

OIL ANALYSIS REPORT

Sample Rating Trend





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.

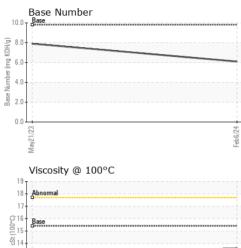
Fluid Condition

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

-			May2023	Feb2024		
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0110132	GFL0069904	
Sample Date		Client Info		06 Feb 2024	21 May 2023	
Machine Age	hrs	Client Info		20551	23370	
Oil Age	hrs	Client Info		0	600	
Oil Changed		Client Info		Not Changd	Changed	
Sample Status				NORMAL	NORMAL	
CONTAMINAT		method	limit/base		history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	
Water		WC Method	>0.2	NEG	NEG	
Glycol		WC Method		NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	12	15	
Chromium	ppm	ASTM D5185m	>20	<1	<1	
Nickel	ppm	ASTM D5185m	>5	0	<1	
Titanium	ppm	ASTM D5185m	>2	0	0	
Silver	ppm	ASTM D5185m	>2	0	0	
Aluminum	ppm	ASTM D5185m	>20	2	3	
Lead	ppm	ASTM D5185m	>40	- <1	<1	
Copper	ppm	ASTM D5185m	>330	<1	<1	
Tin	ppm	ASTM D5185m	>15	<1	<1	
Vanadium	ppm	ASTM D5185m		0	0	
Cadmium	ppm	ASTM D5185m		0	0	
	pp		limit/base			history?
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	0	current 2	history1 4	history2
ADDITIVES Boron Barium		method ASTM D5185m ASTM D5185m	0	current 2 0	history1 4 0	
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 2 0 59	history1 4 0 57	
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 2 0 59 <1	history1 4 0 57 <1	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 2 0 59 <1 931	history1 4 0 57 <1 930	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	Current 2 0 59 <1 931 1047	history1 4 0 57 <1 930 1029	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	Current 2 0 59 <1 931 1047 1046	history1 4 0 57 <1 930 1029 999	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270	Current 2 0 59 <1 931 1047 1046 1248	history1 4 0 57 <1 930 1029 999 1232	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	Current 2 0 59 <1 931 1047 1046	history1 4 0 57 <1 930 1029 999	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270	Current 2 0 59 <1 931 1047 1046 1248	history1 4 0 57 <1 930 1029 999 1232	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	Current 2 0 59 <1 931 1047 1046 1248 2797	history1 4 0 57 <1 930 1029 999 1232 3389	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	Current 2 0 59 <1 931 1047 1046 1248 2797 Current	history1 4 0 57 <1 930 1029 999 1232 3389 history1	 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base >25	current 2 0 59 <1 931 1047 1046 1248 2797 current 4	history1 4 0 57 <1 930 1029 999 1232 3389 history1 6	 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base >25	current 2 0 59 <1 931 1047 1046 1248 2797 current 4 5	history1 4 0 57 <1 930 1029 999 1232 3389 history1 6 7	 history2
ADDITIVES 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	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	Current 2 0 59 <1 931 1047 1046 1248 2797 Current 4 5 0 0	history1 4 0 57 <1 930 1029 999 1232 3389 history1 6 7 5 history1	 history2
ADDITIVES 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	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	Current 2 0 59 <1 931 1047 1046 1248 2797 current 4 5 0 current 0.3	history1 4 0 57 <1 930 1029 999 1232 3389 history1 6 7 5 history1 0.4	 history2 history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >4 >20	Current 2 0 59 <1 931 1047 1046 1248 2797 current 4 5 0 current 0.3 9.1	history1 4 0 57 <1 930 1029 999 1232 3389 history1 6 7 5 history1 0.4 9.7	 history2 history2 history2
ADDITIVES 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	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >20 imit/base >20	Current 2 0 59 <1 931 1047 1046 1248 2797 current 4 5 0 current 0.3 9.1 20.8	history1 4 0 57 <1 930 1029 999 1232 3389 history1 6 7 5 history1 0.4 9.7 20.4	 history2 history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >4 >20	Current 2 0 59 <1 931 1047 1046 1248 2797 current 4 5 0 current 0.3 9.1	history1 4 0 57 <1 930 1029 999 1232 3389 history1 6 7 5 history1 0.4 9.7	 history2 history2 history2
ADDITIVES 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	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >20 imit/base >20	Current 2 0 59 <1 931 1047 1046 1248 2797 current 4 5 0 current 0.3 9.1 20.8	history1 4 0 57 <1 930 1029 999 1232 3389 history1 6 7 5 history1 0.4 9.7 20.4	 history2 history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAM	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D7185M *ASTM D7844 *ASTM D7415 method	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	Current 2 0 59 <1 931 1047 1048 2797 current 4 5 0 current 0 current 0.3 9.1 20.8 current	history1 4 0 57 <1 930 1029 999 1232 3389 history1 6 7 5 history1 0.4 9.7 20.4 history1	 history2 history2 history2 history2



