

OIL ANALYSIS REPORT

Sample Rating Trend

SAMPLE INFORMATION method limit/base





346M Component **Diesel Engine**

Machine Id

Fluid

PETRO CANADA DURON SHP 15W40 (36 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.

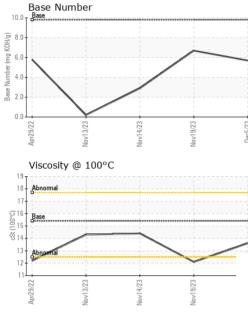
Fluid Condition

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

Sample Number Sample Date Machine Age Oil Age Oil Changed Sample Status	hrs hrs	Client Info Client Info Client Info Client Info		GFL0104135 05 Dec 2023 26462 1458 N/A NORMAL	GFL0059263 19 Nov 2023 25004 25004 Changed NORMAL	GFL0059241 14 Nov 2023 22721 22721 Not Changd ABNORMAL
CONTAMINATI	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	0.4	▲ 3.6
Water Glycol		WC Method WC Method	>0.2	NEG NEG	NEG NEG	NEG
-	0		1			
WEAR METAL		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	71	11	87
Chromium	ppm		>20	1	<1	5
Nickel	ppm	ASTM D5185m	>5	2	0	<1
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>2	0	<1	<1
Aluminum	ppm	ASTM D5185m		4	1	8
Lead	ppm	ASTM D5185m	>40	1	<1	2
Copper	ppm		>330	8	39	3
Tin	ppm	ASTM D5185m	>15	0	<1	2
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current <1	history1 9	history2 4
	ppm ppm					
Boron		ASTM D5185m	0	<1	9	4
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	<1 0	9 0	4
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 0 56	9 0 52	4 0 63
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	<1 0 56 2	9 0 52 <1	4 0 63 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	<1 0 56 2 1011	9 0 52 <1 795	4 0 63 1 955
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	<1 0 56 2 1011 1078	9 0 52 <1 795 941	4 0 63 1 955 1103
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	<1 0 56 2 1011 1078 988	9 0 52 <1 795 941 877	4 0 63 1 955 1103 1045
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 56 2 1011 1078 988 1237	9 0 52 <1 795 941 877 1062	4 0 63 1 955 1103 1045 1306
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	<1 0 56 2 1011 1078 988 1237 2309	9 0 52 <1 795 941 877 1062 2527	4 0 63 1 955 1103 1045 1306 2612
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 56 2 1011 1078 988 1237 2309 current	9 0 52 <1 795 941 877 1062 2527 history1	4 0 63 1 955 1103 1045 1306 2612 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 56 2 1011 1078 988 1237 2309 current 5	9 0 52 <1 795 941 877 1062 2527 history1 8	4 0 63 1 955 1103 1045 1306 2612 history2 14
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	<1 0 56 2 1011 1078 988 1237 2309 current 5 4	9 0 52 <1 795 941 877 1062 2527 history1 8 4	4 0 63 1 955 1103 1045 1306 2612 history2 14 11
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 >20	<1 0 56 2 1011 1078 988 1237 2309 current 5 4 4 <1	9 0 52 <1 795 941 877 1062 2527 history1 8 4 4 <1	4 0 63 1 955 1103 1045 1306 2612 history2 14 11 11 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	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 20	<1 0 56 2 1011 1078 988 1237 2309 current 5 4 <1 <1	9 0 52 <1 795 941 877 1062 2527 history1 8 4 <1 8	4 0 63 1 955 1103 1045 1306 2612 history2 14 11 <1 + 11 <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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	<1 0 56 2 1011 1078 988 1237 2309 current 5 4 <1	9 0 52 <1 795 941 877 1062 2527 history1 8 4 <1 8 4 1 0.2	4 0 63 1 955 1103 1045 1306 2612 history2 14 11 <1 + istory2 1.6
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 2060 225 220 220 220 20 20 20 20 20 20 20 20 20	<1 0 56 2 1011 1078 988 1237 2309 current 5 4 <1 5 4 <1 current 1 10.1	9 0 52 <1 795 941 877 1062 2527 history1 8 4 <1 8 4 <1 0.2 6.0	4 0 63 1 955 1103 1045 1306 2612 history2 14 11 <1 ×1 history2 1.6 1.6 16.8
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 D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 20 imit/base >4 >20 30	<1 0 56 2 1011 1078 988 1237 2309 current 5 4 <1 <1 current 1 10.1 22.4	9 0 52 <1 795 941 877 1062 2527 history1 8 4 <1 8 4 <1 0.2 6.0 20.0	4 0 63 1 955 1103 1045 1306 2612 history2 14 11 <1 history2 1.6 1.6 16.8 30.0



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				
Nov19/23 Dec5/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML				
NG	Odor	scalar	*Visual	NORML	NORML	NORML	NORML				
	Emulsified Water	scalar	*Visual *Visual	>0.2	NEG	NEG	NEG				
	Free Water	scalar			NEG	NEG	NEG				
	FLUID PROPE		method	limit/base	current	history1	history2				
	Visc @ 100°C	cSt	ASTM D445	15.4	13.6	12.1	14.4				
	GRAPHS Ferrous Alloys										
\sim	90 T	_									
Nov19/23 -	80 iron										
Nov	70										
	E 40	· · · · · · · · · · · · · · · · · · ·	\								
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	30		\backslash								
	20										
		~~~									
	Apr29/22 Nov13/23	Nov14/23	Nov19/23	Dec5/23							
			No								
	Non-ferrous Metals										
	35 - copper		$\wedge$								
	30		/								
	25		$/ \land$								
	툡 20 -										
	15-	1		$\mathbf{\lambda}$							
	10										
	0										
	Apr29/22 Vov13/23	Nov14/23	Nov19/23	Dec5/23							
	Apri Novi	Nov	Nov	De							
	Viscosity @ 100°C	2			Base Number						
	18 - Abnormal			10.0	Base						
	17-										
ē	Base			KOH							
	Base 15 15			0.6 (m) 0.6 (m) 0.4 (m) 0.4 (m) 0.4 (m) 0.4 (m) 0.6 (m	$\mathbf{N}$	/					
ć	314			4.0		/					
	13 Abpermal		$\backslash$	³²⁸ 2.0							
	12										
	11	23	23 -	0.0		23 +	23+				
	Apr29/22 Nov13/23	Nov14/23	Nov19/23	Dec5/23	Apr29/22 Nov13/23	Nov14/23	Nov19/23 Dec5/23				
Laboratory	: WearCheck USA -				3 GFL En	vironmental - 410					
Sample No. Lab Number	: GFL0104135 : 06033122	Recieve Diagnos		Dec 2023 Dec 2023		3900	0 Van Born Rd Wayne, MI				
Unique Number	: 10782913	Diagnos		n Baldridge			US 48184				
Test Package	: FLEET	•		-			Belal Dgheish				
cample report	contact Customer Ser	ico at 1 0	200-227 126	2		bdabaia	h@afleny.com				

VISUAI method limit/base current historv1 historv2



 Certificate 12367
 Test Package
 : FLEET

 To discuss this sample report, contact Customer Service at 1-800-237-1369.
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 * - 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)

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