

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 920053

Component

Diesel Engine

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.

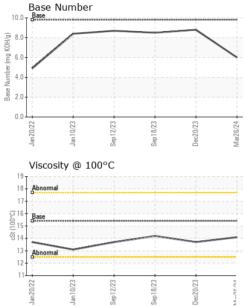
Fluid Condition

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

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0116863	GFL0107104	GFL0091551
Sample Date		Client Info		26 Mar 2024	20 Dec 2023	18 Sep 2023
Machine Age	hrs	Client Info		8509	7874	7329
Oil Age	hrs	Client Info		600	600	600
Oil Changed		Client Info		Changed	Not Changd	N/A
Sample Status				NORMAL	NORMAL	NORMAL
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	20.L	NEG	NEG	NEG
-	0			-	-	
WEAR METAL	5	method	limit/base	current	history1	history2
Iron	ppm		>110	13	10	4
Chromium	ppm	ASTM D5185m	>4	<1	<1	0
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	2	3	1
Lead	ppm	ASTM D5185m	>45	0	0	0
Copper	ppm	ASTM D5185m	>85	2	<1	1
Tin	ppm	ASTM D5185m	>4	2	0	0
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES	••	method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base		history1 0	history2 2
				current		
Boron	ppm	ASTM D5185m	0	current <1	0	2
Boron Barium	ppm ppm	ASTM D5185m ASTM D5185m	0	current <1 0	0	2 0
Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current <1 0 60	0 0 58	2 0 58
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current <1 0 60 <1	0 0 58 0	2 0 58 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current <1 0 60 <1 985	0 0 58 0 914	2 0 58 0 945
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm 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 60 <1 985 1108	0 0 58 0 914 1053	2 0 58 0 945 1140
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm 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	<1060<19851108975	0 0 58 0 914 1053 1020	2 0 58 0 945 1140 1005
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm 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 60 <1 985 1108 975 1255	0 0 58 0 914 1053 1020 1196	2 0 58 0 945 1140 1005 1237
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	0 0 60 0 1010 1070 1150 1270 2060	<pre>current <1 0 60 <1 985 1108 975 1255 3218</pre>	0 0 58 0 914 1053 1020 1196 3396	2 0 58 0 945 1140 1005 1237 3580
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm 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	current <1 0 60 <1 985 1108 975 1255 3218 current	0 0 58 0 914 1053 1020 1196 3396 history1	2 0 58 0 945 1140 1005 1237 3580 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm 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 0 60 0 1010 1070 1150 1270 2060 Limit/base >30	<1 0 60 <1 985 1108 975 1255 3218	0 0 58 0 914 1053 1020 1196 3396 history1 3	2 0 58 0 945 1140 1005 1237 3580 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 Limit/base >30	<1 0 60 <1 985 1108 975 1255 3218 current 3 5	0 0 58 0 914 1053 1020 1196 3396 history1 3 0	2 0 58 0 945 1140 1005 1237 3580 history2 4 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >30	<1 0 60 <1 985 1108 975 1255 3218 current 3 5 1	0 0 58 0 914 1053 1020 1196 3396 history1 3 0 3	2 0 58 0 945 1140 1005 1237 3580 history2 4 2 2 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >30 >20	<1 0 60 <1 985 1108 975 1255 3218 current 3 5 1 current 3 5 1 current	0 0 58 0 914 1053 1020 1196 3396 history1 3 0 3 3	2 0 58 0 945 1140 1005 1237 3580 history2 4 2 <1 +
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >30 >20 Imit/base	<1 0 60 <1 985 1108 975 1255 3218 current 3 5 1 current 0.8	0 0 58 0 914 1053 1020 1196 3396 history1 3 0 3 history1 0.3	2 0 58 0 945 1140 1005 1237 3580 history2 4 2 <1 kistory2 0.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >30 220 imit/base >3 >20	current <1 0 60 <1 985 1108 975 1255 3218 current 3 5 1 current 0.8 9.7	0 0 58 0 914 1053 1020 1196 3396 history1 3 0 3 history1 0.3 6.4	2 0 58 0 945 1140 1005 1237 3580 history2 4 2 <1 2 <1 history2 0.1 5.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 2060 2060 200 200 200 200 20	<1 0 60 <1 985 1108 975 1255 3218 current 3 5 1 current 0.8 9.7 21.3	0 0 58 0 914 1053 1020 1196 3396 history1 3 0 3 history1 0.3 6.4 18.4 history1	2 0 58 0 945 1140 1005 1237 3580 history2 4 2 <1 history2 0.1 5.3 17.7 history2
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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >30 20 Imit/base >3 >20	<1 0 60 <1 985 1108 975 1255 3218 current 3 5 1 current 0.8 9.7 21.3	0 0 58 0 914 1053 1020 1196 3396 history1 3 0 3 history1 0.3 6.4 18.4	2 0 58 0 945 1140 1005 1237 3580 history2 4 2 <1 kistory2 0.1 5.3 17.7



