

OIL ANALYSIS REPORT

Sample Rating Trend





Component Diesel Engine PETRO CANADA DURON SHP 15W40 (--- GAL)

SAMPLE INFORMATION meth

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.

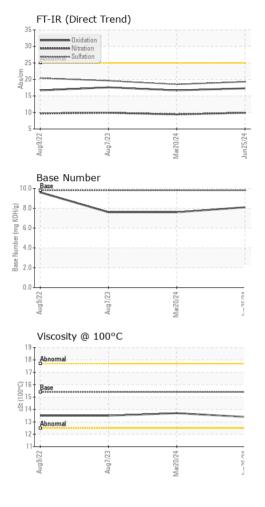
Fluid Condition

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

	VIATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0118150	GFL0108379	GFL0071277
Sample Date		Client Info		25 Jun 2024	20 Mar 2024	07 Aug 2023
Machine Age	hrs	Client Info		31903	31224	33379
Oil Age	hrs	Client Info		679	0	33379
Oil Changed		Client Info		Changed	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
•						
CONTAMINATI	ON	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 METALS	\$	method	limit/base	current	history1	history2
Iron	ppm		>120	5	5	8
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m		0	<1	<1
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	2	6
Lead	ppm	ASTM D5185m	>40	<1	0	0
Copper	ppm	ASTM D5185m	>330	1	1	1
Tin	ppm	ASTM D5185m	>15	0	0	<1
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	Method ASTM D5185m	limit/base	current 1	history1 2	history2 0
	ppm ppm					
Boron		ASTM D5185m	0	1	2	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	1 0	2 0	0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	1 0 58	2 0 56	0 0 62
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	1 0 58 <1	2 0 56 0	0 0 62 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	1 0 58 <1 998	2 0 56 0 960	0 0 62 <1 992
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	1 0 58 <1 998 1097	2 0 56 0 960 1088	0 0 62 <1 992 1095
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	1 0 58 <1 998 1097 1090	2 0 56 0 960 1088 949	0 0 62 <1 992 1095 1075
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	0 0 60 0 1010 1070 1150 1270	1 0 58 <1 998 1097 1090 1343	2 0 56 0 960 1088 949 1328	0 0 62 <1 992 1095 1075 1280
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	1 0 58 <1 998 1097 1090 1343 3742	2 0 56 0 960 1088 949 1328 3736	0 0 62 <1 992 1095 1075 1280 3726
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 method	0 0 60 0 1010 1070 1150 1270 2060	1 0 58 <1 998 1097 1090 1343 3742 current 3	2 0 56 0 960 1088 949 1328 3736 history1 3	0 0 62 <1 992 1095 1075 1280 3726 history2 3
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 limit/base >25	1 0 58 <1 998 1097 1090 1343 3742 current	2 0 56 0 960 1088 949 1328 3736 history1	0 0 62 <1 992 1095 1075 1280 3726 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	1 0 58 <1 998 1097 1090 1343 3742 current 3 2 2	2 0 56 0 960 1088 949 1328 3736 history1 3 3 31 17	0 0 62 <1 992 1095 1075 1280 3726 history2 3 3 3 <1
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 2060 225 >20 20	1 0 58 <1 998 1097 1090 1343 3742 current 3 2 2 2 current	2 0 56 0 960 1088 949 1328 3736 history1 3 31 17 history1	0 0 62 <1 992 1095 1075 1280 3726 history2 3 3 <1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	1 0 58 <1 998 1097 1090 1343 3742 current 3 2 2 2 2 current 0.3	2 0 56 0 960 1088 949 1328 3736 history1 3 31 17 history1 0.2	0 0 62 <1 992 1095 1075 1280 3726 history2 3 3 <1 history2 0.3
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 t ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 20 20 20 20 20 20 20 20 20	1 0 58 <1 998 1097 1090 1343 3742 <i>current</i> 3 2 2 2 <i>current</i> 0.3 9.9	2 0 56 0 960 1088 949 1328 3736 history1 3 3 31 17 history1 0.2 9.4	0 0 62 <1 992 1095 1075 1280 3726 history2 3 3 3 <1 history2 0.3 9.9
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 t ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	1 0 58 <1 998 1097 1090 1343 3742 current 3 2 2 2 2 current 0.3	2 0 56 0 960 1088 949 1328 3736 history1 3 31 17 history1 0.2	0 0 62 <1 992 1095 1075 1280 3726 history2 3 3 <1 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 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 20 20 20 20 20 20 20 20 20	1 0 58 <1 998 1097 1090 1343 3742 <i>current</i> 3 2 2 2 <i>current</i> 0.3 9.9	2 0 56 0 960 1088 949 1328 3736 history1 3 3 31 17 history1 0.2 9.4	0 0 62 <1 992 1095 1075 1280 3726 history2 3 3 3 <1 history2 0.3 9.9
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 t ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 imit/base >20 imit/base >20	1 0 58 <1 998 1097 1090 1343 3742 <u>current</u> 3 2 2 2 <u>current</u> 0.3 9.9 19.3	2 0 56 0 960 1088 949 1328 3736 history1 3 31 17 17 history1 0.2 9.4 18.5	0 0 62 <1 992 1095 1075 1280 3726 history2 3 3 <1 history2 0.3 9.9 19.6
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 TS ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 220 20 20 20 20 20 20 20 20	1 0 58 <1 998 1097 1090 1343 3742 <i>current</i> 3 2 2 2 <i>current</i> 0.3 9.9 19.3	2 0 56 0 960 1088 949 1328 3736 history1 3 3 31 17 0.2 9.4 18.5 history1	0 0 62 <1 992 1095 1075 1280 3726 history2 3 3 <1 history2 0.3 9.9 19.6 history2



