

OIL ANALYSIS REPORT

Sample Rating Trend



Component Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- GAL)

SAMPLE INFORMATION method

DIAGNOSIS	
Recommendation	

Resample at the next service interval to monitor.

Machine Id

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

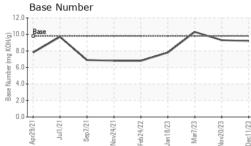
Fluid Condition

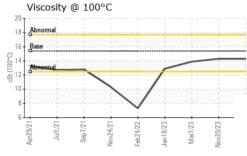
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR		method	limit/base	current	nistory i	nistory2
Sample Number		Client Info		GFL0105595	GFL0089119	GFL0073850
Sample Date		Client Info		11 Dec 2023	20 Nov 2023	07 Mar 2023
Machine Age	hrs	Client Info		28984	24454	27464
Oil Age	hrs	Client Info		27464	27464	27439
Oil Changed		Client Info		N/A	Changed	Changed
Sample Status				NORMAL	NORMAL	MARGINAL
-						
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	2 .6
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron		ASTM D5185m	>80	19	17	14
Chromium	ppm	ASTM D5185m	>ou >5	<1	<1	<1
Nickel	ppm			0	0	<1
	ppm	ASTM D5185m	>2			
Titanium Silver	ppm	ASTM D5185m	>3	0	<1 0	0
	ppm	ASTM D5185m		0		
Aluminum	ppm	ASTM D5185m	>30	2	2	3
Lead	ppm	ASTM D5185m	>30	0	<1	0
Copper	ppm		>150	<1	<1	<1
Tin	ppm	ASTM D5185m	>5	0	0	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES						histow.0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	current	history1 <1	nistory2 2
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	0	<1	<1	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	<1 0	<1 0	2 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 0 54	<1 0 60	2 0 53
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	<1 0 54 <1	<1 0 60 <1	2 0 53 <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 54 <1 1023	<1 0 60 <1 1042	2 0 53 <1 796
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 54 <1 1023 1082	<1 0 60 <1 1042 1150	2 0 53 <1 796 949
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 54 <1 1023 1082 1079	<1 0 60 <1 1042 1150 951	2 0 53 <1 796 949 911
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 54 <1 1023 1082 1079 1271	<1 0 60 <1 1042 1150 951 1289	2 0 53 <1 796 949 911 1084
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	0 0 60 1010 1070 1150 1270 2060	<1 0 54 <1 1023 1082 1079 1271 3171	<1 0 60 <1 1042 1150 951 1289 3303	2 0 53 <1 796 949 911 1084 2791
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	0 0 60 1010 1070 1150 1270 2060	<1 0 54 <1 1023 1082 1079 1271 3171 current	<1 0 60 <1 1042 1150 951 1289 3303 history1	2 0 53 <1 796 949 911 1084 2791 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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 kimit/base	<1 0 54 <1 1023 1082 1079 1271 3171 current 4	<1 0 60 <1 1042 1150 951 1289 3303 history1 5	2 0 53 <1 796 949 911 1084 2791 history2 5
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	<1 0 54 <1 1023 1082 1079 1271 3171 Current 4 4	<1 0 60 <1 1042 1150 951 1289 3303 history1 5 4	2 0 53 <1 796 949 911 1084 2791 history2 5 3 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >20	<1 0 54 <1 1023 1082 1079 1271 3171 current 4 4 4 <1 current	<1 0 60 <1 1042 1150 951 1289 3303 history1 5 4 <1 5	2 0 53 <1 796 949 911 1084 2791 history2 5 3 2 kistory2
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 2060 220 20 20 20 20 20 20	<1 0 54 <1 1023 1082 1079 1271 3171 <i>current</i> 4 4 4 <1 <i>current</i> 0.6	<1 0 60 <1 1042 1150 951 1289 3303 history1 5 4 <1 5 4 <1 0.7	2 0 53 <1 796 949 911 1084 2791 history2 5 3 2 history2 1
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >20 <i>limit/base</i> >20	<1 0 54 <1 1023 1082 1079 1271 3171 <i>current</i> 4 4 4 <1 <i>current</i> 0.6 6.7	<1 0 60 <1 1042 1150 951 1289 3303 history1 5 4 <1 5 4 <1 0.7 6.2	2 0 53 <1 796 949 911 1084 2791 history2 5 3 2 5 3 2 history2 1 7.4
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 >20 imit/base >3 >20 >3	<1 0 54 <1 1023 1082 1079 1271 3171 current 4 4 4 <1 current 0.6 6.7 18.9	<1 0 60 <1 1042 1150 951 1289 3303 history1 5 4 <1 5 4 <1 0.7 6.2 18.7	2 0 53 <1 796 949 911 1084 2791 history2 5 3 2 5 3 2 history2 1 7.4 19.8
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> >20 <i>limit/base</i> >20	<1 0 54 <1 1023 1082 1079 1271 3171 <i>current</i> 4 4 4 <1 <i>current</i> 0.6 6.7	<1 0 60 <1 1042 1150 951 1289 3303 history1 5 4 <1 5 4 <1 0.7 6.2	2 0 53 <1 796 949 911 1084 2791 history2 5 3 2 5 3 2 2 history2 1 7.4
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 D7844 *ASTM D7844 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 200 200 200 20 20 3 20 3 20	<1 0 54 <1 1023 1082 1079 1271 3171 current 4 4 4 <1 current 0.6 6.7 18.9	<1 0 60 <1 1042 1150 951 1289 3303 history1 5 4 <1 5 4 <1 0.7 6.2 18.7	2 0 53 <1 796 949 911 1084 2791 history2 5 3 2 history2 1 7.4 19.8
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	ASTM D5185m ASTM D7844 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 2060 200 200 200 20 20 3 20 3 20	<1 0 54 <1 1023 1082 1079 1271 3171 current 4 4 4 4 <1 current 0.6 6.7 18.9 current	<1 0 60 <1 1042 1150 951 1289 3303 history1 5 4 <1 5 4 <1 0.7 6.2 18.7 history1	2 0 53 <1 796 949 911 1084 2791 history2 5 3 2 history2 1 7.4 19.8 history2