OIL ANALYSIS REPORT



VISUAL		method	limit/base	current		history2
White Metal	scalar	*Visual	NONE	NONE	NONE	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
	scalar	*Visual		NONE	NONE	
	scalar					
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			20.L			
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	CSI	ASTM D445	15.4	13.6	12.9	
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: WearCheck USA - 50 : GFL0110132 : 06085760 : 10873205	Recei	ved : 12 d : 13	, NC 27513 2 Feb 2024	EZ/12/eW GFL En		1 Schaefer Dearborn, US 481
: WearCheck USA - 50 : GFL0110132 : 06085760	Recei Teste Diagr	ved : 12 d : 13 losed : 13	, NC 27513 2 Feb 2024 3 Feb 2024 5 Feb 2024 - W	EZ/12/eW GFL En		68 - Dearbo 1 Schaefer I Dearborn, US 481 Contac
	Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water Free Water Freo Water Conce CRAPHS Ferrous Alloys Conce C	Precipitate scalar Silt scalar Debris scalar Sand/Dirt scalar Appearance scalar Odor scalar Emulsified Water scalar Free Water scalar Free Water scalar FLUID PROPERTIES Visc @ 100°C cSt GRAPHS Ferrous Alloys Competing Non-ferrous Metals Non-ferrous Metals Viscosity @ 100°C	Precipitate scalar *Visual Silt scalar *Visual Debris scalar *Visual Sand/Dirt scalar *Visual Appearance scalar *Visual Emulsified Water scalar *Visual Emulsified Water scalar *Visual Free Water scalar *Visual Mon-ferrous Metals Cooper time time time time time time time time	Precipitate scalar *Visual NONE Silt scalar *Visual NONE Debris scalar *Visual NONE Sand/Dirt scalar *Visual NORML Appearance scalar *Visual NORML Odor scalar *Visual NORML Emulsified Water scalar *Visual >0.2 Free Water scalar *Visual *Vi	Precipitate scalar Visual NONE NONE Silt scalar Visual NONE NONE Sand/Dirt scalar Visual NONE NONE Sand/Dirt scalar Visual NONE NONE Appearance scalar Visual NORML NORML Odor scalar Visual NORML NORML Emulsified Water scalar Visual NORML NORML Tree Water scalar Visual NORML NORML Visce 100°C cSt ASTM D445 15.4 13.6 GRAPHS Ferrous Alloys Non-ferrous Metals Viscosity @ 100°C Viscosity @ 100°C Viscosity @ 100°C	Precipitate scalar 'Visual NONE NONE NONE NONE Sitt scalar 'Visual NONE NONE NONE Debris scalar 'Visual NONE NONE NONE Appearance scalar 'Visual NORML NORML NORML Odor scalar 'Visual NORML NORML NORML Correct scalar 'Visual >0.2 NEG NEG Free Water scalar 'Visual >0.2 NEG NEG Visco 100°C cSt ASTM D445 15.4 13.6 12.9 GRAPHS Ferrous Alloys Viscosity @ 100°C Viscosity @ 100°C

Submitted By: seel also GFL468 - Laura Wilson