

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 720013

Component Diesel Engine

Fluid PETRO CANADA DURON SHP 15W40 (--- 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

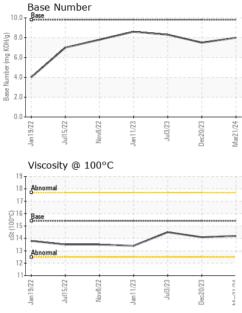
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0116943	GFL0107052	GFL0081259
Sample Date		Client Info		21 Mar 2024	20 Dec 2023	03 Jul 2023
Machine Age	hrs	Client Info		5711	5703	5355
Oil Age	hrs	Client Info		600	600	600
Oil Changed		Client Info		Changed	Not Changd	N/A
Sample Status				NORMAL	NORMAL	NORMAL
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	>110	20	26	30
Chromium	ppm	ASTM D5185m	>4	0	<1	1
Nickel	ppm	ASTM D5185m	>2	0	<1	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	2	2	4
Lead	ppm	ASTM D5185m	>45	0	0	<1
Copper	ppm	ASTM D5185m	>85	<1	2	2
Tin	ppm	ASTM D5185m	>4	<1	<1	<1
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 0	current 4	history1 3	history2 6
	ppm ppm					
Boron		ASTM D5185m	0	4	3 0 62	6 0 72
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	4 0	3 0	6 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	4 0 55 <1 941	3 0 62 <1 915	6 0 72 <1 1137
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	4 0 55 <1	3 0 62 <1	6 0 72 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	4 0 55 <1 941	3 0 62 <1 915 1078 973	6 0 72 <1 1137 1273 1216
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	4 0 55 <1 941 1061	3 0 62 <1 915 1078	6 0 72 <1 1137 1273 1216 1519
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	0 0 60 0 1010 1070 1150	4 0 55 <1 941 1061 992	3 0 62 <1 915 1078 973	6 0 72 <1 1137 1273 1216
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 0 55 <1 941 1061 992 1277	3 0 62 <1 915 1078 973 1199	6 0 72 <1 1137 1273 1216 1519
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 0 1010 1070 1150 1270 2060	4 0 55 <1 941 1061 992 1277 3323	3 0 62 <1 915 1078 973 1199 3048	6 0 72 <1 1137 1273 1216 1519 3946
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	4 0 555 <1 941 1061 992 1277 3323 current	3 0 62 <1 915 1078 973 1199 3048 history1	6 0 72 <1 1137 1273 1216 1519 3946 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	0 0 60 1010 1070 1150 1270 2060	4 0 555 <1 941 1061 992 1277 3323 current 3	3 0 62 <1 915 1078 973 1199 3048 history1 3	6 0 72 <1 1137 1273 1216 1519 3946 history2 6
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 >30	4 0 55 <1 941 1061 992 1277 3323 current 3 4	3 0 62 <1 915 1078 973 1199 3048 history1 3 3 3	6 0 72 <1 1137 1273 1216 1519 3946 history2 6 7
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 >30	4 0 55 <1 941 1061 992 1277 3323 current 3 4 4 <1	3 0 62 <1 915 1078 973 1199 3048 history1 3 3 2	6 0 72 <1 1137 1273 1216 1519 3946 history2 6 7 4
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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >30 -20	4 0 55 <1 941 1061 992 1277 3323 current 3 4 <1 current	3 0 62 <1 915 1078 973 1199 3048 history1 3 3 2 history1	6 0 72 <1 1137 1273 1216 1519 3946 history2 6 7 4 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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >30 200 limit/base	4 0 55 <1 941 1061 992 1277 3323 current 3 4 <1	3 0 62 <1 915 1078 973 1199 3048 history1 3 3 2 history1 0.8	6 0 72 <1 1137 1273 1216 1519 3946 history2 6 7 4 history2 0.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc 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 imit/base >30 220 imit/base >3 >20	4 0 55 <1 941 1061 992 1277 3323 current 3 4 <1 current 0.7 9.6	3 0 62 <1 915 1078 973 1199 3048 history1 3 3 2 history1 0.8 9.7	6 0 72 <1 1137 1273 1216 1519 3946 history2 6 7 4 4 history2 0.4 10.7
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 >30 imit/base >3 20	4 0 55 <1 941 1061 992 1277 3323 <u>current</u> 3 4 <1 <u>current</u> 0.7 9.6 20.9	3 0 62 <1 915 1078 973 1199 3048 history1 3 3 2 history1 0.8 9.7 20.9	6 0 72 <1 1137 1273 1216 1519 3946 history2 6 7 4 history2 0.4 10.7 22.7
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 ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 2060 2060 200 200 200 200 20	4 0 55 <1 941 1061 992 1277 3323 current 3 4 <1 current 0.7 9.6 20.9 current	3 0 62 <1 915 1078 973 1199 3048 history1 3 3 3 2 history1 0.8 9.7 20.9 history1	6 0 72 <1 1137 1273 1216 1519 3946 history2 6 7 4 history2 0.4 10.7 22.7 history2



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VISUAL



Jan 11/23	Dec20/23	White Metal Yellow Metal Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE	scalar scalar scalar scalar scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual	NONE NONE NONE NONE NORML NORML >0.2	NONE NONE NONE NONE NONE NORML NORML NEG NEG	NONE NONE NONE NONE NORML NORML NEG NEG history1	NONE NONE NONE NONE NONE NORML NORML NEG NEG history2
~		Visc @ 100°C GRAPHS	cSt	ASTM D445	15.4	14.2	14.1	14.5
Jan 11/23	Dec20/23	Ferrous Alloys	Jan 11/23	Jul3/23 Jul3/23 Dec20/23 Dec20	42/12/2eW			
		Base 10 10 10 10 10 10 10 10 10 10	Jan 11/23	Jul3/23 Dec20/23	(0)HOX Bull Jaquur 4. 4. 4. 4. 4. 4. 4. 52/122W	0	lan 11/23	Dec20/23
* - Denotes tes	st methods that	: WearCheck USA - 50 : GFL0116943 : 06126327 : 10940478	01 Madiso Recei Teste Diagn vice at 1-8 17025 sco	n Ave., Cary ved : 22 d : 25 iosed : 25 00-237-1365 pe of accred	r, NC 27513 2 Mar 2024 5 Mar 2024 6 Mar 2024 - V 9. 9. Jitation.	GFL Er	nvironmental Contact: I rickymathev T:	- 465 - Pontiac 888 Baldwin Pontiac, MI US 48340 Ricky Matthews vs@gflenv.com (586)825-9514 F: