

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 921017 Component

Fluid

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

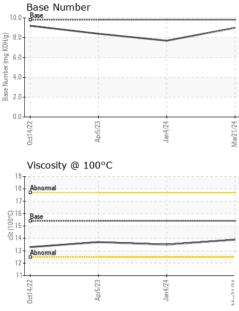
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0108380	GFL0080371	GFL0071256
Sample Date		Client Info		21 Mar 2024	04 Jan 2024	05 Apr 2023
Machine Age	hrs	Client Info		31190	30930	29406
Oil Age	hrs	Client Info		260	30930	29406
Oil Changed		Client Info		Changed	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
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	4	12	10
Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Nickel	ppm	ASTM D5185m	>5	0	1	<1
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	1	2	4
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>330	<1	2	<1
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
				-		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base		-	history2
	ppm ppm	ASTM D5185m		current	history1	
Boron		ASTM D5185m	0	current 2	history1 1	1
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	current 2 0	history1 1 0	1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 2 0 54	history1 1 0 63	1 0 60
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 2 0 54 0	history1 1 0 63 <1	1 0 60 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 2 0 54 0 947	history1 1 0 63 <1 1057	1 0 60 0 977
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	Current 2 0 54 0 947 1079	history1 1 0 63 <1 1057 1115	1 0 60 0 977 1112
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	Current 2 0 54 0 947 1079 922	history1 1 0 63 <1 1057 1115 1109	1 0 60 0 977 1112 1008
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 0 60 0 1010 1070 1150 1270	Current 2 0 54 0 947 1079 922 1284	history1 1 0 63 <1 1057 1115 1109 1340	1 0 60 0 977 1112 1008 1241
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 0 60 1010 1070 1150 1270 2060	Current 2 0 54 0 947 1079 922 1284 3682	history1 1 0 63 <1 1057 1115 1109 1340 3356	1 0 60 0 977 1112 1008 1241 3326
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 0 60 1010 1070 1150 1270 2060	Current 2 0 54 0 947 1079 922 1284 3682 Current	history1 1 0 63 <1 1057 1115 1109 1340 3356 history1	1 0 60 0 977 1112 1008 1241 3326 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 0 60 1010 1070 1150 1270 2060 Limit/base	Current 2 0 54 0 947 1079 922 1284 3682 current 2	history1 1 0 63 <1 1057 1115 1109 1340 3356 history1 8	1 0 60 0 977 1112 1008 1241 3326 history2 2
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 0 60 1010 1070 1150 1270 2060 Limit/base	current 2 0 54 0 947 1079 922 1284 3682 current 2 3	history1 1 0 63 <1 1057 1115 1109 1340 3356 history1 8 5	1 0 60 0 977 1112 1008 1241 3326 history2 2 2 2
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	current 2 0 54 0 947 1079 922 1284 3682 current 2 3 2 3 2 3 2	history1 1 0 63 <1 1057 1115 1109 1340 3356 history1 8 5 <1	1 0 60 0 977 1112 1008 1241 3326 history2 2 2 2 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	Current 2 0 54 0 947 1079 922 1284 3682 Current 2 3 2 3 2	history1 1 0 63 <1 1057 1115 109 1340 3356 history1 8 5 <1 history1	1 0 60 0 977 1112 1008 1241 3326 history2 2 2 2 0 0
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 2060 225 >25 >20 Limit/base >20	Current 2 0 54 0 947 1079 922 1284 3682 current 2 3 2 0 0 0.2	history1 1 0 63 <1 1057 1115 1109 1340 3356 history1 8 5 <1 history1 0.3	1 0 60 0 977 1112 1008 1241 3326 history2 2 2 2 2 0 history2 0 5
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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >4 >20	current 2 0 54 0 947 1079 922 1284 3682 current 2 3 2 3 2 3 2 5.9	history1 1 0 63 <1 1057 1115 109 1340 3356 history1 8 5 <1 history1 8 5 <1 0.3 8.0	1 0 60 0 977 1112 1008 1241 3326 history2 2 2 2 2 2 0 history2 0 5 8.2
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 0 0 1010 1070 1150 1270 2060 imit/base >25 20 imit/base >4 >20	Current 2 0 54 0 947 1079 922 1284 3682 current 2 3 2 Current 0.2 5.9 17.8	history1 1 0 63 <1 1057 1115 109 1340 3356 history1 8 5 <1 0.3 8.0 18.6	1 0 60 0 977 1112 1008 1241 3326 history2 2 2 2 0 history2 0.5 8.2 19.5



OIL ANALYSIS REPORT

VISUAL



		White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Yellow Metal		*Visual	NONE	NONE	NONE	NONE	
		Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
		Silt		*Visual	NONE	NONE	NONE	NONE
		Debris	scalar	*Visual	NONE	NONE	NONE	NONE
		Sand/Dirt		*Visual	NONE	NONE	NONE	NONE
/24 -	/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Jan4/24	Mar21/24	Odor		*Visual	NORML	NORML	NORML	NORML
		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
		Free Water		*Visual	20.L	NEG	NEG	NEG
	1				limit/base			
		FLUID PROPE Visc @ 100°C	cSt	method ASTM D445	limit/base	current 13.9	history1 13.5	history2 13.7
		GRAPHS	CSI	ASTM D445	15.4	13.9	13.5	13.7
		Ferrous Alloys						
		¹²	-	1				
Jan4/24 .	₽ <i>С</i> (1 <i>С</i> ~-1)	10 - iron		\backslash				
Jar	М	8-						
		Ē. 6						
		4						
		2						
		0		and the state of t	and a state of the			
		0ct14/22 Apr5/23		Jan4/24	Mar21/24			
		0		5 L	Ma			
		Non-ferrous Meta	als					
		copper						
		8 - Reasons lead						
		6						
		u dd						
		4						
		2						
		oct14/22		Jan 4/24	1/24			
		0ct14/22 Apr5/23		Jan	Mar21/24			
		Viscosity @ 100°	С			Base Numbe	r	
		19			10.0			
		18 - Abnormal						
		17-			(B/HO			
					¥ 6.0			
		016 Base 015 33			.aq 4.0			
		12			ase N			
		Abnormal			⁶⁰ 2.0	-		
		11		_				
		0ct14/22 Apr5/23		Jan4/24	Mar21/24	0ct14/22	Apr5/23	Jan4/24
		As		-ĭ	Ma	00	<	in M
d	Laboratory	: WearCheck USA - 50	01 Madisor	ו Ave., Cary	, NC 27513	GFL E	nvironmental - 93	32 - Muskego HO
ANAB	Sample No.	: GFL0108380	Receiv	ved : 27	7 Mar 2024			400 College Cl
CCREDITED	Lab Number			Tested : 27 Mar 2024				Muskego, W
	Unique Number Test Package		Diagn	Diagnosed : 27 Mar 2024 - Wes Davis			Contact: B	US 53150 rian Schlomanr
Certificate 2267	. Jos i aunugo		Contact: Brian Schlomann brian.schlomann@gflenv.com					
Certificate L2367 O discuss this		, contact Customer Serv	vice at 1-80	00-237-136	Э.		brian.schloma	nn@gflenv.com