

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 212024 Component Diesel Engine Fluid

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

Metal levels are typical for a new component breaking in.

Contamination

There is no indication of any contamination in the

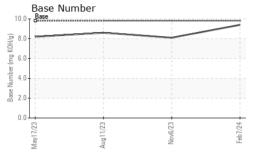
Fluid Condition

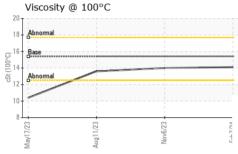
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION method limil/base current history1 history2	M SHP 15W4U (- GAL)	May202	3 Aug2023	Nov2023 Fi	b2024	
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Date Client Info 07 Feb 2024 06 Nov 2023 11 Aug 2023 Machine Age mis Client Info 52448 600 600 Oil Age mis Client Info 0 600 600 Oil Changed Client Info Not Changed Changed NoRMAL NORMAL Sample Status Client Info Not Changed NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >80 2 0 3 WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >3 2 0 0 0 <t< td=""><td>Sample Number</td><td></td><td>Client Info</td><td></td><th>GFL0100931</th><td>GFL0086851</td><td>GFL0068304</td></t<>	Sample Number		Client Info		GFL0100931	GFL0086851	GFL0068304
Machine Age mls Client Info 52448 600 600 Oil Age mls Client Info 0 600 600 Oil Changed Client Info Not Changed Changed Changed Changed Changed Sample Status method imilibase current history1 history2 Fuel WC Method >5 <1.0			Client Info		07 Feb 2024	06 Nov 2023	11 Aug 2023
Cilient Info Not Changed Changed Changed NORMAL NORMAL NORMAL	Machine Age	mls	Client Info		52448	600	
Client Info Not Changed Changed Changed NORMAL NORMAL NORMAL	Oil Age	mls	Client Info		0	600	600
NORMAL NORMAL NORMAL NORMAL	-		Client Info		Not Changd	Changed	Changed
Fuel WC Method S5 C1.0 C1.0 C1.0 C1.0	Sample Status				NORMAL	NORMAL	NORMAL
Water WC Method >0.2 NEG NEG NEG Glycol WC Method Imit/base current history1 history2 WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >80 2 0 3 Chromium ppm ASTM D5185m >5 0 0 0 Nickel ppm ASTM D5185m >2 0 <1 0 Silver ppm ASTM D5185m >2 0 <1 0 Silver ppm ASTM D5185m >30 8 2 <1 Lead ppm ASTM D5185m >30 0 <1 0 Copper ppm ASTM D5185m >30 0 <1 0 Capper ppm ASTM D5185m >5 0 <1 0 Capper ppm ASTM D5185m 0 0 <1 0	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >80 2 0 3 Chromium ppm ASTM D5185m >5 0 0 0 Nickel ppm ASTM D5185m >2 0 <1	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >5 0 0 0 Nickel ppm ASTM D5185m >2 0 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>80	2	0	3
Titanium ppm ASTM D5185m 0 0 0 Silver ppm ASTM D5185m >3 <1	Chromium	ppm	ASTM D5185m	>5	0	0	0
Silver ppm ASTM D5185m >3 <1 0 0 Aluminum ppm ASTM D5185m >30 8 2 <1 Lead ppm ASTM D5185m >30 0 <1 0 Copper ppm ASTM D5185m >150 0 <1 0 Tin ppm ASTM D5185m >5 0 <1 0 Vanadium ppm ASTM D5185m 0 0 <1 0 Cadmium ppm ASTM D5185m 0 0 0 <1 Boron ppm ASTM D5185m 0 6 9 2 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganesium ppm ASTM D5185m 1010 944 922 902 Calcium ppm ASTM D5185m 1070 1056 1022	Nickel	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	Titanium	ppm	ASTM D5185m		0	0	0
Lead ppm ASTM D5185m >30 0 <1 0 Copper ppm ASTM D5185m >150 0 <1 0 Tin ppm ASTM D5185m >5 0 <1 0 Vanadium ppm ASTM D5185m 0 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 6 9 2 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 <1 0 Magnesium ppm ASTM D5185m 1010 944 922 902 Calcium ppm ASTM D5185m 1070 1056 1022	Silver	ppm	ASTM D5185m	>3	<1	0	0
Copper ppm ASTM D5185m >150 0 <1 0 Tin ppm ASTM D5185m >5 0 <1	Aluminum	ppm	ASTM D5185m	>30	8	2	<1
Tin ppm ASTM D5185m >5 0 <1 0 Vanadium ppm ASTM D5185m 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 6 9 2 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 <1 0 Magnesium ppm ASTM D5185m 1070 1056 1022 1057 Phosphorus ppm ASTM D5185m 1150 1043 1035 978 Zinc ppm ASTM D5185m 1270 1227 1286 1200 Sulfur ppm ASTM D5185m 2060 3190 3192 3548<	Lead	ppm	ASTM D5185m	>30	0	<1	0
Vanadium ppm ASTM D5185m 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 6 9 2 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 57 57 55 Manganese ppm ASTM D5185m 0 0 <1 0 Magnesium ppm ASTM D5185m 1070 1056 1022 1057 Phosphorus ppm ASTM D5185m 1150 1043 1035 978 Zinc ppm ASTM D5185m 1270 1227 1286 1200 Sulfur ppm ASTM D5185m 2060 3190 3192 3548 CONTAMINANTS method limit/base current history1	Copper	ppm	ASTM D5185m	>150	0	<1	0
