

OIL ANALYSIS REPORT

Sample Rating Trend





Area {UNASSIGNED} Machine Id 914026

Component 1 Diesel Engine

PETRO CANADA DURON SHP 15W40 (9 GAL)

SAMPLE INFORMATION

met	hod	limit/base	curre	nt	history1	histo
	Aug20		Jet2023	Dec2023		

DIAGNOSIS	

Recommendation

Resample at the next service interval to monitor.

Fluic

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

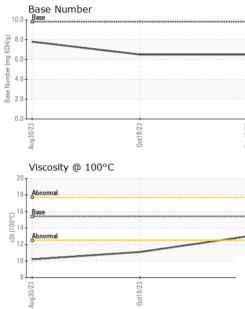
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number		Client Info		GFL0106648	GFL0097706	GFL0087304
Sample Date		Client Info		19 Dec 2023	18 Oct 2023	30 Aug 2023
Machine Age	hrs	Client Info		1565	1040	640
Oil Age	hrs	Client Info		525	400	640
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	ABNORMAL	ABNORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	0.5
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	17	52	43
Chromium	ppm	ASTM D5185m	>20	<1	1	1
Nickel	ppm	ASTM D5185m	>5	2	4	3
Titanium	ppm	ASTM D5185m		0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	<1	<1
Aluminum	ppm	ASTM D5185m	>20	0	2	2
Lead	ppm	ASTM D5185m	>20	0	<1	<1
			>330	33	164	258
Copper	ppm	ASTM D5185m ASTM D5185m			4	200
Tin	ppm		>15	0		
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	<1	0
						biete w.O
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	limit/base	4	63	173
	ppm ppm	ASTM D5185m ASTM D5185m				
Boron		ASTM D5185m	0	4	63	173
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	4 0	63 6	173 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	4 0 46	63 6 106	173 0 115
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	4 0 46 <1	63 6 106 4	173 0 115 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	4 0 46 <1 785	63 6 106 4 722	173 0 115 5 749
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	4 0 46 <1 785 1004	63 6 106 4 722 1376	173 0 115 5 749 1539
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 ASTM D5185m	0 0 60 0 1010 1070 1150	4 0 46 <1 785 1004 790	63 6 106 4 722 1376 778	173 0 115 5 749 1539 714
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270	4 0 46 <1 785 1004 790 1051	63 6 106 4 722 1376 778 914	173 0 115 5 749 1539 714 871
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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 0 1010 1070 1150 1270 2060	4 0 46 <1 785 1004 790 1051 2271	63 6 106 4 722 1376 778 914 2081	173 0 115 5 749 1539 714 871 2667
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	4 0 46 <1 785 1004 790 1051 2271 2271 current 9	63 6 106 4 722 1376 778 914 2081 history1 ▲ 63	173 0 115 5 749 1539 714 871 2667 history2 ▲ 77
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	4 0 46 <1 785 1004 790 1051 2271 current	63 6 106 4 722 1376 778 914 2081 history1	173 0 115 5 749 1539 714 871 2667 history2
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 Limit/base >25	4 0 46 <1 785 1004 790 1051 2271 2271 current 9 3	63 6 106 4 722 1376 778 914 2081 history1 ▲ 63 2	173 0 115 5 749 1539 714 871 2667 history2 ▲ 77 6
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 2060 225 >25 >20	4 0 46 <1 785 1004 790 1051 2271 current 9 3 0 0 current	63 6 106 4 722 1376 778 914 2081 ▲ 63 2 6 6 history1	173 0 115 5 749 1539 714 871 2667 history2 ▲ 77 6 7 7
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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	4 0 46 <1 785 1004 790 1051 2271 current 9 3 0 current 0.5	63 6 106 4 722 1376 778 914 2081 history1 ▲ 63 2 6 6 history1 0.7	173 0 115 5 749 1539 714 871 2667 history2 ▲ 77 6 7 7 history2 0
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 TS 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	4 0 46 <1 785 1004 790 1051 2271 <i>current</i> 9 3 0 <i>current</i> 0.5 8.0	 63 6 106 4 722 1376 778 914 2081 history1 ▲ 63 2 6 history1 0.7 10.5 	173 0 115 5 749 1539 714 871 2667 history2 ▲ 77 6 7 7 6 7 7 history2
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 limit/base >25 >20 limit/base >20	4 0 46 <1 785 1004 790 1051 2271 current 9 3 0 current 0.5	63 6 106 4 722 1376 778 914 2081 history1 ▲ 63 2 6 6 history1 0.7	173 0 115 5 749 1539 714 871 2667 history2 ▲ 77 6 7 7 history2 0
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	4 0 46 <1 785 1004 790 1051 2271 <i>current</i> 9 3 0 <i>current</i> 0.5 8.0	 63 6 106 4 722 1376 778 914 2081 history1 ▲ 63 2 6 history1 0.7 10.5 	173 0 115 5 749 1539 714 871 2667 history2 ▲ 77 6 7 7 6 7 7 history2
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 2060 225 20 225 20 20 20 20 20 20 20 20 20 20 20 20 20	4 0 46 <1 785 1004 790 1051 2271 <i>current</i> 9 3 0 <i>current</i> 0.5 8.0 20.0	 63 6 106 4 722 1376 778 914 2081 history1 63 2 6 history1 0.7 10.5 23.6 	173 0 115 5 749 1539 714 871 2667 history2 ↑ 77 6 7 7 history2 0 11.0 27.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAC	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 220 20 20 20 20 20 20 20 20	4 0 46 <1 785 1004 790 1051 2271 0urrent 9 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	63 6 106 4 722 1376 778 914 2081 ▲ 63 2 6 6 ▲ 63 2 6 ▲ 63 2 6 ▲ 63 2 3 2 6 10.5 23.6	173 0 115 5 749 1539 714 871 2667 history2 ▲ 77 6 7 7 6 7 history2 0 11.0 27.0



OIL ANALYSIS REPORT

VISUAL



	VISUAL		method	limit/base		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
8/23		scalar	*Visual	NORML	NORML	NORML	NORML
0ct18/23	Appearance 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		method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445		13.0	▲ 11.1	▲ 10.2
	GRAPHS	001	, lot lit b t lo	10.1	1010		10.L
	Ferrous Alloys						
	60 iron						
0ct18/23	50 - chromium	~					
Oct	40-						
	<u>Ē</u> .30 -						
	20 -						
	10-						
	0	-		-			
	23	8/23 -		9/23 -			
	Aug30/	0ct18/23		Dec19/23			
	Non-ferrous Metal	s					
	300 T						
	250 - copper						
	200						
	톱 150-						
	100-						
	50						
)/23	3/23 -		1/23			
	Aug30/25	0ct18/23		Dec19/23			
	Viscosity @ 100°C				- N -		
	¹⁹ T			10.0	Base Numbe	er	
	18 - Abnormal				-	1	
	16 Page			€ ^{8.0}			
	Dase			ġ			
	다 15 0 14 평 13 Abnormal			er (ji			
	U			0.0 Hoj Base Number (mg KOH/g)	1		
	12			ee 2.0			
	10			2.0			
	9 L						
	Aug30/23	0ct18/23		Dec19/23	Aug30/23	0ct18/23	
Laboratory Sample No. Lab Number	: WearCheck USA - 5 : GFL0106648	501 Madia Recieved Diagnos Diagnosi	d : 26	ry, NC 27513 Dec 2023 Dec 2023		invironmental -	405 - Arbor Hill 7400 Napier R IORTHVILLE, M



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Submitted By: John Nahal