

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



213005 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. (Customer Sample Comment: RE SAMPLE)

Machine Id

Wear

All component wear rates are normal.

Contamination

Fuel content negligible. There is no indication of any contamination in the oil.

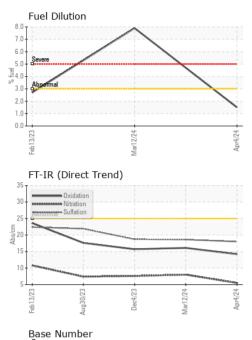
Fluid Condition

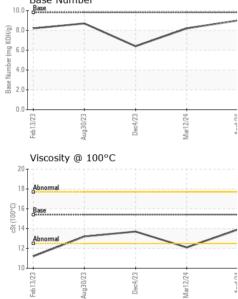
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0108393	GFL0113987	GFL0086734
Sample Date		Client Info		04 Apr 2024	12 Mar 2024	04 Dec 2023
Machine Age	hrs	Client Info		2726	2608	2773
Oil Age	hrs	Client Info		0	0	2773
Oil Changed		Client Info		Not Changd	Changed	Changed
Sample Status				NORMAL	SEVERE	NORMAL
CONTAMINATI	ON	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	10	15	12
Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Nickel	ppm	ASTM D5185m	>5	<1	0	<1
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	1	3
Lead	ppm	ASTM D5185m	>40	<1	0	2
Copper	ppm	ASTM D5185m	>330	<1	0	5
Tin	ppm	ASTM D5185m	>15	<1	0	1
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method				history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current	history1 0	history2 2
	ppm ppm		0			
Boron		ASTM D5185m	0	<1	0	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	<1 0	0	2 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 0 63	0 0 53	2 0 61
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	<1 0 63 <1	0 0 53 0	2 0 61 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	<1 0 63 <1 999	0 0 53 0 917	2 0 61 <1 1008
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	<1 0 63 <1 999 1129	0 0 53 0 917 1021	2 0 61 <1 1008 1075
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 0 60 0 1010 1070 1150	<1 0 63 <1 999 1129 1052	0 0 53 0 917 1021 951	2 0 61 <1 1008 1075 1078
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	<1 0 63 <1 999 1129 1052 1268	0 0 53 0 917 1021 951 1183	2 0 61 <1 1008 1075 1078 1280
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	<1 0 63 <1 999 1129 1052 1268 3360	0 0 53 0 917 1021 951 1183 3303	2 0 61 <1 1008 1075 1078 1280 3238
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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 0 60 1010 1070 1150 1270 2060	<1 0 63 <1 999 1129 1052 1268 3360 current	0 0 53 0 917 1021 951 1183 3303 history1	2 0 61 <1 1008 1075 1078 1280 3238 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	<1 0 63 <1 999 1129 1052 1268 3360 current 5	0 0 53 0 917 1021 951 1183 3303 history1 3	2 0 61 <1 1008 1075 1078 1280 3238 history2 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	<1 0 63 <1 999 1129 1052 1268 3360 <u>current</u> 5 7	0 0 53 0 917 1021 951 1183 3303 history1 3 0	2 0 61 <1 1008 1075 1078 1280 3238 history2 6 5
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 0 0 1010 1070 1150 1270 2060 limit/base >25	<1 0 63 <1 999 1129 1052 1268 3360 <u>current</u> 5 7 11	0 0 53 0 917 1021 951 1183 3303 history1 3 0 0	2 0 61 <1 1008 1075 1078 1280 3238 history2 6 5 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 >20	<1 0 63 <1 999 1129 1052 1268 3360 <u>current</u> 5 7 11 11	0 0 53 0 917 1021 951 1183 3303 history1 3 0 0 0 0 7.9	2 0 61 <1 1008 1075 1078 1280 3238 history2 6 5 0 <1.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 >20 >3.0	<1 0 63 <1 999 1129 1052 1268 3360 current 5 7 11 1.5 current	0 0 53 0 917 1021 951 1183 3303 history1 3 0 0 0 × 7.9 history1	2 0 61 <1 1008 1075 1078 1280 3238 history2 6 5 0 <1.0 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 >20 >3.0 limit/base	<1 0 63 <1 999 1129 1052 1268 3360 <i>current</i> 5 7 11 1.5 <i>current</i> 0.1	0 0 53 0 917 1021 951 1183 3303 history1 3 0 0 0 × 7.9 history1 0.1	2 0 61 <1 1008 1075 1078 1280 3238 history2 6 5 0 <1.0 history2 0.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 >3.0 imit/base >4 >20	<1 0 63 <1 999 1129 1052 1268 3360 current 5 7 11 1.5 current 0.1 5.5	0 0 53 0 917 1021 951 1183 3303 history1 3 0 0 0 7.9 history1 0.1 8.0	2 0 61 <1 1008 1075 1078 1280 3238 history2 6 5 0 <1.0 +istory2 0.3 7.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 3.0 imit/base >4 >20 3.3 imit/base	<1 0 63 <1 999 1129 1052 1268 3360 current 5 7 11 1.5 current 0.1 5.5 18.0	0 0 53 0 917 1021 951 1183 3303 history1 3 0 0 0 2 7.9 history1 0.1 8.0 18.6	2 0 61 <1 1008 1075 1078 1280 3238 history2 6 5 0 <1.0 kistory2 0.3 7.6 18.7



OIL ANALYSIS REPORT





	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
Apr4/24 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Apré	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
1 1	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPE	ERTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	13.9	▲ 12.1	13.7
	GRAPHS						
	Ferrous Alloys						
and the state of t							
Mar12/24 Apr4/24	chromium						
Mar	70 nickel						
	E 40						
	30						
	20						
		/23	/24	/24			
	Feb 13/23 Aug 30/23	Dec4/23	Mar12/24	Apr4/24			
	Non-ferrous Meta	ls	~				
2/24	50 T						
Mar12/24	copper lead						
	40 - tin		1				
	30						
1	20						
1	10						
	0.		/24	/24			
	Feb 13/23 Jug 30/23	Dec4/23	Mar12/24	Apr4/24			
2/24	Viscosity @ 100°		~				
Mar1 2/24	¹⁹ T	-		10 (Base Numbe	er	
	18 - Abnormal		1	10.0			
	17-			(B∳ ^{8.0}			
	Base			0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0		\sim	
	0 15 0 15 14			ju o.t			
	12	-		quant 4.0	•		
	13 Abnormal		\checkmark	ase			
	11-		 	° 2.0			
	10				ļi i		
	Feb13/23	Dec4/23	Mar12/24	Apr4/24	Feb13/23 -	Dec4/23	Mar12/24 Apr4/24
	Feb	De	Mar	A	Feb	D	Mai
Laba A							o M. 1 110
Laboratory Sample No.	: WearCheck USA - 50 : GFL0108393	1 Madiso Rece i		, NC 27513 Apr 2024	GFL E	nvironmental - 93 W144 S6	2 - Muskego HC 400 College Ct.
	: 06144040	Teste		Apr 2024		VV 144 30	Muskego, WI
Unique Number				Apr 2024 - Se	an Felton		US 53150
	: FLEET (Additional T					Contact: B	rian Schlomann
sample report,	contact Customer Serv	vice at 1-8	800-237-1369				nn@gflenv.com
	are outside of the ISO .	7005	<i>c</i>			-	(262)510 4596

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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Certificate L2367

Submitted By: GFL932, GFL414 - BECKY FLETCHER

F:

T: (262)510-4586