

OIL ANALYSIS REPORT

Sample Rating Trend



4647M Component Diesel Engine

Machine Id

PETRO CANADA DURON SHP 15W40 (36 QTS)

SAMPLE INFORMATION method

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.

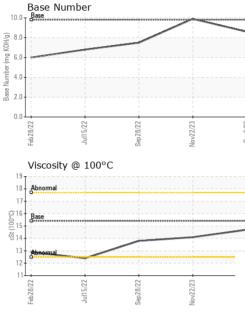
Fluid Condition

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		method	limit/base	current	nistory i	nistory2
Sample Number		Client Info		GFL0097739	GFL0097730	GFL0052108
Sample Date		Client Info		03 Dec 2023	22 Nov 2023	28 Sep 2022
Machine Age	hrs	Client Info		17959	17870	14300
Oil Age	hrs	Client Info		600	580	14300
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	ABNORMAL	MARGINAL
-						
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	1 .4
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	>90	11	66	23
Chromium	ppm	ASTM D5185m	>20	0	3	1
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	<1	<u>▲</u> 6	3
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	<1	2	1
Tin	ppm	ASTM D5185m	>15	0	0	<1
Vanadium	ppm	ASTM D5185m	210	0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
oddinidini	ppin	NOTINI DOTOOIII		v	0	0
		ام م مالح مدر			history of	biete m.O
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	7	3	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	7 0	3 0	2 2
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	7 0 60	3 0 89	2 2 64
Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	7 0 60 0	3 0 89 <1	2 2 64 <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	7 0 60 0 868	3 0 89 <1 1013	2 2 64 <1 930
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	7 0 60 0 868 1155	3 0 89 <1 1013 1166	2 2 64 <1 930 1111
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	7 0 60 0 868 1155 1032	3 0 89 <1 1013 1166 1158	2 2 64 <1 930 1111 1017
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	7 0 60 0 868 1155 1032 1262	3 0 89 <1 1013 1166 1158 1438	2 2 64 <1 930 11111 1017 1263
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	0 0 60 0 1010 1070 1150	7 0 60 0 868 1155 1032	3 0 89 <1 1013 1166 1158	2 2 64 <1 930 1111 1017
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	7 0 60 0 868 1155 1032 1262	3 0 89 <1 1013 1166 1158 1438	2 2 64 <1 930 11111 1017 1263
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	7 0 60 0 868 1155 1032 1262 3258	3 0 89 <1 1013 1166 1158 1438 3395	2 2 64 <1 930 1111 1017 1263 3457
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	7 0 60 0 868 1155 1032 1262 3258 current	3 0 89 <1 1013 1166 1158 1438 3395 history1	2 2 64 <1 930 1111 1017 1263 3457 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 1010 1070 1150 1270 2060 kimit/base >25	7 0 60 0 868 1155 1032 1262 3258 current 4	3 0 89 <1 1013 1166 1158 1438 3395 history1 ▲ 26	2 2 64 <1 930 1111 1017 1263 3457 history2 7
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 method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	7 0 60 0 868 1155 1032 1262 3258 current 4 2	3 0 89 <1 1013 1166 1158 1438 3395 history1 ▲ 26 ▲ 466	2 2 64 <1 930 1111 1017 1263 3457 history2 7 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	7 0 60 0 868 1155 1032 1262 3258 current 4 2 0	3 0 89 <1 1013 1166 1158 1438 3395 history1 ▲ 26 ▲ 26 6 ¥66 6	2 2 64 <1 930 1111 1017 1263 3457 history2 7 6 2
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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 limit/base >20	7 0 60 0 868 1155 1032 1262 3258 current 4 2 0 0	3 0 89 <1 1013 1166 1158 1438 3395 history1 ▲ 26 ▲ 466 6	2 2 64 <1 930 1111 1017 1263 3457 history2 7 6 2 2 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 limit/base >20	7 0 60 0 868 1155 1032 1262 3258 current 4 2 0 0 current 0.3	3 0 89 <1 1013 1166 1158 1438 3395 history1 ▲ 26 ▲ 466 6 history1 1.4	2 2 64 <1 930 1111 1017 1263 3457 history2 7 6 2 history2 0.5
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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >20	7 0 60 0 868 1155 1032 1262 3258 <i>current</i> 4 2 0 <i>current</i> 0.3 6.7	3 0 89 <1 1013 1166 1158 1438 3395 history1 ▲ 26 ▲ 466 6 • history1 1.4 1.4 11.0	2 2 64 <1 930 1111 1017 1263 3457 history2 7 6 2 7 6 2 2 history2 0.5 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 ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	0 0 0 1010 1070 1150 2260 225 220 220 imit/base >6 >20 >20 >30	7 0 60 0 868 1155 1032 1262 3258 <i>current</i> 4 2 0 <i>current</i> 0.3 6.7 18.6	3 0 89 <1 1013 1166 1158 1438 3395 history1 ▲ 26 ▲ 466 6 ★ 466 6 ★ 1.4 1.4 1.4 11.0 22.6	2 2 64 <1 930 1111 1017 1263 3457 history2 7 6 2 7 6 2 2 history2 0.5 10.5 22.9 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 TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 20 20 20 20 20 20 20 20 20 20 20	7 0 60 0 868 1155 1032 1262 3258 <u>current</u> 4 2 0 <u>current</u> 0.3 6.7 18.6	3 0 89 <1 1013 1166 1158 1438 3395 history1 ▲ 26 ▲ 466 6 history1 1.4 1.4 11.0 22.6	2 2 64 <1 930 1111 1017 1263 3457 history2 7 6 2 2 history2 0.5 10.5 22.9



