

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 920048

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.

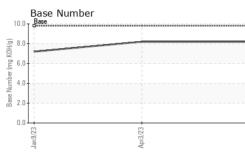
Fluid Condition

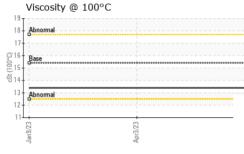
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR	MATION	method	limit/base	current		history2
Sample Number		Client Info		GFL0084557	GFL0078792	GFL0058680
Sample Date		Client Info		07 Aug 2023	03 Apr 2023	09 Jan 2023
Machine Age	hrs	Client Info		6789	6206	5640
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	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
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>110	15	15	21
Chromium	ppm	ASTM D5185m	>4	<1	<1	<1
Nickel	ppm	ASTM D5185m		0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	6	6	8
Lead	ppm	ASTM D5185m	>45	0	0	0
Copper	ppm	ASTM D5185m	>85	<1	<1	2
Tin	ppm		>4	<1	0	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	ourroat	In the second	history2
		memou	IIIIII/Dase	current	nistory i	TISLOIVZ
Boron	maa		0	current	history1 0	
	ppm ppm	ASTM D5185m		1	0 1	0 0
Boron Barium	ppm		0		0 1	0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	1 0 66	0	0
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60	1 0	0 1 60	0 0 63
Boron Barium Molybdenum	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	1 0 66 <1	0 1 60 <1	0 0 63 <1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	1 0 66 <1 1134	0 1 60 <1 953	0 0 63 <1 942
Boron Barium Molybdenum Manganese Magnesium	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 66 <1 1134 1174	0 1 60 <1 953 1028	0 0 63 <1 942 1098
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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 66 <1 1134 1174 1156	0 1 60 <1 953 1028 973	0 0 63 <1 942 1098 999
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 66 <1 1134 1174 1156 1462	0 1 60 <1 953 1028 973 1219	0 0 63 <1 942 1098 999 1243
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	1 0 66 <1 1134 1174 1156 1462 4017	0 1 60 <1 953 1028 973 1219 3104	0 0 63 <1 942 1098 999 1243 2777
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 66 <1 1134 1174 1156 1462 4017 current	0 1 60 <1 953 1028 973 1219 3104 history1	0 0 63 <1 942 1098 999 1243 2777 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	1 0 66 <1 1134 1174 1156 1462 4017 current 4	0 1 60 <1 953 1028 973 1219 3104 history1 3	0 0 63 <1 942 1098 999 1243 2777 history2 0
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 66 <1 1134 1174 1156 1462 4017 <u>current</u> 4 7	0 1 60 <1 953 1028 973 1219 3104 history1 3 12	0 0 63 <1 942 1098 999 1243 2777 history2 0 <1
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 60 0 1010 1070 1150 1270 2060 limit/base >30	1 0 66 <1 1134 1174 1156 1462 4017 current 4 7 3 3	0 1 60 <1 953 1028 973 1219 3104 history1 3 12 4	0 0 63 <1 942 1098 999 1243 2777 history2 0 <1 11 11 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >30 >20 limit/base >33	1 0 66 <1 1134 1174 1156 1462 4017 <i>current</i> 4 7 3 <i>current</i> 0.3	0 1 60 <1 953 1028 973 1219 3104 history1 3 12 4 history1 0.4	0 0 63 <1 942 1098 999 1243 2777 history2 0 <1 11 11 history2 0.6
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 TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >20 limit/base	1 0 66 <1 1134 1174 1156 1462 4017 current 4 7 3 3	0 1 60 <1 953 1028 973 1219 3104 history1 3 12 4 history1	0 0 63 <1 942 1098 999 1243 2777 history2 0 <1 11 11 history2
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 imit/base >30 220 imit/base >3 >20	1 0 66 <1 1134 1174 1156 1462 4017 <i>current</i> 4 7 3 <i>current</i> 0.3 8.0	0 1 60 <1 953 1028 973 1219 3104 history1 3 12 4 history1 0.4 7.9	0 0 63 <1 942 1098 999 1243 2777 history2 0 <1 11 11 history2 0.6 9.4
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 >30 imit/base >3 20	1 0 66 <1 1134 1174 1156 1462 4017 <i>current</i> 4 7 3 <i>current</i> 0.3 8.0 19.6 <i>current</i>	0 1 60 <1 953 1028 973 1219 3104 history1 3 12 4 history1 0.4 7.9 19.2	0 0 63 <1 942 1098 999 1243 2777 history2 0 <1 11 11 history2 0.6 9.4 20.7
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 D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 2060 2060 200 200 200 200 20	1 0 66 <1 1134 1174 1156 1462 4017 <i>current</i> 4 7 3 <i>current</i> 0.3 8.0 19.6	0 1 60 <1 953 1028 973 1219 3104 history1 3 12 4 history1 0.4 7.9 19.2 history1	0 0 63 <1 942 1098 999 1243 2777 history2 0 <1 11 11 history2 0.6 9.4 20.7 history2



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
Apr3/23 Aug7/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
An	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	13.4	13.4	13.4
	GRAPHS						
	Ferrous Alloys						
/23	iron						
Apr3/23	20-						
	15	<u> </u>					
	E 10-						
	5-						
	Jan 9/23	Apr3/23 -		Aug7/23 -			
	Jan	Apri		Aug			
	Non-ferrous Meta	als					
	10 copper						
	nananananan lead						
	8 - tin						
	nananananan lead						
	8 - tin						
	8 - tin						
	8 - Ed 6 - En 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -						
	8 6 4 2	3/23		1/23			
	8 - Ed 6 - En 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -	Apr3/23		Aug7/23			
	Viscosity @ 100°			Aug7/23	Base Number		
	Niscosity @ 100°			910.1/3			
	Viscosity @ 100°			10.1	Base		
	Viscosity @ 100°			10.1	Base		
	Viscosity @ 100°			10.1	Base		
	Viscosity @ 100°			10.1	Base.		
	Niscosity @ 100°			10.0 (b)HO see Jynumper 4.1	Base.		
	8 6 6 7 7 7 7 8 6 7 7 7 8 7 7 8 7 7 7 8 7 7 7 7 8 7 7 7 7 7 7 7 7 7 7 7 7 7			10. (б) Но X Бш) ва а	Base.		
	Base. 10 10 10 10 10 10 10 10 10 10	C		10.1 (6)HCX Bu) Jaquuru 4.1 Bu Jaquuru 888 2.1 0.0	Base		
	Base. 10 10 10 10 10 10 10 10 10 10	C		10.1 (6)HCX Bu) Jaquuru 4.1 Bu Jaquuru 888 2.1 0.0	Base		
	8 8 4 2 0 ECC FE Viscosity @ 100° 19 18 Abnormal 17 Base Abnormal 12 14 13 Abnormal 12			10.0 (0)HOX 00 Jaquiny aquiny 888 2.1	Base.	Api3/23	
Laboratory	Viscosity @ 100° Viscosity @ 100° Base Viscosity @ 100° : WearCheck USA -	C EZUELING 501 Madia		10.0 (0)HOX 0.0 0)Jaquiny see 2.1 0.1 cz//0ny ry, NC 27511	Base Ecoloria	EZEPONY vironmental - 91	
Laboratory Sample No.	Viscosity @ 100° Viscosity @ 100° ¹⁹ ⁶ ⁶ ⁶ ⁶ ⁶ ⁶ ⁶ ⁶	C EZUPION 501 Madia Received	d : 08 /	10.0 (0)HOX DW Jaquiny 888 2.1 0.1 FZ/L ^{DH} ry, NC 27513 Aug 2023	Base Ecoloria	EZEPONY vironmental - 91	Industrial Dri
Laboratory Sample No. Lab Number	Viscosity @ 100° Viscosity @ 100° ¹⁹ ¹⁰ ¹⁰ ¹⁰ ¹⁰ ¹⁰ ¹⁰ ¹¹ ¹⁰ ¹⁰	C EZUPION 501 Madia Received Diagnose	d : 08 / ed : 09 /	10.0 (0)HOX DW 34 (0)HOX DW 4.4 0.4 c21 0.4 c21 0.4 c21 0.4 c21 0.4 c21 0.4 c21 0.4 c21 0.4 c21 0.4 c21 c21 c21 c21 c21 c21 c21 c21 c21 c21	Base Ecoloria	EZEPONY vironmental - 91	Industrial Dri Hartland, V
Laboratory Sample No.	Viscosity @ 100° Viscosity @ 100° ¹⁹ ⁶ ⁶ ⁶ ⁶ ⁶ ⁶ ⁶ ⁶	C EZUPION 501 Madia Received	d : 08 / ed : 09 /	10.0 (0)HOX DW Jaquiny 888 2.1 0.1 FZ/L ^{DH} ry, NC 27513 Aug 2023	Base Ecoloria	vironmental - 91 630 E	Industrial Dri

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Ηų

Ξ.

Contact/Location: David McCall - GFL918