

OIL ANALYSIS REPORT

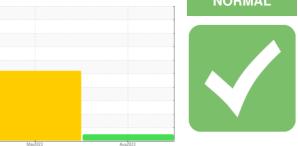
Sample Rating Trend





Machine Id **913117** Component **Diesel Engine**

PETRO CANADA DURON SHP 15W40 (28 GAL)



DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

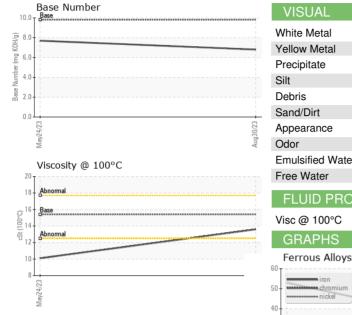
Fluid Condition

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 GFL0091722 GFL0071031	N SHP 15W40 (28	B GAL)		May2023	Aug2023		
Sample Date	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info Dil Changed Changed Changed Changed Changed Changed Changed Sample Status NORMAL SEVERE	Sample Number		Client Info		GFL0091722	GFL0071031	
Dil Age	Sample Date		Client Info		30 Aug 2023	24 May 2023	
Contact Cont	Machine Age	hrs	Client Info		1431	0	
CONTAMINATION method limit/base current history1 history2 history2 current history1 history2 history2 current history3 history2 current history3 history2 current history3 history3 current history4	Oil Age	hrs	Client Info		600	600	
CONTAMINATION	Oil Changed		Client Info		Changed	Changed	
WEAR METALS	Sample Status				NORMAL	SEVERE	
WEAR METALS	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	0.3	
Chromium	Glycol		WC Method		NEG	NEG	
Chromium	WEAR METAL	S	method	limit/base	current	history1	history2
Chromium	ron	ppm	ASTM D5185m	>120	31	53	
Nickel	Chromium		ASTM D5185m	>20	<1	2	
STIM D5185m >2							
Soliver							
Aluminum							
Lead ppm ASTM D5185m >40 <1 3 Copper ppm ASTM D5185m >330 58 158 Tin ppm ASTM D5185m >15 1 4 Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 8 250 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 ADJulation ppm ASTM D5185m 100 10 10							
Copper ppm ASTM D5185m >330 58 158 Tin ppm ASTM D5185m 0 0 Vanadium ppm ASTM D5185m 0 0 Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 8 250 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 0 0 131 Manganese ppm ASTM D5185m 0 1 6 Magnesium ppm ASTM D5185m 1070 1261 1615 Calcium ppm ASTM D5185m 1150 987 728 Zinc ppm ASTM D5185m 2060 2974 2612							
Tin							
Vanadium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 8 250 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 Manganese ppm ASTM D5185m 0 1 6 Magnesium ppm ASTM D5185m 1010 1049 738 Calcium ppm ASTM D5185m 1070 1261 1615 Phosphorus ppm ASTM D5185m 1270 1321 916 Zinc ppm ASTM D5185m 2060 2974 2612 CONTAMINANTS method limit/base current history1 history2 Solicon ppm ASTM D5185m >25 15<							
Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 8 250 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 0 1 6 Manganese ppm ASTM D5185m 0 1 6 Magnesium ppm ASTM D5185m 1010 1049 738 Calcium ppm ASTM D5185m 1070 1261 1615 Phosphorus ppm ASTM D5185m 1270 1321 916 Zinc ppm ASTM D5185m 2060 2974 2612 CONTAMINANTS method limit/base current history1 history2 Solicon ppm ASTM D5185m >25 15 </td <td></td> <td></td> <td></td> <td>>10</td> <td></td> <td></td> <td></td>				>10			
Boron ppm ASTM D5185m 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0							
Barium ppm ASTM D5185m 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 70 131 Manganese ppm ASTM D5185m 0 1 6 Magnesium ppm ASTM D5185m 1010 1049 738 Calcium ppm ASTM D5185m 1070 1261 1615 Phosphorus ppm ASTM D5185m 1150 987 728 Zinc ppm ASTM D5185m 1270 1321 916 Sulfur ppm ASTM D5185m 2060 2974 2612 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 15 139 Sodium ppm ASTM D5185m 3 5 Potassium ppm ASTM D5185m >20 4 6 INFRA-RED method limit/base curre	Boron	ppm	ASTM D5185m	0	8	250	
Manganese ppm ASTM D5185m 0 1 6 Magnesium ppm ASTM D5185m 1010 1049 738 Calcium ppm ASTM D5185m 1070 1261 1615 Phosphorus ppm ASTM D5185m 1150 987 728 Zinc ppm ASTM D5185m 1270 1321 916 Sulfur ppm ASTM D5185m 2060 2974 2612 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 15 139 Sodium ppm ASTM D5185m >20 4 6 Potassium ppm ASTM D5185m >20 4 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844<	Barium	ppm	ASTM D5185m	0	0	0	
Magnesium ppm ASTM D5185m 1010 1049 738 Calcium ppm ASTM D5185m 1070 1261 1615 Phosphorus ppm ASTM D5185m 1150 987 728 Zinc ppm ASTM D5185m 1270 1321 916 Sulfur ppm ASTM D5185m 2060 2974 2612 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 15 139 Sodium ppm ASTM D5185m >25 15 139 Potassium ppm ASTM D5185m >20 4 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 9.3 10.5 Sulfation Abs/.1mm *ASTM D74	Molybdenum	ppm	ASTM D5185m	60	70	131	
Magnesium ppm ASTM D5185m 1010 1049 738 Calcium ppm ASTM D5185m 1070 1261 1615 Phosphorus ppm ASTM D5185m 1150 987 728 Zinc ppm ASTM D5185m 1270 1321 916 Sulfur ppm ASTM D5185m 2060 2974 2612 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 15 139 Sodium ppm ASTM D5185m >20 4 6 Potassium ppm ASTM D5185m >20 4 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.9 0.7 Sulfation Abs/.1mm *ASTM D7624 <td>-</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <td>1</td> <td>6</td> <td></td>	-	ppm	ASTM D5185m	0	1	6	
