

OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



834037 Component Natural Gas Engine Fluid PETRO CANADA DURON SHP 15W40 (21 QTS)

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	history1	history2
Sample Number		Client Info		GFL0114539	GFL0074619	
Sample Date		Client Info		18 Apr 2024	12 Jan 2024	
Machine Age	hrs	Client Info		1735	1194	
Oil Age	hrs	Client Info		0	1194	
Oil Changed		Client Info		Not Changd	Changed	
Sample Status				NORMAL	ABNORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Water		WC Method	>0.1	NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	27	4 51	
Chromium	ppm	ASTM D5185m	>5	<1	2	
Nickel	ppm	ASTM D5185m	>4	0	2	
Titanium	ppm	ASTM D5185m	>5	0	0	
Silver	ppm	ASTM D5185m	>3	0	0	
Aluminum	ppm	ASTM D5185m	>25	3	5	
Lead	ppm	ASTM D5185m	>40	1	3	
Copper	ppm	ASTM D5185m	>150	3	15	
Tin	ppm	ASTM D5185m	>4	2	2	
Vanadium	ppm	ASTM D5185m		<1	<1	
Cadmium	ppm	ASTM D5185m		0	0	
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 0	history1 1	history2
	ppm ppm					
Boron		ASTM D5185m	0	0	1	
Boron Barium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	0 0	1 0	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	0 0 72	1 0 64	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	0 0 72 2	1 0 64 13	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	0 0 72 2 976	1 0 64 13 911	
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	0 0 72 2 976 1227	1 0 64 13 911 1289	
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	0 0 72 2 976 1227 980	1 0 64 13 911 1289 850	
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	0 0 72 2 976 1227 980 1227	1 0 64 13 911 1289 850 1040	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm	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	0 0 72 2 976 1227 980 1227 3218	1 0 64 13 911 1289 850 1040 2157	
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 limit/base	0 0 72 2 976 1227 980 1227 3218 current	1 0 64 13 911 1289 850 1040 2157 history1	 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 0 1010 1070 1150 1270 2060 limit/base >25	0 0 72 2 976 1227 980 1227 3218 current 7	1 0 64 13 911 1289 850 1040 2157 history1 ▲ 26	 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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	0 0 72 2 976 1227 980 1227 3218 current 7 5	1 0 64 13 911 1289 850 1040 2157 history1 ▲ 26 7	 history2
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 60 0 1010 1070 1150 1270 2060 limit/base >25	0 0 72 2 976 1227 980 1227 3218 current 7 5 3	1 0 64 13 911 1289 850 1040 2157 history1 ▲ 26 7 8	 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	0 0 72 2 976 1227 980 1227 3218 current 7 5 3 3	1 0 64 13 911 1289 850 1040 2157 history1 26 7 8 8 8	 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	0 0 72 2 976 1227 980 1227 3218 <u>current</u> 7 5 3 3 <i>current</i> 0	1 0 64 13 911 1289 850 1040 2157 history1 ▲ 26 7 8 8 history1 0	 history2 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 limit/base >25 .20 limit/base	0 0 72 2 976 1227 980 1227 3218 <i>current</i> 7 5 3 3 <i>current</i> 0 9.6	1 0 64 13 911 1289 850 1040 2157 history1 ▲ 26 7 8 26 7 8 bistory1 0 13.8	 history2 history2 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 imit/base >25 imit/base	0 0 72 2 976 1227 980 1227 3218 current 7 5 3 current 0 9.6 20.3	1 0 64 13 911 1289 850 1040 2157 history1 ▲ 26 7 8 26 7 8 bistory1 0 13.8 26.4	 history2 history2 history2



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30 25. 4ps/cm 20. A

> 15 10-5 Jan12/24 -

10.0 T Base

0.8 Number (mg KOH/g) 4.0 2.0

0.0 Jan 12/24

19 m 18 Abnormal 17-Base

13-Abnormal 12 111 Jan12/24

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OIL ANALYSIS REPORT

	VISUAL		method	limit/base	current		history2
Oxidation	White Metal	scalar	*Visual	NONE	NONE	NONE	
Sulfation	Yellow Metal		*Visual	NONE	NONE	NONE	
nomal	Precipitate	scalar	*Visual	NONE	NONE	NONE	
	Silt		*Visual	NONE	NONE	NONE	
	Debris	scalar	*Visual	NONE	NONE	NONE	
and a stand based base	Sand/Dirt		*Visual	NONE	NONE	NONE	
. 124 -	Appearance	scalar	*Visual	NORML	NORML	NORML	
Apr18/24	Odor		*Visual	NORML	NORML	NORML	
	Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	
se Number ®	Free Water		*Visual	20.1	NEG	NEG	
				line it //e e e e			
	FLUID PROPE Visc @ 100°C	cSt	method ASTM D445	limit/base	current	history1 13.8	history:
		เรเ	A51M D445	15.4	13.2	13.0	
	GRAPHS						
	Ferrous Alloys						
Y C	50 -						
0 Provense (1997) 1997	50 - management chromium						
	40		_				
cosity @ 100°C	툂 30 -						
imal	20						
	10-						
	0 4	Messessessessesses					
ormal	Jan 12/24			Apr18/24			
Unita	-			Ap			
N. N	Non-ferrous Meta	ils					
	14 copper						
Υ.	12 -						
	10						
	۾ s-						
	6						
	4						
	2 -						
	0			24			
	5/24			8/24			
	Jan 12/24			Apr18/			
	oliter Viscosity @ 100°	C		-	Basa Number		
	¹⁹	С		-	Base Number		
	, -	С		10.0			
	19 18 Abnormal 17	C		10.0			
	19 18 Abnormal 17	C		10.0			
	19 18 Abnormal 17	C		10.0			
	19 18 Abnormal	C		10.0	Base		
	19 18 Abnormal 17	C		0.0 8.0 900 900 900 900 900 900 900 900 900 9	Base		
	19 18 - Abnormal 17 - 16 - Base 0 15 - 3 14 -	C		10.0	Base		
	19 18 - Abnormal 17 - 16 - Base 0 15 - 3 14 13 - Abnormal	C		10.0 (0)(0)(0) (0)(0)(0)(0)(0) (0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(Base		
	19 18 - Abnormal 17 - 16 - Base 0 15 - 3 14 13 - Abnormal	C		10.0 (0)(0)(0) (0)(0)(0)(0)(0) (0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(Base		
	19 18 - Abnormal 17 - 16 - Base 0 15 - 3 14 13 - Abnormal	C		10.0 (0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(Base		
	19 18 - Abnormal 17 - 16 - Base 0 15 - 3 14 13 - Abnormal	C		10.0 (0)(0)(0) (0)(0)(0)(0)(0) (0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(Base		
Laboratory	Abnormal Abnormal Base Abnormal	01 Madisor		10.0 (0,HOX) Bull 4.0 +2781d4 , NC 277513	Base	vironmental - 09	
Sample No.	Abnormal Abnormal Base Abnormal Abnormal Abnormal Abnormal Base Classified Classi	01 Madison Receiv	ved : 19	10.0 (0,HQ) Pui 4.0 (0,HQ) Pui 4.0 (Base	vironmental - 09: 2699 Cochran	Industrial B
Sample No. Lab Numbe	¹⁹ ¹⁹ ¹⁰	01 Madison Receiv Tested	ved : 19 d : 22	(0, HQ 27513 4, NC 27513 5, N	Base How the second se	vironmental - 09: 2699 Cochran D	Industrial B ouglasville, (
Sample No. Lab Numbe Unique Numbe	¹⁹ ¹⁰	01 Madison Receiv	ved : 19 d : 22	10.0 (0,HQ) Pui 4.0 (0,HQ) Pui 4.0 (Base How the second se	vironmental - 099 2699 Cochran D U	Industrial B ouglasville, (S 30127-13
Sample No.	¹⁹ ¹⁰	01 Madison Receiv Tested Diagn	ved : 19 d : 22 osed : 22	, NC 27513 Apr 2024 Apr 2024 - W	Base How the second se	vironmental - 099 2699 Cochran D U Contact	Industrial B ouglasville,