

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 913150

Component Diesel Engine

Fluid 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

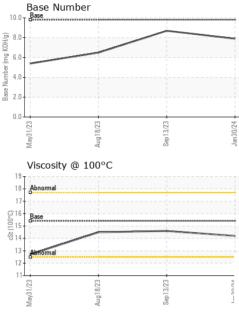
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

		May202	3 Aug2023	Sep2023 Ja	m2024	
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0103923	GFL0093237	GFL0083438
Sample Date		Client Info		30 Jan 2024	13 Sep 2023	18 Aug 2023
Machine Age	hrs	Client Info		2799	1750	1529
Oil Age	hrs	Client Info		1	1750	1529
Oil Changed		Client Info		Changed	Changed	Changed
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		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>110	8	4	16
Chromium	ppm	ASTM D5185m	>4	0	0	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>25	3	<1	8
Lead	ppm	ASTM D5185m	>45	0	0	0
Copper	ppm	ASTM D5185m	>85	<1	<1	4
Tin	ppm	ASTM D5185m	>4	<1	0	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current <1	history1 3	history2 <1
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1	3	<1
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	<1 0	3 0	<1 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 0 60	3 0 57	<1 0 63
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	<1 0 60 0	3 0 57 <1	<1 0 63 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 60 0 1053	3 0 57 <1 943	<1 0 63 1 1085
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 60 0 1053 1150	3 0 57 <1 943 1223	<1 0 63 1 1085 1227
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 60 0 1053 1150 1111	3 0 57 <1 943 1223 991	<1 0 63 1 1085 1227 1150
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	<1 0 60 0 1053 1150 1111 1339	3 0 57 <1 943 1223 991 1239	<1 0 63 1 1085 1227 1150 1416
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	<1 0 60 0 1053 1150 1111 1339 3197	3 0 57 <1 943 1223 991 1239 3488	<1 0 63 1 1085 1227 1150 1416 3871
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	<1 0 60 0 1053 1150 1111 1339 3197 current	3 0 57 <1 943 1223 991 1239 3488 history1	<1 0 63 1 1085 1227 1150 1416 3871 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 0 1010 1070 1150 1270 2060 Limit/base >30	<1 0 60 0 1053 1150 1111 1339 3197 current 4	3 0 57 <1 943 1223 991 1239 3488 history1 3	<1 0 63 1 1085 1227 1150 1416 3871 history2 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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 0 1010 1070 1150 1270 2060 Limit/base >30	<1 0 60 0 1053 1150 1111 1339 3197 Current 4 1	3 0 57 <1 943 1223 991 1239 3488 history1 3 <1	<1 0 63 1 1085 1227 1150 1416 3871 history2 5 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >30	<1 0 60 0 1053 1150 1111 1339 3197 Current 4 1 2	3 0 57 <1 943 1223 991 1239 3488 history1 3 < 1 3 <1 3	<1 0 63 1 1085 1227 1150 1416 3871 history2 5 1 1 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >30 200 limit/base	<1 0 60 0 1053 1150 1111 1339 3197 current 4 1 2 2 current	3 0 57 <1 943 1223 991 1239 3488 history1 3 <1 3 3 kistory1	<1 0 63 1 1085 1227 1150 1416 3871 history2 5 1 4 4 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 0 0 1010 1070 1150 1270 2060 limit/base >30 20 limit/base >33 >20	<1 0 60 0 1053 1150 1111 1339 3197 <u>current</u> 4 1 2 <u>current</u> 0.4	3 0 57 <1 943 1223 991 1239 3488 history1 3 <1 3 <1 3 history1 0.2	<1 0 63 1 1085 1227 1150 1416 3871 history2 5 1 4 4 history2 0.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >30 20 limit/base >33 >20	<1 0 60 0 1053 1150 1111 1339 3197 current 4 1 2 current 0.4 8.3 19.7	3 0 57 <1 943 1223 991 1239 3488 history1 3 3 <1 3 1 3 <i>history1</i> 0.2 6.9	<1 0 63 1 1085 1227 1150 1416 3871 history2 5 1 4 4 history2 0.4 10.5
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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >30 imit/base >3 >20 >3	<1 0 60 0 1053 1150 1111 1339 3197 <u>current</u> 4 1 2 <u>current</u> 0.4 8.3 19.7	3 0 57 <1 943 1223 991 1239 3488 history1 3 <1 3 <1 3 history1 0.2 6.9 18.4	<1 0 63 1 1085 1227 1150 1416 3871 history2 5 1 4 <u>history2</u> 0.4 10.5 21.5
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 TS ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 Iimit/base >30 220 Iimit/base >3 >20 >30	<1 0 60 0 1053 1150 1111 1339 3197 Current 4 1 2 Current 0.4 8.3 19.7 Current	3 0 57 <1 943 1223 991 1239 3488 history1 3 < 1239 3488 history1 0.2 6.9 18.4 history1	<1 0 63 1 1085 1227 1150 1416 3871 history2 5 1 4 history2 0.4 10.5 21.5 history2