Calcium ppm ASTM D5185m 1070 1261 1615 Phosphorus ppm ASTM D5185m 1150 987 728 Zinc ppm ASTM D5185m 1270 1321 916 Sulfur ppm ASTM D5185m 2060 2974 2612 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 15 139 Sodium ppm ASTM D5185m 3 5 Potassium ppm ASTM D5185m >20 4 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.9 0.7 Nitration Abs/cm *ASTM D7845 >30 21.2 25.6 FLUID DEGRADATION method limit/base <td>-</td> <td>ppm</td> <td>ASTM D5185m</td> <td>1010</td> <td>1049</td> <td>738</td> <td></td>	-	ppm	ASTM D5185m	1010	1049	738	
Phosphorus ppm ASTM D5185m 1150 987 728 Zinc ppm ASTM D5185m 1270 1321 916 Sulfur ppm ASTM D5185m 2060 2974 2612 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 15 139 Sodium ppm ASTM D5185m 3 5 Potassium ppm ASTM D5185m >20 4 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.9 0.7 Nitration Abs/cm *ASTM D7415 >30 21.2 25.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >	-	ppm	ASTM D5185m	1070	1261	1615	
Zinc ppm ASTM D5185m 1270 1321 916 Sulfur ppm ASTM D5185m 2060 2974 2612 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 15 139 Sodium ppm ASTM D5185m 3 5 Potassium ppm ASTM D5185m >20 4 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.9 0.7 Nitration Abs/cm *ASTM D7624 >20 9.3 10.5 Sulfation Abs/.1mm *ASTM D7415 >30 21.2 25.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 <td>Phosphorus</td> <td></td> <td></td> <td></td> <td>987</td> <td></td> <td></td>	Phosphorus				987		
Sulfur ppm ASTM D5185m 2060 2974 2612 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 15 139 Sodium ppm ASTM D5185m 3 5 Potassium ppm ASTM D5185m >20 4 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.9 0.7 Nitration Abs/cm *ASTM D7624 >20 9.3 10.5 Sulfation Abs/.1mm *ASTM D7415 >30 21.2 25.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.7 24.0	•		ASTM D5185m	1270	1321	916	
Silicon ppm ASTM D5185m >25 15 139	Sulfur				2974		
Sodium ppm ASTM D5185m 3 5 Potassium ppm ASTM D5185m >20 4 6 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 >4 0.9 0.7 Nitration Abs/cm *ASTM D7624 >20 9.3 10.5 Sulfation Abs/.1mm *ASTM D7415 >30 21.2 25.6 FLUID DEGRADATION method limit/base current history1 history2 Dxidation Abs/.1mm *ASTM D7414 >25 16.7 24.0	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 4 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.9 0.7 Nitration Abs/cm *ASTM D7624 >20 9.3 10.5 Sulfation Abs/.1mm *ASTM D7415 >30 21.2 25.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.7 24.0	Silicon	ppm	ASTM D5185m	>25	15	139	
INFRA-RED	Sodium	ppm	ASTM D5185m		3	5	
Soot % *ASTM D7844 >4 0.9 0.7 Nitration Abs/cm *ASTM D7624 >20 9.3 10.5 Sulfation Abs/.1mm *ASTM D7415 >30 21.2 25.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.7 24.0	Potassium	ppm	ASTM D5185m	>20	4	6	
Nitration Abs/cm *ASTM D7624 >20 9.3 10.5 Sulfation Abs/.1mm *ASTM D7415 >30 21.2 25.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.7 24.0	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 21.2 25.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.7 24.0	Soot %	%	*ASTM D7844	>4	0.9	0.7	
Sulfation Abs/.1mm *ASTM D7415 >30 21.2 25.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.7 24.0	Vitration	Abs/cm	*ASTM D7624	>20	9.3	10.5	
Oxidation							
	FLUID DEGRAD	OATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 6.8 7.7	Oxidation	Abs/.1mm	*ASTM D7414	>25	16.7	24.0	
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	6.8	7.7	



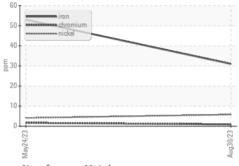
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VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Precipitate	scalar	*Visual	NONE	NONE	NONE	
Silt	scalar	*Visual	NONE	NONE	NONE	
Debris	scalar	*Visual	NONE	NONE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

13.6

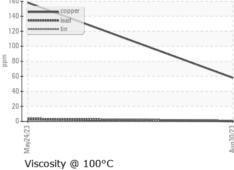
10.1

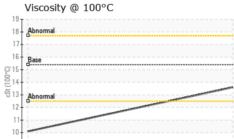


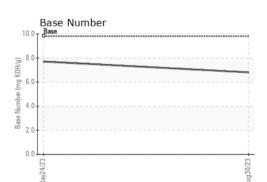
cSt

ASTM D445 15.4











Certificate L2367

Laboratory Sample No. Lab Number Test Package : FLEET

Unique Number : 10644632

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0091722 : 05948673

Received : 12 Sep 2023 Diagnosed Diagnostician : Wes Davis

: 14 Sep 2023

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

> US 46806 Contact: Stephanie Burton

stephanieburton@gflenv.com T: (260)747-5037

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)