

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id
712064
Component
Diesel Engine
Fluid

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

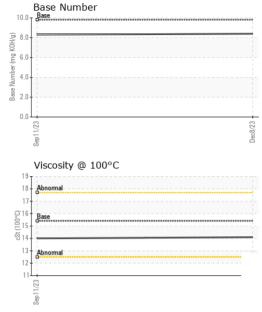
Fluid Condition

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

CONTAMINATION method limit/base current history1 history2	N SHP 15W40 (-	GAL)		Sep 2023	Dec2023		
Client Info GFL0096881 GFL0084006 GF	SAMPLE INFOR	RMATION	method			history1	history2
Cample Date Client Info 08 Dec 2023 11 Sep 2023					GEI 0096881		
Machine Age hrs Client Info 0 0 Oil Age hrs Client Info 600 0 Oil Changed Client Info Changed Sample Status NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0	· ·						
Dil Age	•	hrs					
Contained Client Info Changed NoRMAL N							
CONTAMINATION method limit/base current history1 history2	•	1110					
Fuel	Sample Status						
Water Glycol WC Method WC Method >0.2 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >80 16 16 Chromium ppm ASTM D5185m >5 <1 <1 Nickel ppm ASTM D5185m >2 <1 0 Silver ppm ASTM D5185m >2 <1 0 Silver ppm ASTM D5185m >30 2 3 Aluminum ppm ASTM D5185m >30 <1 <1 Copper ppm ASTM D5185m >30 <1 <1 Copper ppm ASTM D5185m >5 <1 <1 Vanadium ppm ASTM D5185m 0 <1 <1 Vanadium ppm ASTM D5185m 0 12	CONTAMINAT	ΓΙΟΝ	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<1.0	<1.0	
WEAR METALS method limit/base current history1 history2 fron ppm ASTM D5185m >80 16 16 Chromium ppm ASTM D5185m >5 <1	Water		WC Method	>0.2	NEG	NEG	
Chromium	Glycol		WC Method		NEG	NEG	
Chromium ppm ASTM D5185m >5 <1 <1	WEAR METAL	_S	method	limit/base	current	history1	history2
Sirk STM D5185m STM D5185	ron	ppm	ASTM D5185m	>80	16	16	
Silver	Chromium	ppm	ASTM D5185m	>5	<1	<1	
Saliver	Nickel	ppm	ASTM D5185m	>2	<1	0	
Aluminum	Titanium	ppm	ASTM D5185m		<1	0	
Lead	Silver	ppm	ASTM D5185m	>3	0	0	
Copper	Aluminum	ppm	ASTM D5185m	>30	2	3	
ASTM D5185m STM D5185m ST	_ead	ppm	ASTM D5185m	>30	<1	<1	
Anadium ppm ASTM D5185m 0 <1 Cadmium ppm ASTM D5185m <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 2 4 Barium ppm ASTM D5185m 0 12 0 Molybdenum ppm ASTM D5185m 60 62 64 Manganese ppm ASTM D5185m 0 <1 <1 Manganesium ppm ASTM D5185m 1010 968 1067 Phosphorus ppm ASTM D5185m 1070 1073 1173 Phosphorus ppm ASTM D5185m 1270 1253 1338 Zinc ppm ASTM D5185m >2060 3062 3662 CONTAMINANTS method limit/base current histor	Copper	ppm	ASTM D5185m	>150	<1	1	
ADDITIVES	Γin	ppm	ASTM D5185m	>5	<1	<1	
ADDITIVES	/anadium	ppm	ASTM D5185m		0	<1	
Soron ppm ASTM D5185m 0 2 4	Cadmium	ppm	ASTM D5185m		<1	0	
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 62 64 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m	0	2	4	
Manganese ppm ASTM D5185m 0 <1 <1 Magnesium ppm ASTM D5185m 1010 968 1067 Calcium ppm ASTM D5185m 1070 1073 1173 Phosphorus ppm ASTM D5185m 1150 1007 1046 Zinc ppm ASTM D5185m 1270 1253 1338 Sulfur ppm ASTM D5185m 2060 3062 3662 CONTAMINANTS method limit/base current history1 history2 Solicon ppm ASTM D5185m >20 3 3 Potassium ppm ASTM D5185m >20 2 1 Potassium ppm ASTM D5185m >20 2 1 Potassium ppm ASTM D5185m >20 2 1 Potassium ppm ASTM D5185m <td>Barium</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th>12</th> <td>0</td> <td></td>	Barium	ppm	ASTM D5185m	0	12	0	
Magnesium ppm ASTM D5185m 1010 968 1067 Calcium ppm ASTM D5185m 1070 1073 1173 Phosphorus ppm ASTM D5185m 1150 1007 1046 Zinc ppm ASTM D5185m 1270 1253 1338 Sulfur ppm ASTM D5185m 2060 3062 3662 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 3 3 Potassium ppm ASTM D5185m 20 2 1 Potassium ppm ASTM D5185m >20 2 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.5 Sulfation Abs/.1mm *ASTM D7415 </td <td>Molybdenum</td> <td>ppm</td> <td>ASTM D5185m</td> <td>60</td> <th>62</th> <td>64</td> <td></td>	Molybdenum	ppm	ASTM D5185m	60	62	64	
Calcium ppm ASTM D5185m 1070 1073 1173 Phosphorus ppm ASTM D5185m 1150 1007 1046 Zinc ppm ASTM D5185m 1270 1253 1338 Sulfur ppm ASTM D5185m 2060 3062 3662 CONTAMINANTS method limit/base current history1 history2 Soliicon ppm ASTM D5185m 20 3 3 Soliicon ppm ASTM D5185m 2 1 Potassium ppm ASTM D5185m 20 2 1 Potassium ppm ASTM D5185m >20 2 1 Potassium ppm ASTM D5185m >20 2 1 Soot % % *ASTM D7844 >3 0.5 0.5 Soot % % *ASTM D7844 >3 <	Manganese	ppm	ASTM D5185m	0	<1	<1	
Phosphorus ppm ASTM D5185m 1 150 1007 1 046 Zinc ppm ASTM D5185m 1 270 1 253 1 338 Sulfur ppm ASTM D5185m 2060 3062 3662 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 3 3 Godium ppm ASTM D5185m 2 1 Potassium ppm ASTM D5185m >20 2 1 Boot % % *ASTM D7844 >3	Magnesium	ppm	ASTM D5185m	1010	968	1067	
Time	Calcium	ppm	ASTM D5185m	1070	1073	1173	
Sulfur ppm ASTM D5185m 2060 3062 3662 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 3 3 Sodium ppm ASTM D5185m 2 1 Potassium ppm ASTM D5185m >20 2 1 Potassium ppm ASTM D5185m >20 2 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 8.3 8.5 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25	Phosphorus	ppm	ASTM D5185m	1150	1007	1046	
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 3 3 Sodium ppm ASTM D5185m 2 1 Potassium ppm ASTM D5185m >20 2 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 8.3 8.5 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 15.8	Zinc	ppm	ASTM D5185m	1270	1253	1338	
Solition ppm ASTM D5185m >20 3 3	Sulfur	ppm	ASTM D5185m	2060	3062	3662	
Sodium	CONTAMINAN	NTS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 8.3 8.5 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 15.8	Silicon	ppm	ASTM D5185m	>20	3	3	
INFRA-RED	Sodium	ppm	ASTM D5185m		2	1	
Soot % % *ASTM D7844 >3 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 8.3 8.5 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 15.8	Potassium	ppm	ASTM D5185m	>20	2	1	
Nitration Abs/cm *ASTM D7624 >20 8.3 8.5 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 15.8	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 19.5 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 15.8	Soot %	%	*ASTM D7844	>3	0.5	0.5	
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 15.8	Nitration	Abs/cm	*ASTM D7624	>20	8.3	8.5	
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	19.5	19.2	
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 8.4 8.3	Oxidation	Abs/.1mm	*ASTM D7414	>25	15.8	15.8	
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.4	8.3	