OIL ANALYSIS REPORT

VISUAL



					current		
	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
0/24 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Jan 30/24	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
+	FLUID PROPI		method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	14.2	14.6	14.5
	GRAPHS	001	North Deep	10.4	17.2	14.0	14.0
÷.	Ferrous Alloys						
-	60 iron						
VC/UC	50						
1	40						
	₫ 30						
	20						
	10						
	1/23 T		3/23)/24			
	May31/23 Aug18/23		Sep 13/23	Jan30/24			
	Non-ferrous Meta	als					
	²⁰						
	copper						
	15 tin						
	15 - tin						
	15 - tin						
	15 - tin	_					
	Eg 10		m				
	Eg 10		p13/23	1005a			
	15 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		Sep13/23	Jan30/24			
	Viscosity @ 100°	c	Sep 13/23		Base Numbe	r	
	Viscosity @ 100°	c	Sep 13/23		Base Number	r	
	15 ud 10 5 0 CZUIE EXAMPLE EZUIE MW Viscosity @ 100° 19 Abnormal	c	Sep13/23	10.0	Base Number	r	
	Uiscosity @ 100°	c	Sep13/23	10.0	Base Numbe	r	
	Uiscosity @ 100°	c	Sep13/23	10.0	Base Number	r	
	Uiscosity @ 100°	c	Sep 13/23	10.0	Base Number	r	
	15 16 15 15 16 17 16 16 16 16 16 16 16 10 10 10 10 10 10 10 10 10 10	c	Sep13/23	10.0	Base Number	r	
	Viscosity @ 100° 15 0 EZZIE E Wiscosity @ 100° 19 16 16 16 15 14 13 14 13 14 13 14 13 14 13 14 15 15 15 15 15 15 15 15 15 15	c	Sep13/23	0.0 0.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Base Number	r	
	15 15 16 17 16 17 16 17 16 17 16 17 16 10 10 10 10 10 10 10 10 10 10	c	Sep 13/23	(0,0) (0,0)	Base Number	r	
	Viscosity @ 100° Base 15 0 EZI E ^{ke} W Viscosity @ 100° 19 18 Base 10 10 10 10 10 10 10 10 10 10	c		(0,000) (0,00) (0,000)	Base		
	Viscosity @ 100° Base 15 0 EZI E ^{ke} W Viscosity @ 100° 19 18 Base 10 10 10 10 10 10 10 10 10 10	c		(0,000) (0,00) (0,000)	Base		
	15 15 16 17 16 17 16 17 16 17 16 17 16 10 10 10 10 10 10 10 10 10 10	c	Sep13/23 Sep13/23	(0,0) (0,0)	Base Number		Sept 13/1.4
	Viscosity @ 100° 19 10 10 10 10 10 10 10 10 10 10		Sep 13/23	10.0 (6,10) (0,110) (0	Base EZUIE/NeW	Aug18/23	
Ϋ́	Viscosity @ 100° Base 15 0 EZI E ^{ke} W Viscosity @ 100° 19 18 Base 10 10 10 10 10 10 10 10 10 10		EZELIAS son Ave., Ca	10.0 (0)H(0) B 0.0 (0)H(0) B 0.0 (0)H(0)H(0)H(0)H(0)H(0)H(0)H(0)H(0)H(0)H	Base EZILE/New GFL Env	ECOLONY Prironmental - 865 - E	East Mount Haul
	Viscosity @ 100° 15 0 EZIE EN Viscosity @ 100° 19 10 10 10 10 10 10 10 10 10 10	501 Madis	Son Ave., Ca	10.0 (6,10) (0,110) (0	Base EZILE/New GFL Env	Aug18/23	E ast Mount Hau li t Houston Ro
y o. oer nber	Viscosity @ 100° Uiscosity @	501 Madia Recieved	son Ave., Ca d : 05 ed : 06	10.0 (0HU) 2000 (0HU)	Base EZILE/New GFL Env	EZCOLONY vironmental - 865 - E 7213 East Moun	East Mount Hauli t Houston Ro Houston, ⁻ US 770
y o. oer nber cage	Viscosity @ 100° Uiscosity @	501 Madia Recieved Diagnost	son Ave., Ca d : 05 ed : 06 tician : We	10.0 (0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(Base EZILE/New GFL Env	EZOUDARY STORES	East Mount Haul



* - 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)

Certificate L2367

Submitted By: TECHNICIAN ACCOUNT

T:

F: