

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 913014 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.

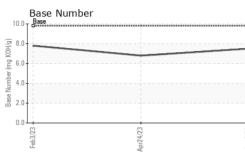
Fluid Condition

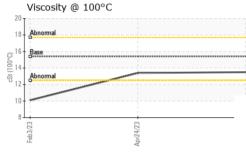
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0077922	GFL0071639	GFL0062152
Sample Date		Client Info		03 Aug 2023	24 Apr 2023	03 Feb 2023
Machine Age	hrs	Client Info		1720	1120	641
Oil Age	hrs	Client Info		609	479	641
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	ABNORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	0.5
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	14	18	47
Chromium	ppm	ASTM D5185m		<1	0	1
Nickel	ppm	ASTM D5185m	>5	3	3	8
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m		2	<1	6
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	47	29	153
Tin	ppm	ASTM D5185m	>15	1	<1	4
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method				history2
ADDITIVES Boron	mag	method ASTM D5185m	limit/base	current 2	history1 16	history2 337
	ppm ppm	ASTM D5185m	0			
Boron	ppm		0	2	16	337
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 1	16 0	337 0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	2 1 62	16 0 68	337 0 114
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 1 62 <1	16 0 68 1	337 0 114 5
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	2 1 62 <1 981	16 0 68 1 1046	337 0 114 5 660
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	2 1 62 <1 981 1073	16 0 68 1 1046 1187	337 0 114 5 660 1326
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	2 1 62 <1 981 1073 990	16 0 68 1 1046 1187 1048	337 0 114 5 660 1326 661
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	2 1 62 <1 981 1073 990 1233	16 0 68 1 1046 1187 1048 1308	337 0 114 5 660 1326 661 807
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 0 1010 1070 1150 1270 2060	2 1 62 <1 981 1073 990 1233 2973	16 0 68 1 1046 1187 1048 1308 3394	337 0 114 5 660 1326 661 807 2149
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	0 0 60 1010 1070 1150 1270 2060	2 1 62 <1 981 1073 990 1233 2973 current	16 0 68 1 1046 1187 1048 1308 3394 history1	337 0 114 5 660 1326 661 807 2149 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 imit/base >25	2 1 62 <1 981 1073 990 1233 2973 current 5	16 0 68 1 1046 1187 1048 1308 3394 history1 9	337 0 114 5 660 1326 661 807 2149 history2 ▲ 62
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 60 1010 1070 1150 1270 2060 imit/base >25	2 1 62 <1 981 1073 990 1233 2973 current 5 5	16 0 68 1 1046 1187 1048 1308 3394 history1 9 2	337 0 114 5 660 1326 661 807 2149 history2 ▲ 62 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	2 1 62 <1 981 1073 990 1233 2973 current 5 5 5 1	16 0 68 1 1046 1187 1048 1308 3394 history1 9 2 2 <1	337 0 114 5 660 1326 661 807 2149 history2 ▲ 62 2 11
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 >25	2 1 62 <1 981 1073 990 1233 2973 current 5 5 5 1 1 current	16 0 68 1 1046 1187 1048 1308 3394 history1 9 2 <1 2 <1 history1	337 0 114 5 660 1326 661 807 2149 history2 62 2 11 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 1imit/base >20	2 1 62 <1 981 1073 990 1233 2973 <i>current</i> 5 5 1 <i>current</i> 0.4	16 0 68 1 1046 1187 1048 1308 3394 history1 9 2 <1 9 2 <1 history1 0.3	337 0 114 5 660 1326 661 807 2149 history2 62 2 11 11 history2 0.3
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	2 1 62 <1 981 1073 990 1233 2973 current 5 5 1 current 0.4 7.6	16 0 68 1 1046 1187 1048 1308 3394 history1 9 2 <1 9 2 <1 history1 0.3 7.0	337 0 114 5 660 1326 661 807 2149 history2 ▲ 62 2 11 history2 0.3 9.7
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 imit/base >4 >20	2 1 62 <1 981 1073 990 1233 2973 current 5 5 1 current 0.4 7.6 18.9	16 0 68 1 1046 1187 1048 1308 3394 history1 9 2 <1 9 2 <1 history1 0.3 7.0 17.7	337 0 114 5 660 1326 661 807 2149 history2 ▲ 62 2 11 history2 0.3 9.7 24.6
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 D7844	0 0 0 1010 1070 1150 1270 2060 imit/base >25 20 imit/base >4 >20 >30 imit/base	2 1 62 <1 981 1073 990 1233 2973 <i>current</i> 5 5 1 <i>current</i> 0.4 7.6 18.9 <i>current</i>	16 0 68 1 1046 1187 1048 1308 3394 history1 9 2 <1 9 2 <1 history1 0.3 7.0 17.7 history1	337 0 114 5 660 1326 661 807 2149 history2 62 2 11 11 history2 0.3 9.7 24.6



OIL ANALYSIS REPORT





VISUAL						
- VICCIAL		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
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
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	RTIES	method	limit/base	current	history1	history
Visc @ 100°C	cSt	ASTM D445	15.4	13.5	13.4	▲ 10.1
GRAPHS						
Ferrous Alloys						
50 iron						
40 - nickel						
30						
20	-					
10-						
A Straphon	# is the state of					
33	23		23			
Feb3/23	4pr24/23		3			
	-		Aug			
Non-ferrous Metals			Aug3/23			
Non-ferrous Metal			Aug			
160 140			Aug			
160 140 120			Aug			
140 120 100			Aug			
160 140 120 100 100 80			Aug			
160 140 120 100 100 100 100 100 100			Aug			
160 140 120 100 100 100 100 100			Auo			
160 140 120 100 100 100 100 100 100 100 100 10			Aug			
160 140 120 100 100 100 100 100 100 100 100 10	5					
160 140 120 100 E 80 60 40 20			Aug3/23			
160 140 120 100 60 40 0 100 100 100 100 100 100 100 100 1	5			Base Number		
100 100 100 100 100 100 100 100 100 100	5			Base Number		
Viscosity @ 100°C	5		E2(EDMA	Base		
100 100 100 100 100 100 100 100	5		E2(EDMA	Base		
100 100 100 100 100 100 100 100	5		E2(EDMA	D T Base		
160 140 120 100 100 100 100 100 100 10	5		E2(EDMA	0 - <u>Base</u> 0		
140 140 140 120 100 100 100 100 100 100 10	5		E2(EDMA	0 - <u>Base</u> 0		
160 140 120 100 100 100 100 100 100 10	5		10.1 Pper (una K0H(0)	D - Base		
160 140 120 100 100 100 100 100 100 10	5		10.1 (6)(HOX) Seg 2.1	D - Base		
160 140 120 140 120 100 100 100 100 100 100 10	5		10.1 88. Junuper (uol KOH(d) 88. Junuper (uol KOH(d) 89. Junuper (uol KOH(d) 8	D - Base	Api24/23	

: 10 Aug 2023

: Wes Davis



250 Alder Avenue Omro, WI US 54963 Contact: Tim Kieffer tim.kieffer@gflenv.com T: (608)219-0288 M 106:2012) F:

 Certificate 12367
 Test Package
 : FLEET

 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)

Diagnosed

Diagnostician

: 05920116

Lab Number

Unique Number : 10592030