

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

914030

Component Diesel Engine

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

DIA<u>GNOSIS</u>

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.

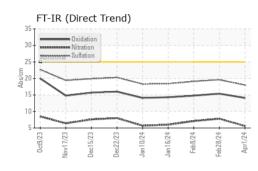
Fluid Condition

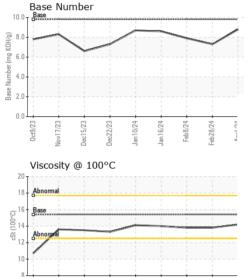
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	/ ATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0109242	GFL0109252	GFL0109273
Sample Date		Client Info		01 Apr 2024	28 Feb 2024	08 Feb 2024
Machine Age	hrs	Client Info		1879	1624	1489
Oil Age	hrs	Client Info		138	464	329
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	ABNORMAL	NORMAL
CONTAMINATI	ON	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 METALS	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	6	21	5
Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Nickel	ppm	ASTM D5185m	>4	1	 7	4
Titanium	ppm	ASTM D5185m		9	20	16
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	<1	2	1
Lead	ppm	ASTM D5185m	>40	0	0	1
Copper	ppm	ASTM D5185m	>330	4	37	29
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	9	14	19
	ppm ppm	ASTM D5185m ASTM D5185m	0	9 0	14 0	19 0
Boron						
Boron Barium	ppm	ASTM D5185m	0	0	0	0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	0 60	0 56	0 54	0 46
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0	0 56 0	0 54 <1	0 46 1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010	0 56 0 969	0 54 <1 910	0 46 1 756
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070	0 56 0 969 1198	0 54 <1 910 1229	0 46 1 756 1055
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 60 0 1010 1070 1150	0 56 0 969 1198 1071	0 54 <1 910 1229 1066	0 46 1 756 1055 920
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270	0 56 0 969 1198 1071 1325	0 54 <1 910 1229 1066 1324	0 46 1 756 1055 920 1112
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 60 0 1010 1070 1150 1270 2060	0 56 0 969 1198 1071 1325 3942	0 54 <1 910 1229 1066 1324 3365	0 46 1 756 1055 920 1112 2803
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 60 0 1010 1070 1150 1270 2060	0 56 0 969 1198 1071 1325 3942 current	0 54 <1 910 1229 1066 1324 3365 history1	0 46 1 756 1055 920 1112 2803 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060	0 56 0 969 1198 1071 1325 3942 current 3	0 54 <1 910 1229 1066 1324 3365 history1 7	0 46 1 756 1055 920 1112 2803 history2 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 Limit/base >25	0 56 0 969 1198 1071 1325 3942 current 3 2	0 54 <1 910 1229 1066 1324 3365 history1 7 4	0 46 1 756 1055 920 1112 2803 history2 1 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	0 56 0 969 1198 1071 1325 3942 current 3 2 1	0 54 <1 910 1229 1066 1324 3365 history1 7 4 5	0 46 1 756 1055 920 1112 2803 history2 1 3 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20	0 56 0 969 1198 1071 1325 3942 current 3 2 1 1	0 54 <1 910 1229 1066 1324 3365 history1 7 4 5 5	0 46 1 756 1055 920 1112 2803 history2 1 3 4 kistory2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3	0 56 0 969 1198 1071 1325 3942 current 3 2 1 2 1 2 1 0.2	0 54 <1 910 1229 1066 1324 3365 history1 7 4 5 5 history1 0.5	0 46 1 756 1055 920 1112 2803 history2 1 3 4 history2 0.3
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 t ppm ppm	ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	0 56 0 969 1198 1071 1325 3942 <u>current</u> 3 2 1 1 <u>current</u> 0.2 5.6	0 54 <1 910 1229 1066 1324 3365 history1 7 4 5 history1 0.5 7.8	0 46 1 756 920 1112 2803 history2 1 3 4 4 history2 0.3 7.1
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 t ppm ppm	ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20 >30	0 56 0 969 1198 1071 1325 3942 <u>current</u> 3 2 1 <u>current</u> 0.2 5.6 18.0	0 54 <1 910 1229 1066 1324 3365 history1 7 4 5 <u>history1</u> 0.5 7.8 19.6	0 46 1 756 1055 920 1112 2803 history2 1 3 4 <u>history2</u> 0.3 7.1 19.1



OIL ANALYSIS REPORT





eb28/24

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Laboratory

Sample No.

Lab Number : 06137272

Unique Number : 10956737

Test Package : FLEET

0ct9/23

: GFL0109242

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

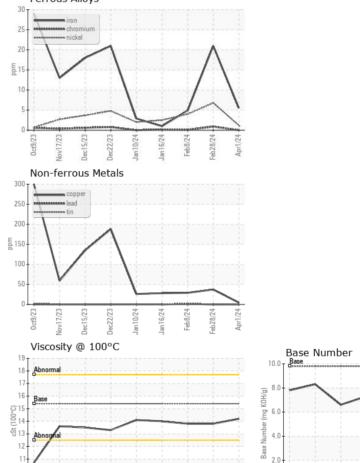
* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Nov17/23 Dec15/23 Dec22/23 Jan 10/24

Jan 16/24 Feb8/24

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	13.8	13.8
GRAPHS						

Ferrous Alloys



Apr1/24 -

Feb8/24 Feb28/24

Jan 16/24

Received

Diagnosed

Tested

0.0 0ct9/23 Apr1/24 Nov17/23 Dec15/23 Jan 10/24 eb8/24 Feb 28/24 Dec22/23 Jan 16/24 GFL Environmental - 891 - Oklahoma City Hauling : WearCheck USA - 501 Madison Ave., Cary, NC 27513 1001 South Rockwell : 03 Apr 2024 : 04 Apr 2024 Oklahoma City, OK : 04 Apr 2024 - Wes Davis US 73128 Contact: Andy Smith andrew.smith@gflenv.com T: (405)306-1651 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

0ct9/23

lov17/23 Jec15/23 Per 27/73 10/74

Certificate L2367