

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 526074

Component Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (11 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

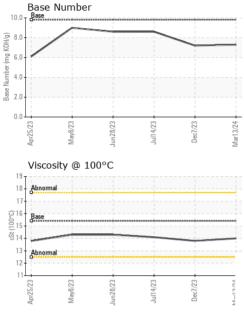
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0110744	GFL0092870	GFL0085615
Sample Date		Client Info		13 Mar 2024	07 Dec 2023	14 Jul 2023
Machine Age	hrs	Client Info		5311	4727	3546
Oil Age	hrs	Client Info		584	1181	582
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	ABNORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<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	>100	36	21	20
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		<1	0	<1
Silver	ppm	ASTM D5185m	>3	<1	<1	0
Aluminum	ppm	ASTM D5185m	>20	5	2	2
Lead	ppm	ASTM D5185m	>40	2	<1	<1
Copper	ppm	ASTM D5185m	>330	2	0	<1
Tin	ppm	ASTM D5185m	>15	<1	0	0
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 4	history1 4	history2 3
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	0	4	4	3
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	4 2	4 0	3 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	4 2 71	4 0 64	3 0 72
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	4 2 71 <1	4 0 64 <1	3 0 72 <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	4 2 71 <1 973	4 0 64 <1 958	3 0 72 <1 1002
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	4 2 71 <1 973 1254	4 0 64 <1 958 1088	3 0 72 <1 1002 1175
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 ASTM D5185m	0 0 60 0 1010 1070 1150	4 2 71 <1 973 1254 1026	4 0 64 <1 958 1088 1082	3 0 72 <1 1002 1175 1057
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	4 2 71 <1 973 1254 1026 1315	4 0 64 <1 958 1088 1082 1282	3 0 72 <1 1002 1175 1057 1266
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	4 2 71 <1 973 1254 1026 1315 3267	4 0 64 <1 958 1088 1082 1282 2941	3 0 72 <1 1002 1175 1057 1266 3743
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	4 2 71 <1 973 1254 1026 1315 3267 current	4 0 64 <1 958 1088 1082 1282 2941 history1	3 0 72 <1 1002 1175 1057 1266 3743 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	4 2 71 <1 973 1254 1026 1315 3267 current 6	4 0 64 <1 958 1088 1082 1282 2941 history1 4	3 0 72 <1 1002 1175 1057 1266 3743 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 ASTM D5185m method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 Limit/base >25	4 2 71 <1 973 1254 1026 1315 3267 current 6 49	4 0 64 <1 958 1088 1082 1282 2941 history1 4 36	3 0 72 <1 1002 1175 1057 1266 3743 history2 5 5 ▲ 146
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	4 2 71 <1 973 1254 1026 1315 3267 current 6 49 9	4 0 64 <1 958 1088 1082 1282 2941 history1 4 36 3	3 0 72 <1 1002 1175 1057 1266 3743 history2 5 5 ▲ 146 16
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25	4 2 71 <1 973 1254 1026 1315 3267 current 6 49 9	4 0 64 <1 958 1088 1082 1282 2941 history1 4 36 3 3 history1	3 0 72 <1 1002 1175 1057 1266 3743 history2 5 ↓ 146 16
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 >3	4 2 71 <1 973 1254 1026 1315 3267 current 6 49 9 current 0.9	4 0 64 <1 958 1088 1082 1282 2941 history1 4 36 3 3 history1 0.6	3 0 72 <1 1002 1175 1057 1266 3743 history2 5 5 ↓ 146 16 16 history2 0.5
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> >25 >20 <i>limit/base</i> >3 >20	4 2 71 <1 973 1254 1026 1315 3267 current 6 49 9 current 0.9 10.3	4 0 64 <1 958 1088 1082 1282 2941 history1 4 36 3 history1 0.6 9.8	3 0 72 <1 1002 1175 1057 1266 3743 history2 5 5 ▲ 146 16 16 history2 0.5 8.0
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 >3 >20 >3 >20	4 2 71 <1 973 1254 1026 1315 3267 Current 6 49 9 Current 0.9 10.3 21.2 Current	4 0 64 <1 958 1088 1082 1282 2941 history1 4 36 3 3 history1 0.6 9.8 21.1	3 0 72 <1 1002 1175 1057 1266 3743 history2 5 ▲ 146 16 history2 0.5 8.0 19.9
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 ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7414	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 3 20 20 3 3 20 20 3 3 20 20 20 20 20 20 20 20 20 20 20 20 20	4 2 71 <1 973 1254 1026 1315 3267 current 6 49 9 current 0.9 10.3 21.2	4 0 64 <1 958 1088 1082 1282 2941 history1 4 36 3 history1 0.6 9.8 21.1 history1	3 0 72 <1 1002 1175 1057 1266 3743 history2 5 ▲ 146 16 16 history2 0.5 8.0 19.9 history2



OIL ANALYSIS REPORT

VISUAL



	Laboratory	: WearCheck USA - 50 : GFL0110744	01 Madisor Receiv		v, NC 27513 1 Mar 2024	GFL Envi	ronmental - 411 - Kingsford H 1001 E Bly Kingsford, N US 4980 Contact: Service Manag	
		Apr25/23	Jun28/23 + Jul14/23 +	Dec7/23 +	.0	Apr25/23	Jun28/23 Jul14/23	Dec7/23 +
		13 Abnormal			PN Base 2.			
		0,16 0,15 3,14			Base Number (mg KOH/g)			
		17 G ¹⁶ Pmp						
		18 - Abnormal		 				
		Viscosity @ 100°	С		10	Base Number		
			Jun28/23 Jul14/23	Dec7/23	Mar13/24			
		133 0 133 133 0	23	CZ3	24			
		2						
		4 4						
		6						
		8 - copper tin						
		Non-ferrous Meta	als					
		Apr25/23 May8/23	Jun28/23 Jul14/23	Dec7/23	Mar13/24			
		5 0 #11111 http://						
		15	/					
		E ²⁵ 20						
Jul14/23	Dec7/23	35 nickel			1			
23	23	45 40						
1		GRAPHS Ferrous Alloys						
		Visc @ 100°C	cSt	ASTM D445	15.4	14.0	13.8	14.1
		FLUID PROPE	ERTIES	method	limit/base	current	history1	history2
	1 1	Free Water	scalar	*Visual	<i>></i> 0.∠	NEG	NEG	NEG
٦٢	D	Odor Emulsified Water	scalar scalar	*Visual *Visual	NORML >0.2	NORML NEG	NORML NEG	NORML NEG
Jul14/23	Dec7/23 Mar13/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
		Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
		Debris	scalar	*Visual	NONE	NONE	NONE	NONE
		Silt	scalar	*Visual	NONE	NONE	NONE	NONE
		Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
1		White Metal Yellow Metal	scalar scalar	*Visual *Visual	NONE NONE	NONE NONE	NONE NONE	NONE NONE

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Submitted By: TECHNICIAN ACCOUNT