

OIL ANALYSIS REPORT

Sample Rating Trend



Area GFL035 Machine Id 12065

Component Diesel Engine

PETRO CANADA DURON SHP 15W40 (32 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.

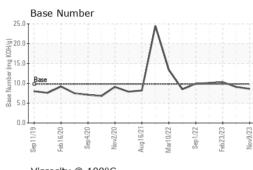
Fluid Condition

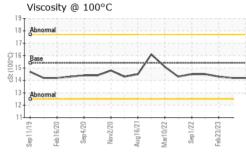
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0085154	GFL0071557	GFL0053170
Sample Date		Client Info		09 Nov 2023	29 Jun 2023	23 Feb 2023
Machine Age	hrs	Client Info		1854	1854	1854
Oil Age	hrs	Client Info		600	600	600
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	ABNORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>75	32	10	14
Chromium	ppm	ASTM D5185m	>5	1	<1	<1
Nickel	ppm	ASTM D5185m	>4	1	<1	0
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>15	3	2	3
Lead	ppm	ASTM D5185m	>25	3	<1	2
Copper	ppm	ASTM D5185m	>100	1	2	2
Tin	ppm	ASTM D5185m	>4	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES			Provide America			histow.0
		method				history2
Boron	ppm	ASTM D5185m	limit/base	current 13	history1 5	13
	ppm ppm					
Boron		ASTM D5185m	0	13	5	13
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	13 0	5 2	13 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	13 0 64	5 2 64	13 0 69
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	13 0 64 <1	5 2 64 <1	13 0 69 <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	13 0 64 <1 903	5 2 64 <1 847	13 0 69 <1 938
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	13 0 64 <1 903 1563	5 2 64 <1 847 1135	13 0 69 <1 938 1158
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	13 0 64 <1 903 1563 1127	5 2 64 <1 847 1135 1058	13 0 69 <1 938 1158 1042
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	13 0 64 <1 903 1563 1127 1336 2863	5 2 64 <1 847 1135 1058 1160	13 0 69 <1 938 1158 1042 1352
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	13 0 64 <1 903 1563 1127 1336 2863	5 2 64 <1 847 1135 1058 1160 3036	13 0 69 <1 938 1158 1042 1352 3519
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	13 0 64 <1 903 1563 1127 1336 2863 current	5 2 64 <1 847 1135 1058 1160 3036 history1	13 0 69 <1 938 1158 1042 1352 3519 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	13 0 64 <1 903 1563 1127 1336 2863 <u>current</u> 13	5 2 64 <1 847 1135 1058 1160 3036 history1 7	13 0 69 <1 938 1158 1042 1352 3519 history2 16
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	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	13 0 64 <1 903 1563 1127 1336 2863 current 13 4 2	5 2 64 <1 847 1135 1058 1160 3036 history1 7 66	13 0 69 <1 938 1158 1042 1352 3519 history2 16 ▲ 179
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	13 0 64 <1 903 1563 1127 1336 2863 current 13 4 2	5 2 64 <1 847 1135 1058 1160 3036 history1 7 66 2	13 0 69 <1 938 1158 1042 1352 3519 history2 16 ▲ 179 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	13 0 64 <1 903 1563 1127 1336 2863 current 13 4 2 2 Current	5 2 64 <1 847 1135 1058 1160 3036 history1 7 66 2	13 0 69 <1 938 1158 1042 1352 3519 history2 16 ▲ 179 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	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	13 0 64 <1 903 1563 1127 1336 2863 Current 13 4 2 2 Current 0.6	5 2 64 <1 847 1135 1058 1160 3036 history1 7 66 2 <u>history1</u> 0.2	13 0 69 <1 938 1158 1042 1352 3519 history2 16 ↓ 179 5 \$ history2 0.2
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> >20	13 0 64 <1 903 1563 1127 1336 2863 <u>current</u> 13 4 2 <u>current</u> 0.6 11.1 22.6	5 2 64 <1 847 1135 1058 1160 3036 history1 7 66 2 history1 0.2 6.9	13 0 69 <1 938 1158 1042 1352 3519 history2 16 ▲ 179 5 history2 0.2 7.0
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 2060 225 225 20 imit/base >20 imit/base >20 30	13 0 64 <1 903 1563 1127 1336 2863 <u>current</u> 13 4 2 <u>current</u> 0.6 11.1 22.6	5 2 64 <1 847 1135 1058 1160 3036 history1 7 66 2 <u>history1</u> 0.2 6.9 20.1	13 0 69 <1 938 1158 1042 1352 3519 history2 16 ▲ 179 5 history2 0.2 7.0 20.9
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 ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 20 20 20 20 20 20 20 20 2	13 0 64 <1 903 1563 1127 1336 2863 Current 13 4 2 Current 0.6 11.1 22.6	5 2 64 <1 847 1135 1058 1160 3036 history1 7 66 2 history1 0.2 6.9 20.1 history1	13 0 69 <1 938 1158 1042 1352 3519 history2 16 ▲ 179 5 history2 0.2 7.0 20.9 history2



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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
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
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	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.2	14.2	14.3
GRAPHS						

Ferrous Alloys 140 120 100 80 60 40 20 0. Sep 1/22 Sep11/19 eb16/20 Sep4/20 Vov2/70 Aug16/21 Var10/22 eb23/23 Vov9/23 Non-ferrous Metals 10 mdd Aug16/21 (ar10/75 Sep4 Sep 11 eb1 Viscosity @ 100°C Base Number 19 25. 18 (^{20,0} 17 () 100°C) 15 2 K 15 5 1. 10 Base Abnor 12 0.0 Sep11/19. Feb16/20 -Sep4/20. Sep1/22. Nov9/23 -Nov2/20 Aug16/21. Sep1/22 Nov9/23 Feb16/20 Sep4/20 Aug16/21 Mar10/22 Feb23/23 Sep11/19 lov2/20 Mar10/22 Feb23/23 Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 035 - Greensboro Sample No. : GFL0085154 Received : 10 Nov 2023 1236 Elon Place Lab Number Diagnosed : 14 Nov 2023 High Point, NC : 06003955 Unique Number : 10737717 Diagnostician : Wes Davis US 27263 Test Package : FLEET Contact: JORGE COSTA jorge.costa@gflenv.com

To discuss this sample report, contact Customer Service at 1-800-237-1369. * - 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)

Certificate L2367

F:

T: (336)668-3712