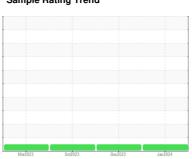


OIL ANALYSIS REPORT

Sample Rating Trend







Ma 2 Co Di Flu PE

Machine Id 212019 Component Diesel Engine

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

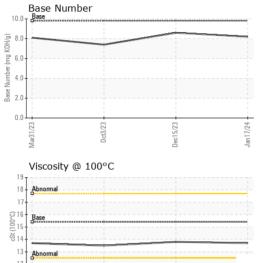
Fluid Condition

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

•		Mar202	3 Oct2023	Dec2023 Ja	an2024	
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0093541	GFL0093593	GFL0093517
Sample Date		Client Info		17 Jan 2024	15 Dec 2023	03 Oct 2023
Machine Age	hrs	Client Info		2270	2144	1811
Oil Age	hrs	Client Info		459	333	103
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel	1011	WC Method	>3.0	<1.0	<1.0	<1.0
				<1.0 NEG		NEG
Water		WC Method	>0.2	-	NEG	
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	14	12	27
Chromium	ppm	ASTM D5185m	>20	2	1	2
Nickel	ppm	ASTM D5185m	>2	0	<1	<1
Titanium	ppm	ASTM D5185m	>2	<1	<1	2
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	10	6	12
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	3	<1	2
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	<1
	ррпп		11 11 11			
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	0	2	2
Barium	ppm	ASTM D5185m	0	0	0	0
	PP					
Molybdenum	ppm	ASTM D5185m	60	57	55	59
Manganese				57 1	55 <1	<1
•	ppm	ASTM D5185m	60 0 1010		55 <1 927	<1 986
Manganese	ppm	ASTM D5185m ASTM D5185m	60	1	55 <1	<1
Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010	1 872	55 <1 927	<1 986
Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070	1 872 952	55 <1 927 980	<1 986 1060
Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150	1 872 952 993	55 <1 927 980 988	<1 986 1060 987
Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270	1 872 952 993 1145	55 <1 927 980 988 1241	<1 986 1060 987 1234
Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060	1 872 952 993 1145 2708	55 <1 927 980 988 1241 3003	<1 986 1060 987 1234 2879
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060	1 872 952 993 1145 2708	55 <1 927 980 988 1241 3003 history1	<1 986 1060 987 1234 2879 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base	1 872 952 993 1145 2708 current	55 <1 927 980 988 1241 3003 history1 4	<1 986 1060 987 1234 2879 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base	1 872 952 993 1145 2708 current 5	55 <1 927 980 988 1241 3003 history1 4	<1 986 1060 987 1234 2879 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base >25	1 872 952 993 1145 2708 current 5 0 16	55 <1 927 980 988 1241 3003 history1 4 1 13 history1	<1 986 1060 987 1234 2879 history2 9 2 29
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	1 872 952 993 1145 2708 current 5 0 16 current	55 <1 927 980 988 1241 3003 history1 4 1 13 history1 0.4	<pre><1 986 1060 987 1234 2879 history2 9 2 29 history2 0.6</pre>
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	1 872 952 993 1145 2708 current 5 0 16 current 0.5 8.1	55	<pre><1 986 1060 987 1234 2879 history2 9 2 29 history2 0.6 9.2</pre>
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m Method ASTM D5185m Method *ASTM D7844 *ASTM D7624 *ASTM D7415	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >6 >20 >30	1 872 952 993 1145 2708 current 5 0 16 current 0.5 8.1 19.1	55 <1 927 980 988 1241 3003 history1 4 1 13 history1 0.4 7.1 18.9	<pre><1 986 1060 987 1234 2879 history2 9 2 29 history2 0.6 9.2 20.2</pre>
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI	ppm	ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >6 >20 >30 limit/base	1 872 952 993 1145 2708 current 5 0 16 current 0.5 8.1 19.1	55	<1 986 1060 987 1234 2879 history2 9 2 29 history2 0.6 9.2 20.2 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m Method ASTM D5185m Method *ASTM D7844 *ASTM D7624 *ASTM D7415	60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >6 >20 >30 limit/base	1 872 952 993 1145 2708 current 5 0 16 current 0.5 8.1 19.1	55 <1 927 980 988 1241 3003 history1 4 1 13 history1 0.4 7.1 18.9	<pre><1 986 1060 987 1234 2879 history2 9 2 29 history2 0.6 9.2 20.2</pre>



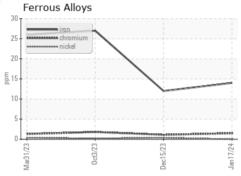
OIL ANALYSIS REPORT

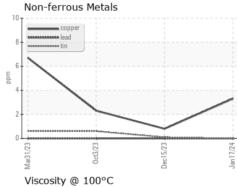


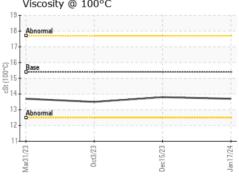
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

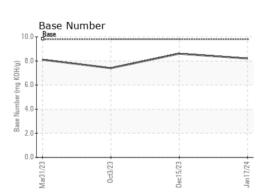
FLUID PROP	ERIIES	method			riistory i	History2
Visc @ 100°C	cSt	ASTM D445	15.4	13.7	13.8	13.5

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number

: GFL0093541 : 06066127 Unique Number : 10842804 Test Package : FLEET

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

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Recieved : 19 Jan 2024

Diagnosed : 22 Jan 2024 Diagnostician : Wes Davis

GFL Environmental - 891 - Oklahoma City Hauling

1001 South Rockwell Oklahoma City, OK US 73128

Contact: Andy Smith andrew.smith@gflenv.com T: (405)306-1651

* - 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: GFL891 [WUSCAR] 06066127 (Generated: 01/22/2024 10:30:28) Rev: 1

Submitted By: Andy Smith