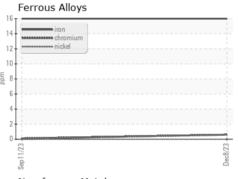
OIL ANALYSIS REPORT

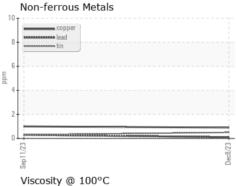


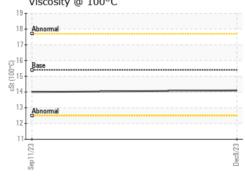
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Precipitate	scalar	*Visual	NONE	NONE	NONE	
Silt	scalar	*Visual	NONE	NONE	NONE	
Debris	scalar	*Visual	NONE	NONE	NONE	
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Appearance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

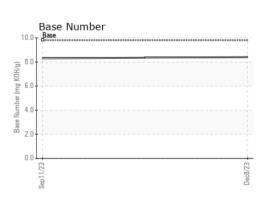
FLUID PROPI	ERHES	method			history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.1	14.0	

GRAPHS











Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10791111

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : 06035882

: GFL0096881 Test Package : FLEET

Recieved : 15 Dec 2023 Diagnosed Diagnostician : Wes Davis

: 18 Dec 2023

GFL Environmental - 401 - Fort Wayne Hauling 4429 ALLEN MARTIN DR FORT WAYNE, IN

US 46806 Contact: Zachory Roehm

zroehm@gflenv.com T:

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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