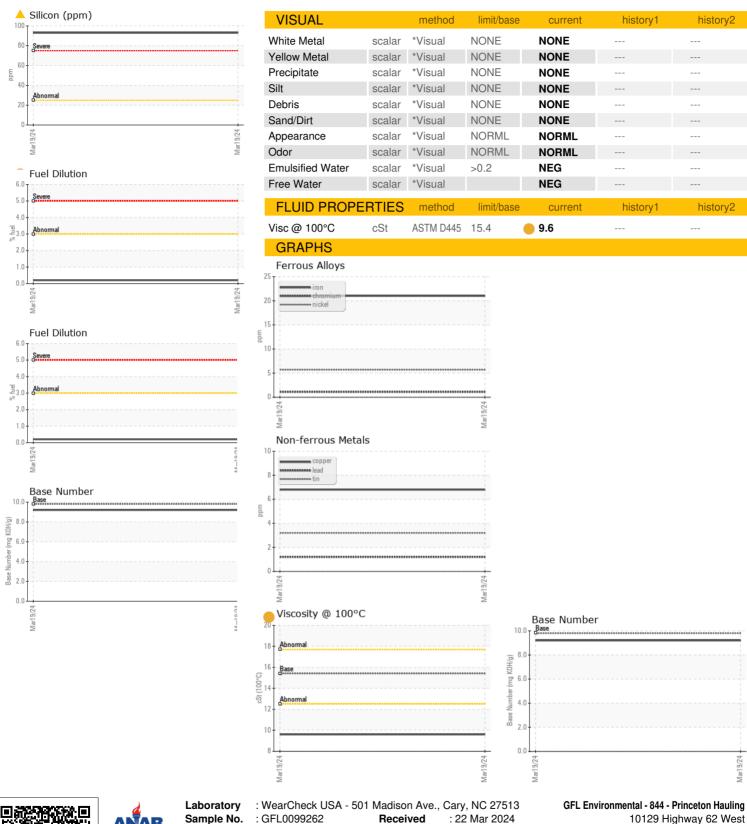
Fluid Condition

The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

Cample Date Client Info 19 Mar 2024	N SHP 15W40 (GAL)			Mar2024		
Sample Date Client Info 19 Mar 2024	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info	Sample Number		Client Info		GFL0099262		
Dil Changed	Sample Date		Client Info		19 Mar 2024		
Contamper Client Info Not Change Client Info ABNORMAL Contamper	•	hrs	Client Info		193		
ABNORMAL	Oil Age	hrs	Client Info		0		
CONTAMINATION method limit/base current history1 history2	Oil Changed		Client Info		Not Changd		
Water WC Method >0.2 NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 21 Chromium ppm ASTM D5185m >20 1 Vickel ppm ASTM D5185m >5 6 Silver ppm ASTM D5185m >2 <1 Silver ppm ASTM D5185m >2 <1 Aluminum ppm ASTM D5185m >20 6 Copper ppm ASTM D5185m >40 1 Copper ppm ASTM D5185m >330 7 Tin ppm ASTM D5185m >15 3 ADDITIVES method limit/base current history1 histor	Sample Status				ABNORMAL		
WEAR METALS	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS method limit/base current history1 history2 ron ppm ASTM D5185m >120 21 Chromium ppm ASTM D5185m >20 1 Nickel ppm ASTM D5185m >5 6 Silver ppm ASTM D5185m >2 <1	Water		WC Method	>0.2	NEG		
Chromium	Glycol		WC Method		NEG		
Description	WEAR METAL	.S	method	limit/base	current	history1	history2
ASTM D5185m >5 6	ron	ppm	ASTM D5185m	>120	21		
ASTM D5185m >2	Chromium	ppm	ASTM D5185m	>20	1		
Silver	Nickel	ppm	ASTM D5185m	>5	6		
Ast Moderation South Delias Sou	Titanium	ppm	ASTM D5185m	>2	<1		
December	Silver	ppm	ASTM D5185m	>2	<1		
Copper	Aluminum	ppm	ASTM D5185m	>20	6		
Tin	_ead	ppm	ASTM D5185m	>40	1		
Vanadium ppm ASTM D5185m <1 Cadmium ppm ASTM D5185m <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 373 Barium ppm ASTM D5185m 0 5 Molybdenum ppm ASTM D5185m 0 4 Manganese ppm ASTM D5185m 0 1010 675 Magnesium ppm ASTM D5185m 1070 1386 Calcium ppm ASTM D5185m 1070 1386 Phosphorus ppm ASTM D5185m 1270 824 Sulfur ppm ASTM D5185m 2060 2568 CONTAMINANTS method limit/base current <	Copper	ppm	ASTM D5185m	>330	7		
ADDITIVES	Γin	ppm	ASTM D5185m	>15	3		
## ADDITIVES method limit/base current history1 history2 ## Boron ppm ASTM D5185m 0 373 ## Barium ppm ASTM D5185m 0 5 ## Manganese ppm ASTM D5185m 0 4 ## Manganese ppm ASTM D5185m 0 4 ## Manganesium ppm ASTM D5185m 1010 675 ## Calcium ppm ASTM D5185m 1070 1386 ## Phosphorus ppm ASTM D5185m 1150 735 ## Buffur ppm ASTM D5185m 1270 824 ## CONTAMINANTS method limit/base current history1 history2 ## Bodium ppm ASTM D5185m >25 93 ## Bodium ppm ASTM D5185m >25 93 ## Bodium ppm ASTM D5185m >20 6 ## Bodium ppm ASTM D7844 >4 0.2 ## Bodium Abs/cm *ASTM D7845 >30 25.6 ## Bodium Abs/cm *ASTM D7845 >30 25.6 ## Bodium Abs/cm *ASTM D7415 >30 25.6 ## Bodium Abs/cm *ASTM D7415 >25 20.9	/anadium	ppm	ASTM D5185m		<1		
Soron ppm ASTM D5185m 0 373	Cadmium	ppm	ASTM D5185m		<1		