OIL ANALYSIS REPORT





	VISUAL	met	hod limit/base	current	history1	history2
	White Metal	scalar *Visu	al NONE	NONE	NONE	NONE
	Yellow Metal	scalar *Visu		NONE	NONE	NONE
	Precipitate	scalar *Visu		NONE	NONE	NONE
	Silt	scalar *Visu		NONE	NONE	NONE
	Debris	scalar *Visu		NONE	NONE	NONE
	Sand/Dirt	scalar *Visu	al NONE	NONE	NONE	NONE
Mar7/23 - Jov20/23 -	Appearance	scalar *Visu		NORML	NORML	NORML
Mar7/23 Nov20/23 Dec11/23	Odor	scalar *Visu		NORML	NORML	NORML
	Emulsified Water	scalar *Visu		NEG	NEG	NEG
	Free Water	scalar *Visu	al	NEG	NEG	NEG
	FLUID PROPE	RTIES met	hod limit/base	current	history1	history2
	Visc @ 100°C	cSt ASTM	D445 15.4	14.3	14.3	13.9
	GRAPHS					
	Ferrous Alloys					
	40 30 30 40 30 40 30 40 30 40 40 40 40 40 40 40 40 40 4	Feb24/22	Nov20/23			
	20	Base Numbe	r 			
	18 - Abnormal			0 Base		
-	16 Base		B/HOX 8			
	14 312		Base Number (mg KOH/g) 9 8			
ć	5 12	/	umber			
	10		N 4	0		
	8 -	\vee	<u>۵</u> 2.	0		
	6	-		o L		
	Apr29/21 Jul1/21 Sep7/21 Nov24/21	Feb24/22 Jan18/23 Mar7/23	Nov20/23 Dec11/23	Apr29/21 Jul1/21 Sep7/21	Nov24/21 Feb24/22 Jan18/23	Mar7/23 Nov20/23 Dec11/23
Laboratory	: WearCheck USA - 5			4	ية الأعراق المعالية ا Avironmental - 415	2 1
Sample No.	: GFL0105595	Received	: 13 Dec 2023			6200 Elmridge
Lab Number		Diagnosed	: 14 Dec 2023		Ster	ling Heights, MI
Unique Number Test Package	: 10782961 · FLEET	Diagnostician	: Wes Davis		Conta	US 48313 ct: Frank Wolak



 Certificate L2367
 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)