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
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		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.7	14.1	13.8
GRAPHS						
Ferrous Alloys						
0 - iron chromium		\wedge				
0 - nickel		$/ \langle \cdot \rangle$				
	/	$\langle \rangle$				
•	$\langle /$					
0-	¥		\rightarrow			
0-			<u>\</u>			
0	2	(Y)				
0	p28/22	v22/23	Jec3/23			
Feb28/22	Sep 28/22	E2/22/00N	Dec3/23			
0		Nov22/23	Dec3/23			
Non-ferrous Metal		Nov22/23	Dec3/23			
Non-ferrous Metal		Nov2223	Dec3/23			
Non-ferrous Metal		Nov22/23	Dec:3/23			
Non-ferrous Metal		Nov22/23	Dec;3/23			
Non-ferrous Metal		Nov2223	Dec3/23			
Non-ferrous Metal		EZZZZYON	Dec3/23			
Non-ferrous Metal		Mov22/23	Dec3/23			
Non-ferrous Metal	s					
Non-ferrous Metal	S S S S S S S S S S S S S S S S S S S	Nov2223	Dec3/23			
Non-ferrous Metal	S S S S S S S S S S S S S S S S S S S		Dec3/23	Base Number		
Non-ferrous Metal	S S S S S S S S S S S S S S S S S S S		Dec3/23	Base Number		
Non-ferrous Metal	S S S S S S S S S S S S S S S S S S S		0.0.0	Base Number		
Non-ferrous Metal	S S S S S S S S S S S S S S S S S S S		0.0.0	Base Number		
Non-ferrous Metal	S S S S S S S S S S S S S S S S S S S		0.0.0	Base Number		
Non-ferrous Metal	S S S S S S S S S S S S S S S S S S S		0.0.0	Base Number		
Non-ferrous Metal	S S S S S S S S S S S S S S S S S S S		0.01 0.01	Base Number		
Non-ferrous Metal	S S S S S S S S S S S S S S S S S S S		0.0.0	Base Number		
Non-ferrous Metal	S S S S S S S S S S S S S S S S S S S		0.01 0.01	Base Number	Sep28/22	Nov22/23



 Vertificate L2367
 Unique Number
 : 10779974
 Diagnostician
 : Wes Davis

 Certificate L2367
 Test Package
 : FLEET
 : 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)

: GFL0097739

: 06030183

: WearCheck USA - 501 Madison Ave., Cary, NC 27513

: 11 Dec 2023

: 12 Dec 2023

Received

Diagnosed

Laboratory

Sample No.

Lab Number