### ASTM D5185m O	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 124 Manganese ppm ASTM D5185m 0 4 Magnesium ppm ASTM D5185m 1010 675 Calcium ppm ASTM D5185m 1070 1386 Phosphorus ppm ASTM D5185m 1150 735 Zinc ppm ASTM D5185m 1270 824 Zinc ppm ASTM D5185m 2060 2568 Sulfur ppm ASTM D5185m 2060 2568 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 93 Potassium ppm ASTM D5185m 1 Fuel % ASTM D3524 >3.0	Boron	ppm	ASTM D5185m	0	373		
Manganese ppm ASTM D5185m 0 4 Magnesium ppm ASTM D5185m 1010 675 Calcium ppm ASTM D5185m 1070 1386 Phosphorus ppm ASTM D5185m 1150 735 Zinc ppm ASTM D5185m 1270 824 Zinc ppm ASTM D5185m 2060 2568 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 93 Coldium ppm ASTM D5185m >20 6 Potassium ppm ASTM D5185m >20 6 Fuel % ASTM D3185m >20 6 Fuel % ASTM D7844 >	Barium	ppm	ASTM D5185m	0	5		
Magnesium ppm ASTM D5185m 1010 675 Calcium ppm ASTM D5185m 1070 1386 Phosphorus ppm ASTM D5185m 1150 735 Zinc ppm ASTM D5185m 1270 824 Sulfur ppm ASTM D5185m 2060 2568 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 93 Potassium ppm ASTM D5185m >20 6 Potassium ppm ASTM D5185m >20 6 Fuel % ASTM D3524 >3.0 0.2 Soot % % *ASTM D7844 >4 0.2 Sulfation Abs/cmm *ASTM D7415 <td>Molybdenum</td> <td>ppm</td> <td>ASTM D5185m</td> <td>60</td> <td>124</td> <td></td> <td></td>	Molybdenum	ppm	ASTM D5185m	60	124		
Calcium ppm ASTM D5185m 1 070 1386 Phosphorus ppm ASTM D5185m 1 150 735 Zinc ppm ASTM D5185m 1 270 824 Sulfur ppm ASTM D5185m 2060 2568 CONTAMINANTS method limit/base current history1 history2 Soliicon ppm ASTM D5185m >25 93 Soliicon ppm ASTM D5185m >20 6 Potassium ppm ASTM D5185m >20 6 Fuel % ASTM D3524 >3.0 0.2 Soot % % *ASTM D7844 >4 0.2 Soot % % *ASTM D7624 >20 7.2 Sulfation Abs/.1mm *ASTM D7414	Manganese	ppm	ASTM D5185m	0	4		
Phosphorus ppm ASTM D5185m 1 150 735 Zinc ppm ASTM D5185m 1 270 824 Sulfur ppm ASTM D5185m 2060 2568 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 93 Godium ppm ASTM D5185m 20 6 Potassium ppm ASTM D5185m >20 6 Fuel % ASTM D5185m >20 6 Fuel % ASTM D5185m >20 6 Fuel % ASTM D3524 >3.0 0.2 Soot % % *ASTM D7844 >4 0.2 Soot % % *ASTM D7845 >20	Magnesium	ppm	ASTM D5185m	1010	675		
Zinc	Calcium	ppm	ASTM D5185m	1070	1386		