Cadmium ppm ASTM D5185m 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0	Tin	ppm	ASTM D5185m	>5	0	<1	0
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	0	<1
Boron		ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 57 57 55 Manganese ppm ASTM D5185m 0 0 <1 0 Magnesium ppm ASTM D5185m 1010 944 922 902 Calcium ppm ASTM D5185m 1070 1056 1022 1057 Phosphorus ppm ASTM D5185m 1150 1043 1035 978 Zinc ppm ASTM D5185m 1270 1227 1286 1200 Sulfur ppm ASTM D5185m 2060 3190 3192 3548 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 12 5 2 Sodium ppm ASTM D5185m >20 <1 2 <1 INFRA-RED method limit/base	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 57 57 55 Manganese ppm ASTM D5185m 0 0 <1	Boron	ppm	ASTM D5185m	0	6	9	2
Manganese ppm ASTM D5185m 0 0 <1 0 Magnesium ppm ASTM D5185m 1010 944 922 902 Calcium ppm ASTM D5185m 1070 1056 1022 1057 Phosphorus ppm ASTM D5185m 1150 1043 1035 978 Zinc ppm ASTM D5185m 1270 1227 1286 1200 Sulfur ppm ASTM D5185m 2060 3190 3192 3548 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 12 5 2 Sodium ppm ASTM D5185m >20 <1		ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 944 922 902 Calcium ppm ASTM D5185m 1070 1056 1022 1057 Phosphorus ppm ASTM D5185m 1150 1043 1035 978 Zinc ppm ASTM D5185m 1270 1227 1286 1200 Sulfur ppm ASTM D5185m 2060 3190 3192 3548 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 12 5 2 Sodium ppm ASTM D5185m >20 <1	Molybdenum	ppm	ASTM D5185m	60	57	57	
Calcium ppm ASTM D5185m 1070 1056 1022 1057 Phosphorus ppm ASTM D5185m 1150 1043 1035 978 Zinc ppm ASTM D5185m 1270 1227 1286 1200 Sulfur ppm ASTM D5185m 2060 3190 3192 3548 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 12 5 2 Sodium ppm ASTM D5185m >20 <1	Manganese	ppm	ASTM D5185m	0	0	<1	0
Phosphorus ppm ASTM D5185m 1150 1043 1035 978 Zinc ppm ASTM D5185m 1270 1227 1286 1200 Sulfur ppm ASTM D5185m 2060 3190 3192 3548 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 12 5 2 Sodium ppm ASTM D5185m >20 <1	Magnesium	ppm	ASTM D5185m	1010	944	922	902
Zinc ppm ASTM D5185m 1270 1227 1286 1200 Sulfur ppm ASTM D5185m 2060 3190 3192 3548 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 12 5 2 Sodium ppm ASTM D5185m >20 <1	Calcium	ppm	ASTM D5185m		1056	1022	1057
Sulfur ppm ASTM D5185m 2060 3190 3192 3548 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 12 5 2 Sodium ppm ASTM D5185m >20 <1		ppm	ASTM D5185m	1150			
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 12 5 2 Sodium ppm ASTM D5185m 0 <1	Zinc	ppm	ASTM D5185m	1270	1227	1286	1200
Silicon ppm ASTM D5185m >20 12 5 2 Sodium ppm ASTM D5185m 0 <1 <1 Potassium ppm ASTM D5185m >20 <1 2 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 4.3 4.2 5.1 Sulfation Abs/.1mm *ASTM D7415 >30 16.6 16.4 16.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 12.6 12.4 12.4	Sulfur	ppm	ASTM D5185m	2060	3190	3192	3548
Sodium ppm ASTM D5185m 0 <1	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 <1 2 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 4.3 4.2 5.1 Sulfation Abs/.1mm *ASTM D7415 >30 16.6 16.4 16.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 12.6 12.4 12.4	Silicon	ppm		>20			
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 4.3 4.2 5.1 Sulfation Abs/.1mm *ASTM D7415 >30 16.6 16.4 16.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 12.6 12.4 12.4	Sodium	ppm	ASTM D5185m		0	<1	<1
Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 4.3 4.2 5.1 Sulfation Abs/.1mm *ASTM D7415 >30 16.6 16.4 16.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 12.6 12.4 12.4	Potassium	ppm	ASTM D5185m	>20	<1	2	<1
Nitration Abs/cm *ASTM D7624 >20 4.3 4.2 5.1 Sulfation Abs/.1mm *ASTM D7415 >30 16.6 16.4 16.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 12.6 12.4 12.4	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 16.6 16.4 16.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 12.6 12.4 12.4	Soot %	%	*ASTM D7844	>3	0.1	0.1	0.1
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 12.6 12.4 12.4	Nitration	Abs/cm	*ASTM D7624	>20	4.3	4.2	5.1
Oxidation Abs/.1mm *ASTM D7414 >25 12.6 12.4 12.4	Sulfation	Abs/.1mm	*ASTM D7415	>30	16.6	16.4	16.8
	FLUID DEGRA	OATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 9.4 8.1 8.6	Oxidation	Abs/.1mm	*ASTM D7414	>25	12.6	12.4	12.4
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	9.4	8.1	8.6



