

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 4622M Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (36 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.

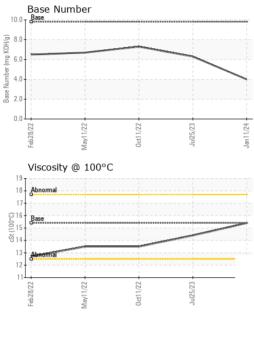
Fluid Condition

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

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0109999	GFL0085030	GFL0052078
Sample Date		Client Info		11 Jan 2024	25 Jul 2023	11 Oct 2022
Machine Age	hrs	Client Info		21052	33495	12816
Oil Age	hrs	Client Info		600	0	16253
Oil Changed		Client Info		Changed	Changed	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
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	27	59	17
Chromium	ppm	ASTM D5185m	>20	2	2	1
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m	>2	<1	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	6	4	4
Lead	ppm	ASTM D5185m	>40	<1	0	0
Copper	ppm	ASTM D5185m	>330	1	2	<1
Tin	ppm	ASTM D5185m	>15	0	0	0
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
	PP			0	0	0
ADDITIVES	66	method	limit/base	current	history1	history2
ADDITIVES Boron	ppm		limit/base	-	-	-
		method		current	history1	history2
Boron	ppm	method ASTM D5185m	0	current	history1 4	history2 0
Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0	current <1 <1	history1 4 0	history2 0 0
Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current <1 <1 51	history1 4 0 67	history2 0 0 55
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	<pre>current <1 <1 <1 51 <1 <1</pre>	history1 4 0 67 <1	history2 0 0 55 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	<pre>current <1 <1 51 <1 836</pre>	history1 4 0 67 <1 1080	history2 0 0 55 <1 909
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	current <1 <1 51 <1 836 916	history1 4 0 67 <1 1080 1182	history2 0 0 55 <1 909 1079
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	<1 <1 51 <1 836 916 923	history1 4 0 67 <1 1080 1182 1143	history2 0 0 55 <1 909 1079 945
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270	current <1 <1 51 <1 836 916 923 1133	history1 4 0 67 <1 1080 1182 1143 1408	history2 0 0 55 <1 909 1079 945 1253
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method 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 <1 51 <1 836 916 923 1133 2472	history1 4 0 67 <1 1080 1182 1143 1408 3428	history2 0 0 55 <1 909 1079 945 1253 3128
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	Current <1 <1 51 <1 836 916 923 1133 2472 current	history1 4 0 67 <1 1080 1182 1143 1408 3428 history1	history2 0 0 55 <1 909 1079 945 1253 3128 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	current <1 <1 51 <1 836 916 923 1133 2472 current 16	history1 4 0 67 <1 1080 1182 1143 1408 3428 history1 11	history2 0 0 55 <1 909 1079 945 1253 3128 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	current <1 <1 51 <1 836 916 923 1133 2472 current 16 7	history1 4 0 67 <1 1080 1182 1143 1408 3428 history1 11 42	history2 0 0 55 <1 909 1079 945 1253 3128 history2 4 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	<1 <1 51 <1 836 916 923 1133 2472 current 16 7 2	history1 4 0 67 <1 1080 1182 1143 1408 3428 history1 11 42 8	history2 0 0 55 <1 909 1079 945 1253 3128 history2 4 4 2
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	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20	current <1 51 <1 51 <1 836 916 923 1133 2472 current 16 7 2 current	history1 4 0 67 <1 1080 1182 1143 1408 3428 history1 11 42 8 history1	history2 0 0 55 <1 909 1079 945 1253 3128 history2 4 4 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	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	current <1 <1 51 <1 836 916 923 1133 2472 current 16 7 2 current 0.6	history1 4 0 67 <1 1080 1182 1143 1408 3428 history1 11 42 8 history1 1	history2 0 0 55 <1 909 1079 945 1253 3128 history2 4 2 history2 0 0.6
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	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 imit/base >20	current <1 <1 51 <1 836 916 923 1133 2472 current 16 7 2 current 0.6 18.2	history1 4 0 67 <1 1080 1182 1143 1408 3428 history1 11 42 8 history1 1 12.5	history2 0 0 55 <1 909 1079 945 1253 3128 history2 4 2 history2 0 0.6 11.8
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	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 <u>imit/base</u> >6 >20 20	current <1 <1 51 <1 836 916 923 1133 2472 current 16 7 2 current 0.6 18.2 29.5	history1 4 0 67 <1 1080 1182 1143 1408 3428 history1 11 42 8 history1 1 12.5 24.7	history2 0 0 55 <1 909 1079 945 1253 3128 history2 4 2 history2 0.6 11.8 23.7



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	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
4	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Jan11/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
2	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	15.4	14.4	13.5
1	GRAPHS Ferrous Alloys						
	60 T		~				
	50 - chromium		/				
	40		$/ \land$				
	Ē_30-						
	20						
	10-						
		22	53	24			
	Feb28/22 May11/22	0ct11/22	Jul25/23	Jan 1 1/24			
	Non-ferrous Meta	als					
	160 copper]						
	140 - lead 120 - tin						
	100		 				
	§ 80-						
	60						
	40						
	20						
	5 52 0	/22	(/23	/24			
	Feb28/22 May11/22	0ct11/22	Jul25/23	Jan 11/24			
19 18	Viscosity @ 100°	С			Base Numbe	r	
	19 - Abnormal		1	10.0	Base		
	17				0-		
	Base			Hoy B 6.0			-
	() 16 00 15 73 14			per (m			
				(b)HOX (b) 1.0 80 80 1.1 1.0 1.0 1.0 1.0 1.0 1.0 1.	D		
	13 Abrormal			2.0	D -		
	12			0.0			
	Feb28/22	0ct11/22 -	Jul25/23 -	Jan 11/24		0ct11/22 -	Jul25/23 -
		0ct1	Jul2	Jan1	Feb28/22 May11/22	0ct1	Jul2
	May						
		501 M!'-				wironmontel 440	Miching W-
	: WearCheck USA -	501 Madis			3 GFL Er	nvironmental - 410 3900	
mple No. o Number	: WearCheck USA - : GFL0109999 : 06064811	Recieved Diagnose	l :18. ed :21.	Jan 2024 Jan 2024	3 GFL Er		00 Van Born R Wayne, N
mple No. o Number que Number	: WearCheck USA - : GFL0109999 : 06064811 : 10836193	Recieved	l :18. ed :21.	Jan 2024	3 GFL Er	3900	0 Van Born R Wayne, N US 4818
boratory mple No. b Number que Number st Package mple report.	: WearCheck USA - : GFL0109999 : 06064811	Recieved Diagnose Diagnost	l : 18 ed : 21 ician : Dor	Jan 2024 Jan 2024 n Baldridge	3 GFL Er	3900 Contact	- Michigan Wes 00 Van Born R Wayne, N US 4818 t: Belal Dgheis sh@gflenv.coi



Certificate L2367