Sulfur ppm ASTM D5185m 2060 2568 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 93 Sodium ppm ASTM D5185m 1 Potassium ppm ASTM D5185m >20 6 Fuel % ASTM D3524 >3.0 0.2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 Silicon Abs/cm *ASTM D7624 >20 7.2 Soulfation Abs/.1mm *ASTM D7415 >30 25.6 FLUID DEGRADATION method limit/base current history1 history2 Dxidation Abs/.1mm *ASTM D7414 >	Phosphorus	ppm	ASTM D5185m	1150	735		
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 ■ 93 Sodium ppm ASTM D5185m 1 Potassium ppm ASTM D5185m >20 6 Fuel % ASTM D3524 >3.0 0.2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 Silicon Abs/.1mm *ASTM D7624 >20 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 25.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.9	Zinc	ppm	ASTM D5185m	1270	824		
Solition ppm ASTM D5185m >25	Sulfur	ppm	ASTM D5185m	2060	2568		
Sodium ppm ASTM D5185m 1	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 6 Fuel % ASTM D3524 >3.0 0.2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 Vitration Abs/cm *ASTM D7624 >20 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 25.6 FLUID DEGRADATION method limit/base current history1 history2 Dxidation Abs/.1mm *ASTM D7414 >25 20.9	Silicon	ppm	ASTM D5185m	>25	<u> </u>		
Tuel	Sodium	ppm	ASTM D5185m		1		
INFRA-RED	Potassium	ppm	ASTM D5185m	>20	6		
Soot % % *ASTM D7844 >4 0.2 Nitration Abs/cm *ASTM D7624 >20 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 25.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.9	-uel	%	ASTM D3524	>3.0	0.2		
Nitration Abs/cm *ASTM D7624 >20 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 25.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.9	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 25.6 FLUID DEGRADATION method limit/base current history1 history2 Dxidation Abs/.1mm *ASTM D7414 >25 20.9	Soot %	%	*ASTM D7844	>4	0.2		
FLUID DEGRADATION method limit/base current history1 history2 Dxidation Abs/.1mm *ASTM D7414 >25 20.9	Nitration	Abs/cm	*ASTM D7624	>20	7.2		
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	25.6		
	FLUID DEGRAI	OATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	20.9		
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	9.2		



OIL ANALYSIS REPORT





Sample No.

: GFL0099262

Lab Number : 06126986 **Unique Number** : 10941137

Tested Diagnosed

Test Package: FLEET (Additional Tests: FuelDilution, 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)

: 01 Apr 2024

: 01 Apr 2024 - Jonathan Hester

10129 Highway 62 West

Princeton, KY US 42445

Contact: Destin Love dlove@gflenv.com T: (417)693-5500

F: