

OIL ANALYSIS REPORT

Sample Rating Trend





Component Diesel Engine Fluid PETRO CANADA DURON SHP 15W40 (--- LTR)

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

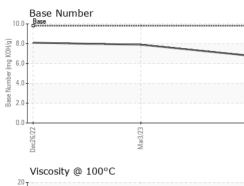
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

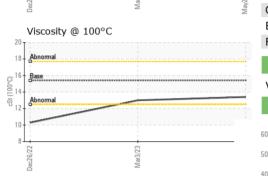
SAMPLE INFORI	MATION	method	limit/base	current	history 1	history 2
Sample Number		Client Info		GFL0084555	GFL0071446	GFL0058705
Sample Date		Client Info		26 May 2023	03 Mar 2023	26 Dec 2022
Machine Age	hrs	Client Info		1874	1163	600
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	Changed	Changed
Sample Status				NORMAL	NORMAL	ABNORMAL
CONTAMINAT	ION	method	limit/base	current	history 1	history 2
Fuel		WC Method	>3.0	<1.0	<1.0	0.5
Glycol		WC Method	. 010	NEG	NEG	NEG
			line it //s s s s			
WEAR METAL		method	limit/base	current	history 1	history 2
Iron	ppm	ASTM D5185m	>120	25	28	51
Chromium	ppm	ASTM D5185m		1	<1	1
Nickel	ppm	ASTM D5185m	>5	2	0	14
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>2	<1	<1	1
Aluminum	ppm	ASTM D5185m		6	<1	4
Lead	ppm	ASTM D5185m	>40	3	0	2
Copper	ppm	ASTM D5185m	>330	43	<1	124
Tin	ppm	ASTM D5185m	>15	3	0	5
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history 1	history 2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 3	history 1 2	history 2 247
	ppm ppm					
Boron		ASTM D5185m	0	3	2	247
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	3 0	2 0	247 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	3 0 66	2 0 51	247 0 120
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	3 0 66 2	2 0 51 1	247 0 120 5
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	3 0 66 2 1042	2 0 51 1 802	247 0 120 5 723
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	3 0 66 2 1042 1142	2 0 51 1 802 972	247 0 120 5 723 1504
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	3 0 66 2 1042 1142 999	2 0 51 1 802 972 847	247 0 120 5 723 1504 668
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	3 0 66 2 1042 1142 999 1312	2 0 51 1 802 972 847 1037	247 0 120 5 723 1504 668 870
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 limit/base	3 0 66 2 1042 1142 999 1312 2875	2 0 51 1 802 972 847 1037 2670	247 0 120 5 723 1504 668 870 2541
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	3 0 66 2 1042 1142 999 1312 2875 current	2 0 51 1 802 972 847 1037 2670 history 1	247 0 120 5 723 1504 668 870 2541 history 2
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	3 0 66 2 1042 1142 999 1312 2875 current 6	2 0 51 1 802 972 847 1037 2670 history 1 8	247 0 120 5 723 1504 668 870 2541 history 2 ▲ 80
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	3 0 66 2 1042 1142 999 1312 2875 current 6 4	2 0 51 1 802 972 847 1037 2670 history 1 8 4	247 0 120 5 723 1504 668 870 2541 history 2 ▲ 80 4
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	3 0 66 2 1042 1142 999 1312 2875 current 6 4 2	2 0 51 1 802 972 847 1037 2670 history 1 8 4 0	247 0 120 5 723 1504 668 870 2541 history 2 ▲ 80 4 5
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 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4	3 0 66 2 1042 1142 999 1312 2875 current 6 4 2 2 2 0.9	2 0 51 1 802 972 847 1037 2670 history 1 8 4 0 bistory 1	247 0 120 5 723 1504 668 870 2541 bistory 2 80 4 5 5
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 limit/base >25 >20 limit/base >4	3 0 66 2 1042 1142 999 1312 2875 current 6 4 2 2	2 0 51 1 802 972 847 1037 2670 history 1 8 4 0 bistory 1 0.6	247 0 120 5 723 1504 668 870 2541 history 2 80 4 5 5 history 2 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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 .20 limit/base >4 >20	3 0 66 2 1042 1142 999 1312 2875 current 6 4 2 2 current 0.9 9.0	2 0 51 1 802 972 847 1037 2670 history 1 8 4 0 history 1 0.6 8.4	247 0 120 5 723 1504 668 870 2541 history 2 ▲ 80 4 5 history 2 0.6 10.1
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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 	3 0 66 2 1042 1142 999 1312 2875 current 6 4 2 2 current 0.9 9.0 21.3	2 0 51 1 802 972 847 1037 2670 history 1 8 4 0 history 1 0.6 8.4 20.6	247 0 120 5 723 1504 668 870 2541
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 imit/base >25 .20 imit/base >4 >20 .30 imit/base	3 0 66 2 1042 1142 999 1312 2875 current 6 4 2 2 current 0.9 9.0 21.3 current	2 0 51 1 802 972 847 1037 2670 history 1 8 4 0 0 history 1 0.6 8.4 20.6 history 1	247 0 120 5 723 1504 668 870 2541 history 2 ▲ 80 4 5 history 2 0.6 10.1 24.5



OIL ANALYSIS REPORT

VISUAL





	nnnnnnnnnn-	VISUAL		methou	iiiiii/base	current	Thistory I	TISIOTY Z
		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
Mar3/23	26/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Ma	May26/23	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	RTIES	method	limit/base	current	history 1	history 2
		Visc @ 100°C	cSt	ASTM D445	15.4	13.4	13.0	1 0.3
		GRAPHS						
		Ferrous Alloys						
23 -		iron						
Mar3/23		50 - chromium						
		40						
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		Dec26/22	Mar3/23		May26/23			
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		120 copper						
		100						
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		60						
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		20						
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		Dec26/22	Mar3/23		May26/23			
					Ma			
		Viscosity @ 100°C			10.0	Base Number		
		18 <b>Abnormal</b>			10.0	0		
		16 - Page			( [®] ∦ ^{8.0}			
	lure,	215						
	JU bi se	5 15 - 14 - 3 13 - Abnormal			0.0 0.0 0.0 Base Number 4.0			
	4	3 13 Abnormal			4.0	+		
		11			² 2.0			
		10-						
			23		0.0	22	23	
		ec26/,	Mar3/		ay26/.	ec26/	Mar3/2	
NAR Sa	aboratory ample No. ab Number nique Number	: WearCheck USA - 5 : GFL0084555 : 05885445	501 Madia Received Diagnos Diagnos	d : 28 d ed : 30 d	May26/23	GFL Env		918 - Hartland E Industrial Dr Hartland, US 530

Contact/Location: David McCall - GFL918