OIL ANALYSIS REPORT



Non-ferrous Metals Viscosity @ 100°C							
Yellow Metal scalar 'Visual NONE NONE NONE NONE NONE Precipitate scalar 'Visual NONE NONE NONE NONE NONE Sitt scalar 'Visual NONE NONE NONE NONE NONE Sand/Dirt scalar 'Visual NONE NONE NONE NONE Appearance scalar 'Visual NORML NORML NORML NORML NORML Cdor scalar 'Visual NORML NORML NORML NORML NORML Emulsified Water scalar 'Visual NORML NORML NORML NORML NORML Emulsified Water scalar 'Visual NORML NEG NEG NEG Free Water scalar 'Visual 'NEG NEG NEG NEG Free Water scalar 'Visual 'Stal '13.4 '13.7 '13.5 GRAPHS Forrous Alloys Viscosity @ 100°C Viscosity @ 100°C Viscosity @ 100°C	VISUAL		method	limit/base	current	history1	history2
Precipitate scalar *Visual NONE NONE NONE NONE NONE Sitt scalar *Visual NONE NONE NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE NONE Appearance scalar *Visual NORML NORML NORML NORML NORML NORML Odor scalar *Visual NORML NORML NORML NORML NORML NORML Emulsified Water scalar *Visual >0.2 NEG NEG NEG Free Water scalar *Visual NORML NEG NEG NEG Free Water scalar *Visual NORML NEG NEG NEG Free Water scalar *Visual NORML NEG NEG NEG Free Water scalar *Visual >0.2 NEG NEG NEG Fullio PROPERTIES method imit/base current history1 history2 Visc @ 100°C cSt ASTM D445 15.4 13.4 13.7 13.5 GRAPHS Forrous Alloys	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silt scalar *Visual NONE NONE NONE NONE NONE NONE Debris scalar *Visual NONE NONE NONE NONE NONE Appearance scalar *Visual NORML NORML NORML NORML NORML NORML Odor scalar *Visual NORML NORML NORML NORML NORML NORML Emulsified Water scalar *Visual >0.2 NEG NEG NEG Free Water scalar *Visual NORML NORML NORML NORML NORML Normer NEG NEG NEG Free Water scalar *Visual NEG NEG NEG NEG NEG NEG Free Water scalar *Visual NEG NEG NEG Free Water scalar *Visual NEG NEG NEG Visc @ 100°C cSt ASTM D445 15.4 13.4 13.7 13.5 GRAPHS Ferrous Alloys Uscosity @ 100°C Viscosity @ 100°C	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Debris scalar *Visual NONE NONE NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE Appearance scalar *Visual NORML NORML NORML NORML NORML Odor scalar *Visual NORML NORML NORML NORML NORML Emulsified Water scalar *Visual >0.2 NEG NEG NEG NEG Free Water scalar *Visual >0.2 NEG NEG NEG NEG Fie Water scalar *Visual NORM Initiation of the story of the scalar *Visual NORM Initiation of the scalar *Visual *0.2 NEG NEG NEG NEG NEG NEG NEG NEG Scalar *Visual *0.2 NEG NEG NEG NEG NEG NEG NEG Scalar *Visual *0.2 NEG	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt scalar Visual NONE NONE NONE NONE NONE NONE Appearance scalar Visual NORML NORML NORML NORML NORML NORML Odor scalar Visual NORML NORML NORML NORML NORML NORML Emulsified Water scalar Visual >0.2 NEG NEG NEG NEG Free Water scalar Visual NEG NEG NEG NEG Free Water scalar String D45 15.4 13.4 13.7 13.5 GRAPHS Ferrous Alloys 	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance scalar *Visual NORML NORM	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Odor scalar "Visual NORML NORML NORML NORML Emulsified Water scalar "Visual >0.2 NEG NEG NEG Free Water scalar "Visual NORML NORML NORML NORML Free Water scalar "Visual NORML NEG NEG NEG NEG NEG NEG NEG Visc @ 100°C cSt ASTM D445 15.4 13.4 13.7 13.5 GRAPHS Ferrous Alloys Non-ferrous Metals Viscosity @ 100°C Viscosity @ 100°C	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Emulsified Water scalar 'Visual >0.2 NEG NEG NEG NEG Free Water scalar 'Visual 'NEG NEG NEG NEG FLUID PROPERTIES method limit/base current history1 history2 Visc @ 100°C cSt ASTM D445 15.4 13.4 13.7 13.5 GRAPHS Ferrous Alloys Non-ferrous Metals Viscosity @ 100°C Viscosity @ 100°C	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Free Water scalar 'Visual NEG NEG NEG FLUID PROPERTIES method limit/base current history1 history2 Visc @ 100°C cSt ASTM D445 15.4 13.4 13.7 13.5 GRAPHS Ferrous Alloys Image: Stress of the stress o	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
FLUID PROPERTIES method limit/base current history1 history2 Visc @ 100°C cSt ASTM D445 15.4 13.4 13.7 13.5 GRAPHS Ferrous Alloys Official of the second	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Visc @ 100°C cSt ASTM D445 15.4 13.4 13.7 13.5 GRAPHS Ferrous Alloys	Free Water	scalar	*Visual		NEG	NEG	NEG
GRAPHS Ferrous Alloys	FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Ferrous Alloys	Visc @ 100°C	cSt	ASTM D445	15.4	13.4	13.7	13.5
Non-ferrous Metals Viscosity @ 100°C	GRAPHS						
Non-ferrous Metals Viscosity @ 100°C							
<pre>bit comparing the second second</pre>	10 iron						
Non-ferrous Metals Viscosity @ 100°C	chromium						
Non-ferrous Metals Viscosity @ 100°C							
Non-ferrous Metals	6						
Non-ferrous Metals	4						
Non-ferrous Metals							
FCICEBRY Non-ferrous Metals	2-						
Non-ferrous Metals			Mangara and and and and and and and and and an	annanan .			
Non-ferrous Metals	9/22		20/24	25/24			
Viscosity @ 100°C			Mar	Jun			
Viscosity @ 100°C	Non-ferrous Meta	ls					
Viscosity @ 100°C Base Number	copper						
Viscosity @ 100°C Base Number							
Viscosity @ 100°C Base Number 10.0 T Base							
Viscosity @ 100°C Base Number 10.0 T Base							
Viscosity @ 100°C Base Number 10.0 T Base	4						
Viscosity @ 100°C Base Number 10.0 T Base	2						
Viscosity @ 100°C Base Number	Constant of the owner owner owner						
Viscosity @ 100°C Base Number			24	24			
Viscosity @ 100°C Base Number	Aug9/		Mar20	Jun25/			
10.0 T Base		2		-	Base Number		
	19 18 Abarrant			10.0	Base		

8.0

Base Number (mg K

(mg KOH/g)

11-0.0 Aug9/22 -Aug7/23 -Jun25/24 -Aug9/22 -Aug7/23 Mar20/24 Mar20/24 un25/24 Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 932 - Muskego HC Sample No. : GFL0118150 Received W144 S6400 College Ct. : 28 Jun 2024 Lab Number : 06223328 Tested : 01 Jul 2024 Muskego, WI Unique Number : 11101525 US 53150 : 01 Jul 2024 - Wes Davis Diagnosed Test Package : FLEET Contact: Brian Schlomann Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. brian.schlomann@gflenv.com T: (262)510-4586 * - 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) F:

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Submitted By: GFL932, GFL414 - BECKY FLETCHER