

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 812062

Fluid

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.

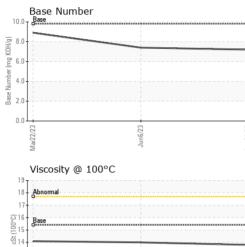
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0085636	GFL0076864	GFL0076881
Sample Date		Client Info		21 Aug 2023	06 Jun 2023	22 Mar 2023
Machine Age	hrs	Client Info		2490	1910	1306
Oil Age	hrs	Client Info		580	600	600
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<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	>120	15	18	3
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	1	1	0
Titanium	ppm	ASTM D5185m	>2	0	<1	<1
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	1	0	1
Lead	ppm	ASTM D5185m	>40	<1	<1	0
Copper	ppm	ASTM D5185m	>330	37	64	0
Tin	ppm	ASTM D5185m	>15	1	1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
		and the second			In the term of the	history2
ADDITIVES		method	limit/base	current	history1	nistoryz
Boron	ppm	ASTM D5185m	0	3	6	10
	ppm ppm					
Boron		ASTM D5185m	0	3	6	10
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	3 2	6 0	10 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	3 2 62	6 0 59	10 0 57
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	3 2 62 <1	6 0 59 <1	10 0 57 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	3 2 62 <1 926	6 0 59 <1 901	10 0 57 1 904
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	3 2 62 <1 926 1146	6 0 59 <1 901 1106	10 0 57 1 904 1174
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	3 2 62 <1 926 1146 966	6 0 59 <1 901 1106 970	10 0 57 1 904 1174 992
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	3 2 62 <1 926 1146 966 1205	6 0 59 <1 901 1106 970 1211	10 0 57 1 904 1174 992 1198
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	3 2 62 <1 926 1146 966 1205 2596	6 0 59 <1 901 1106 970 1211 2930	10 0 57 1 904 1174 992 1198 3440
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	3 2 62 <1 926 1146 966 1205 2596 current	6 0 59 <1 901 1106 970 1211 2930 history1	10 0 57 1 904 1174 992 1198 3440 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	3 2 62 <1 926 1146 966 1205 2596 current 4	6 0 59 <1 901 1106 970 1211 2930 history1 4	10 0 57 1 904 1174 992 1198 3440 history2 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	3 2 62 <1 926 1146 966 1205 2596 current 4 6	6 0 59 <1 901 1106 970 1211 2930 history1 4 4	10 0 57 1 904 1174 992 1198 3440 history2 3 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	3 2 62 <1 926 1146 966 1205 2596 current 4 6 2	6 0 59 <1 901 1106 970 1211 2930 history1 4 4 1	10 0 57 1 904 1174 992 1198 3440 history2 3 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 TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	3 2 62 <1 926 1146 966 1205 2596 current 4 6 2 2	6 0 59 <1 901 1106 970 1211 2930 history1 4 4 1 1 history1	10 0 57 1 904 1174 992 1198 3440 history2 3 2 <1 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 >25 >20 limit/base	3 2 62 <1 926 1146 966 1205 2596 <u>current</u> 4 6 2 2 <u>current</u> 0.8	6 0 59 <1 901 1106 970 1211 2930 history1 4 4 1 1 history1 0.8	10 0 57 1 904 1174 992 1198 3440 history2 3 2 <1 history2 0.2
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	3 2 62 <1 926 1146 966 1205 2596 <i>current</i> 4 6 2 2 <i>current</i> 0.8 8.1	6 0 59 <1 901 1106 970 1211 2930 history1 4 4 1 1 history1 0.8 7.7	10 0 57 1 904 1174 992 1198 3440 history2 3 2 <1 5 2 <1 history2 0.2 4.9
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 TS ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 imit/base >4 20 20	3 2 62 <1 926 1146 966 1205 2596 Current 4 6 2 Current 0.8 8.1 20.6 Current	6 0 59 <1 901 1106 970 1211 2930 history1 4 4 4 1 1 history1 0.8 7.7 20.6 history1	10 0 57 1 904 1174 992 1198 3440 history2 3 2 <1 history2 0.2 4.9 17.8
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	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 220 20 20 20 20 20 20 20 20 20 20 20	3 2 62 <1 926 1146 966 1205 2596 current 4 6 2 current 0.8 8.1 20.6	6 0 59 <1 901 1106 970 1211 2930 history1 4 4 4 1 1 0.8 7.7 20.6	10 0 57 1 904 1174 992 1198 3440 history2 3 2 <1 history2 0.2 4.9 17.8 history2



13 Abnormal 12 11

Mar22/23

OIL ANALYSIS REPORT



		VISUAL						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
Jun6/23	Aug21/23 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Jun	Aug2	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	13.8	14.0	14.1
		GRAPHS						
			m					
		Non-ferrous Meta	Jun6/23		Aug21/23			
		Non-ferrous Meta	als		Aug21/23	Base Number		
		Non-ferrous Meta	als		9n@21/23	Base		
		Non-ferrous Meta	als		9n@21/23	Base		
		Non-ferrous Meta	als		9n@21/23	Base		
		Non-ferrous Meta	als		9n@21/23	Base		
		Non-ferrous Meta	als		9n@21/23	Base		
		Non-ferrous Meta	als		0.01 per (mg KOH(0)	Base		
		Non-ferrous Meta	als		10.0 Base Number (mg K0H) Base San (mg K0H) Base	Base		
		Non-ferrous Meta	als C		0.01 Base Mumber (mg KOH(s) Base Mumber (mg K	Base		
		Non-ferrous Meta	als		10.0 (b)H0y Bars Munber (mg 4.0 2.0	Base	Jun623	
tificate L2367		Non-ferrous Meta	als c c	d : 28 / ed : 29 /	10.0 Base Number (ng) (121/23 Base Number (ng) (121/23 Base Number (ng) (121/23 Base Number (ng) (121/23) Base Number (ng)	Base	EZggung vironmental - 411	

Submitted By: TECHNICIAN ACCOUNT