

OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

413028 Component Diesel Engine

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

SAMPLE INFORMATION method

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Machine Id

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

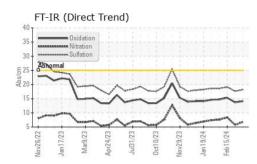
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

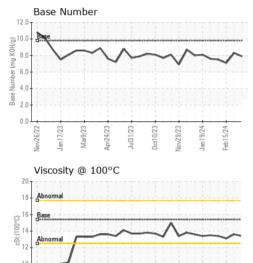
SAMPLE INFOR		method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0113711	GFL0113699	GFL0111009
Sample Date		Client Info		27 Mar 2024	04 Mar 2024	15 Feb 2024
Machine Age	hrs	Client Info		3463	3302	3161
Oil Age	hrs	Client Info		852	691	0
•	1115	Client Info		852 N/A	N/A	N/A
Oil Changed		Client Inio				
Sample Status				NORMAL	NORMAL	ABNORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<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	>120	8	3	16
Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Nickel	ppm	ASTM D5185m	>5	2	0	9
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	1	<1	4
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	2	0	6
Tin		ASTM D5185m	>15	2 <1	0	<1
Vanadium	ppm	ASTM D5185m	>10	0	0	0
	ppm					
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 5	history1 5	history2 2
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	0	5	5	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	5 0	5 0	2 0
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	5 0 64 <1	5 0 64	2 0 62
Boron Barium Molybdenum	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	5 0 64	5 0 64 0	2 0 62 <1
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	5 0 64 <1 982 1171	5 0 64 0 885 1026	2 0 62 <1 950 1113
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	5 0 64 <1 982 1171 1082	5 0 64 0 885 1026 859	2 0 62 <1 950 1113 1016
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	5 0 64 <1 982 1171 1082 1293	5 0 64 0 885 1026 859 1103	2 0 62 <1 950 1113 1016 1197
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	5 0 64 <1 982 1171 1082 1293 3730	5 0 64 0 885 1026 859 1103 2797	2 0 62 <1 950 1113 1016 1197 2889
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 0 1010 1070 1150 1270 2060	5 0 64 <1 982 1171 1082 1293 3730 current	5 0 64 0 885 1026 859 1103 2797 history1	2 0 62 <1 950 1113 1016 1197 2889 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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 0 1010 1070 1150 1270 2060	5 0 64 <1 982 1171 1082 1293 3730 current 4	5 0 64 0 885 1026 859 1103 2797 history1 3	2 0 62 <1 950 1113 1016 1197 2889 history2 7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	5 0 64 <1 982 1171 1082 1293 3730 current 4 2	5 0 64 0 885 1026 859 1103 2797 history1 3 1	2 0 62 <1 950 1113 1016 1197 2889 history2 7 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	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 kimit/base >25	5 0 64 <1 982 1171 1082 1293 3730 current 4	5 0 64 0 885 1026 859 1103 2797 history1 3	2 0 62 <1 950 1113 1016 1197 2889 history2 7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	5 0 64 <1 982 1171 1082 1293 3730 current 4 2	5 0 64 0 885 1026 859 1103 2797 history1 3 1	2 0 62 <1 950 1113 1016 1197 2889 history2 7 3
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 0 1010 1070 1150 1270 2060 limit/base >25	5 0 64 <1 982 1171 1082 1293 3730 current 4 2 2	5 0 64 0 885 1026 859 1103 2797 history1 3 1 <1	2 0 62 <1 950 1113 1016 1197 2889 history2 7 3 7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	5 0 64 <1 982 1171 1082 1293 3730 current 4 2 2 2 current	5 0 64 0 885 1026 859 1103 2797 history1 3 1 <1 <1 history1	2 0 62 <1 950 1113 1016 1197 2889 history2 7 3 7 3 7 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	5 0 64 <1 982 1171 1082 1293 3730 current 4 2 2 2 2 current 0.3	5 0 64 0 885 1026 859 1103 2797 history1 3 1 <1 <1 history1 0.2	2 0 62 <1 950 1113 1016 1197 2889 history2 7 3 7 3 7 history2 0.4
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> >4 >20	5 0 64 <1 982 1171 1082 1293 3730 current 4 2 2 2 current 0.3 6.8	5 0 64 0 885 1026 859 1103 2797 history1 3 1 3 1 <1 ×1 history1 0.2 5.7	2 0 62 <1 950 1113 1016 1197 2889 history2 7 3 7 3 7 history2 0.4 8.4
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 25 20 20 imit/base >4 20 30	5 0 64 <1 982 1171 1082 1293 3730 current 4 2 2 2 current 0.3 6.8 18.2	5 0 64 0 885 1026 859 1103 2797 history1 3 1 <1 3 1 <1 0.2 5.7 17.6	2 0 62 <1 950 1113 1016 1197 2889 history2 7 3 7 3 7 history2 0.4 8.4 19.1
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 ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 220 20 20 20 20 20 20 20 20 20 20 20	5 0 64 <1 982 1171 1082 1293 3730 current 4 2 2 2 current 0.3 6.8 18.2 current	5 0 64 0 885 1026 859 1103 2797 history1 3 1 <1 4 0.2 5.7 17.6 history1	2 0 62 <1 950 1113 1016 1197 2889 history2 7 3 7 7 3 7 history2 0.4 8.4 19.1 history2

Submitted By: GFL166,GFL172,GFL180,GFL867,GFL868,GFL955 - Chelsea Bryan



OIL ANALYSIS REPORT





ul31/23

Jan 19/24

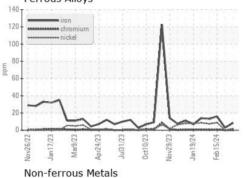
eb15/24

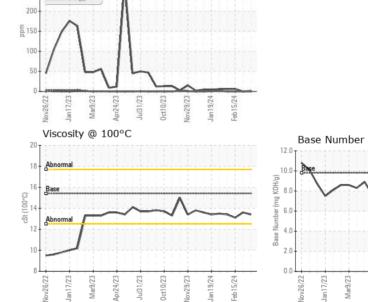
300

250

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	13.4	13.6	13.1
GRAPHS						

Ferrous Alloys





Jan 19/24 pr24/23 ul31/23 Feb 15/24 Vov29/23 : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 868 - Childersburg Fines Hauling (Alpine) 13737 Plant Rd

: 08 Apr 2024 : 08 Apr 2024 - Wes Davis

: 08 Apr 2024

Childersburg, AL US 35044 Contact: JONATHAN WILLIAMS jonathan.williams@gflenv.com

T: F:



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Jan 17/23 Vov26/22

Aar9/23 r74/72

> Unique Number : 10965635 Diagnosed Test Package : FLEET Certificate 12367 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)

Received

Tested

Report Id: GFL868 [WUSCAR] 06140827 (Generated: 04/08/2024 17:35:08) Rev: 1

Laboratory

Sample No.

Lab Number : 06140827

: GFL0113711

Submitted By: GFL166,GFL172,GFL180,GFL867,GFL868,GFL955 - Chelsea Bryan