

OIL ANALYSIS REPORT

Sample Rating Trend





Component

Diesel Engine

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

Metal levels are typical for a new component breaking in.

Contamination

There is no indication of any contamination in the oil.

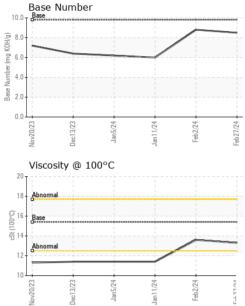
Fluid Condition

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

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0107959	GFL0107938	GFL0102586
Sample Date		Client Info		27 Feb 2024	02 Feb 2024	11 Jan 2024
Machine Age	hrs	Client Info		811	731	596
Oil Age	hrs	Client Info		0	0	600
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Sample Status				NORMAL	NORMAL	ATTENTION
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	<u>م</u>	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>110	13	7	44
Chromium	ppm	ASTM D5185m		<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	1	<1
Titanium	ppm	ASTM D5185m	0	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m		12	12	55
Lead	ppm	ASTM D5185m	>45	0	<1	0
Copper	ppm	ASTM D5185m		2	3	16
Tin	ppm	ASTM D5185m	>4	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method			history1	history2
Boron	ppm	ASTM D5185m	0	6	5	37
	ppm ppm	ASTM D5185m	0	6 0	5	37 0
Boron		ASTM D5185m				
Boron Barium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	0	0	0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 60	0 51	0 52	0 14
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0	0 51 <1	0 52 1	0 14 4
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010	0 51 <1 883	0 52 1 878	0 14 4 764
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070	0 51 <1 883 996	0 52 1 878 1025	0 14 4 764 1280
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150	0 51 <1 883 996 943	0 52 1 878 1025 982	0 14 4 764 1280 740
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270	0 51 <1 883 996 943 1187	0 52 1 878 1025 982 1167	0 14 4 764 1280 740 867
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060	0 51 <1 883 996 943 1187 2858	0 52 1 878 1025 982 1167 2980	0 14 4 764 1280 740 867 2692
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060	0 51 <1 883 996 943 1187 2858 current	0 52 1 878 1025 982 1167 2980 history1	0 14 764 1280 740 867 2692 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	0 60 0 1010 1070 1150 1270 2060 Limit/base >30	0 51 <1 883 996 943 1187 2858 current 6	0 52 1 878 1025 982 1167 2980 history1 6	0 14 764 1280 740 867 2692 history2 24
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 Limit/base >30	0 51 <1 883 996 943 1187 2858 current 6 3	0 52 1 878 1025 982 1167 2980 history1 6 4	0 14 4 764 1280 740 867 2692 history2 24 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >30	0 51 <1 883 996 943 1187 2858 <u>current</u> 6 3 29	0 52 1 878 1025 982 1167 2980 history1 6 4 28	0 14 4 764 1280 740 867 2692 history2 24 6 141
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 <i>limit/base</i> >20 <i>limit/base</i>	0 51 <1 883 996 943 1187 2858 current 6 3 29 current 0.3	0 52 1 878 1025 982 1167 2980 history1 6 4 28 history1	0 14 4 764 1280 740 867 2692 history2 24 6 141 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >30 } 20	0 51 <1 883 996 943 1187 2858 current 6 3 29 current	0 52 1 878 1025 982 1167 2980 history1 6 4 28 <u>history1</u> 0.2	0 14 4 764 1280 740 867 2692 history2 24 6 141 history2 0.5 10.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 imit/base >30 200 imit/base >3 >20 >3 >20	0 51 <1 883 996 943 1187 2858 <u>current</u> 6 3 29 <u>current</u> 0.3 7.0 19.2	0 52 1 878 1025 982 1167 2980 history1 6 4 28 history1 0.2 6.0 18.5	0 14 4 764 1280 740 867 2692 history2 24 6 141 history2 0.5 10.0 21.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 60 1010 1070 1150 1270 2060 limit/base >30 220 limit/base >3 >20 >30 >30	0 51 <1 883 996 943 1187 2858 <u>current</u> 6 3 29 <u>current</u> 0.3 7.0 19.2 <u>current</u>	0 52 1 878 1025 982 1167 2980 history1 6 4 28 history1 0.2 6.0 18.5 history1	0 14 4 764 1280 740 867 2692 history2 24 6 141 history2 0.5 10.0 21.9 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm ppm ppm ppm pp	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 60 0 1010 1070 1150 1270 2060 Imit/base >30 >20 Imit/base >3 >20 Imit/base >30	0 51 <1 883 996 943 1187 2858 current 6 3 29 current 0.3 7.0 19.2 current 14.8	0 52 1 878 1025 982 1167 2980 history1 6 4 28 history1 0.2 6.0 18.5 history1 14.2	0 14 4 764 1280 740 867 2692 history2 24 6 141 bistory2 0.5 10.0 21.9 history2 19.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 60 1010 1070 1150 1270 2060 limit/base >30 220 limit/base >3 >20 >30 >30	0 51 <1 883 996 943 1187 2858 <u>current</u> 6 3 29 <u>current</u> 0.3 7.0 19.2 <u>current</u>	0 52 1 878 1025 982 1167 2980 history1 6 4 28 history1 0.2 6.0 18.5 history1	0 14 4 764 1280 740 867 2692 history2 24 6 141 history2 0.5 10.0 21.9 history2



OIL ANALYSIS REPORT



	*****	mmaaaaaaaaa -	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			
Jan5/24	Jan 11/24	Feb2/24 Feb27/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML		
7	Jai		Odor	scalar	*Visual	NORML	NORML	NORML	NORML		
°C			Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG		
			Free Water	scalar	*Visual		NEG	NEG	NEG		
			FLUID PROPE		method	limit/base		history1	history2		
			Visc @ 100°C	cSt	ASTM D445	15.4	13.3	13.6	11.4		
	/		GRAPHS Ferrous Alloys								
Jan5/24	Jan 11/24	Feb2/24 сталли	40 35 30 25 20 15 10 5 0 CZ20 CZ	ls	Feb2/24	Feb21724					
			Viscosity @ 100°C	2			Base Number				
			18 - Abnormal		1	10	0.0 Base				
			17-			(B/H	3.0				
			0 15 Base			و و	5.0				
			() 0015 115 14			Base Number (mg KOH/g)					
			13 Abnormal			Inv as	1.0-				
			12			¹⁰ 2	2.0 -				
			11			0).0				
				1/24	Feb2/24 -	7/24		Jan5/24 -	Feb2/24 +		
			Nov20/23 Dec13/23 Jan5/24	Jan 11/24	Feb	Feb27/24	Nov20/23 Dec13/23	Jan5/24	Feb2/24 Feb2/24		
Certificate L2367		Laboratory Sample No. Lab Number Unique Number Test Package	: GFL0107959 : 06105873 : 10909370 : FLEET	Recei Teste Diagr	Received : 01 Mar 2024 Tested : 02 Mar 2024 Diagnosed : 02 Mar 2024 - Wes Davis			vironmental - 892 - Pauls Valley Hauling 405 East Airport Industrial Road Pauls Valley, OK US 73075 Contact: Tony Graham			
			contact Customer Serv					tgraham2@	@wcamerica.com		
			are outside of the ISO 17025 scope of accreditation.T:pecifications are based on the simple acceptance decision rule (JCGM 106:2012)F:								

Contact/Location: Tony Graham - GFL892