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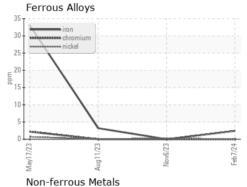


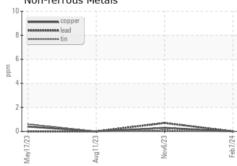


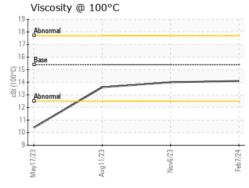
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

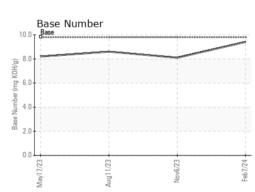
FLUID PROPE	:RHES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.1	14.0	13.6

GRAPHS













Certificate L2367

Laboratory Sample No.

Lab Number : 06085641 Unique Number : 10873086

: GFL0100931

Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 12 Feb 2024 **Tested** : 12 Feb 2024

Diagnosed : 12 Feb 2024 - Wes Davis

GFL Environmental - 419 - Metro Saginaw

6950 N Michigan Saginaw, MI US 48604

Contact: Jeremy Hines jhines@gflenv.com

T: (800)684-1277

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)

Report Id: GFL419 [WUSCAR] 06085641 (Generated: 02/12/2024 14:42:59) Rev: 1

Submitted By: Colton Kitts