OIL ANALYSIS REPORT



*****			VISUAL			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
Sep 18/23	Dec20/23	Mar26/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Sep 20	Der	Main and Angel	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
			Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
			Free Water	scalar	*Visual		NEG	NEG	NEG
			FLUID PROPE	ERTIES	method	limit/base	current	history1	history2
			Visc @ 100°C	cSt	ASTM D445	15.4	14.1	13.7	14.2
			GRAPHS						
			Ferrous Alloys						
23		3 5	iron		1				
Sep18/23	Dec20/23	1 a c~1	60 - chromium						
ő	ć		50						
			₽ ⁴⁰ 30						
			30						
			20						
			10						
			0						
			23 23	1/23	/23	/24			
			10, 10, 12	1 18	20	26			
			Jan 20/22 Jan 10/23	Sep 12/23	Dec20/23	Mar26/24			
			Non-ferrous Meta		Dec20	Mar26			
					Dec20	Mar26			
			Non-ferrous Meta		 Dec20	Mar26			
			Non-ferrous Meta		Dec20	Mar26			
			Non-ferrous Meta		Dec20	Mar26			
			Non-ferrous Meta		Dec20	Mar26			
			Non-ferrous Meta		Dec20	Mar26			
			Non-ferrous Meta		Dec20	Mar26			
			Non-ferrous Meta		Dec20	Mar26			
			Non-ferrous Meta	als					
			Non-ferrous Meta			Mar26/24 Mar26			
			Non-ferrous Meta	als			Rase Number		
			Non-ferrous Meta	als		Mar26/24	Base Number	-	
			Non-ferrous Meta	als		+ t- 10.0		-	
			Non-ferrous Meta	als		+ t- 10.0		-	
			Non-ferrous Meta	als		+ t- 10.0			
			Non-ferrous Meta	als		+ t- 10.0			
			Non-ferrous Meta	als		10.0 Base Mumber (mg K0H(0) Mar26/24 Mar29/20 Ma			
			Non-ferrous Meta	als		0.01 pag 0.03 (um g K0H(0) 0.03 (um g K0H(0) 0.03 (um g K0H(0)			
			Non-ferrous Meta	als F7771dag C	Dec2023	10.0 Wat2922 Wat2920 Base Mumber Mag Base Source Base Source Base Source Base Source Base Source Sou	Base		
			Non-ferrous Meta	als F7771dag C	Dec2023	10.0 Wat2922 Wat2920 Base Mumber Mag Base Source Base Source Base Source Base Source Base Source Sou	Base		20/23
			Non-ferrous Meta	als	Dec20/23	10.0- (b)HOX but with a second		Sep18/23	Dec20/23
	La	boratory	Non-ferrous Meta	als 57771 dag C C	Dec20/23	10.0 Base Number (ng) Wat28(2) Base Number (ng) Wat28(2) Base Number (ng) Base	Jan 20/22	Sep12/23	
		boratory mple No.	Non-ferrous Meta	als 57771 dag C C	EZU02200 EZU02200	10.0 Base Number (ng) Wat28(2) Base Number (ng) Wat28(2) Base Number (ng) Base	Jan 20/22		
	Sa La	mple No. b Number	Non-ferrous Meta	als 57771dag C D1 Madiso	EZU02290 EZU02290 EEZU02290 EEZU02290 EEZU02290 EEZU02290	10.0 (0,Hoy Bu) Jaquing 80.0 (0,Hoy Bu) Jaquing 80.0 (0,0)	GFL I	Sep12/23	- 465 - Pontiac 888 Baldwir Pontiac, M
	Sa La Uni	imple No. b Number ique Number	Non-ferrous Meta	als ECZ01 deg C D1 Madiso Recei Teste	EZU02290 EZU02290 EEZU02290 EEZU02290 EEZU02290 EEZU02290	10.0 (9)Hoy Bul Jaquing 80.0 (9)Hoy Bul Jaqu	GFL I	Sapi Brzz Environmental	- 465 - Pontiac 888 Baldwir Pontiac, M US 48340
	Sa La Uni Te:	mple No. b Number ique Number st Package	Non-ferrous Meta	als EZIII des C D1 Madiso Recei Teste Diagr	error Ave., Cary ived : 27 ed : 28 nosed : 01	10.0 10.0	GFL I	Environmental Contact: F	- 465 - Pontiac 888 Baldwir

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Submitted By: Ricky Matthews

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