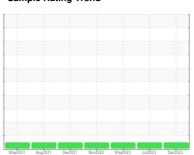


OIL ANALYSIS REPORT

Sample Rating Trend







Machine Id 4512M 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

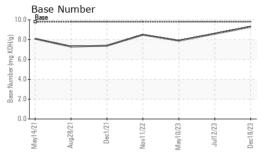
Fluid Condition

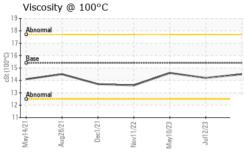
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

		May2021	Aug2021 Dec2021	Nov2022 May2023 Jul2023	Dec2023	
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0105780	GFL0086699	GFL0081431
Sample Date		Client Info		18 Dec 2023	12 Jul 2023	10 May 2023
Machine Age	hrs	Client Info		10395	9779	9351
Oil Age	hrs	Client Info		9779	9351	8097
Oil Changed		Client Info		Not Changd	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
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	>90	2	33	52
Chromium	ppm	ASTM D5185m	>20	<1	2	3
Nickel	ppm	ASTM D5185m	>2	0	<1	<1
Titanium	ppm	ASTM D5185m	>2	0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	5	6
Lead	ppm	ASTM D5185m	>40	0	0	<1
Copper	ppm	ASTM D5185m	>330	12	2	2
Tin	ppm	ASTM D5185m	>15	0	<1	<1
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	14	1	2
Barium	ppm	ASTM D5185m	0	0	2	0
Molybdenum	ppm	ASTM D5185m	60	59	60	57
Manganese	ppm	ASTM D5185m	0	0	<1	<1
Magnesium	ppm					
		ASTM D5185m	1010	877	865	920
Calcium	ppm	ASTM D5185m ASTM D5185m	1010	877 975	865 1067	920 1033
Calcium Phosphorus						
	ppm	ASTM D5185m	1070	975	1067	1033
Phosphorus	ppm ppm	ASTM D5185m ASTM D5185m	1070 1150	975 836	1067 981	1033 972
Phosphorus Zinc	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	1070 1150 1270	975 836 1111	1067 981 1237	1033 972 1235
Phosphorus Zinc Sulfur	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	1070 1150 1270 2060	975 836 1111 2898	1067 981 1237 3003	1033 972 1235 3272
Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	1070 1150 1270 2060 limit/base	975 836 1111 2898 current	1067 981 1237 3003 history1	1033 972 1235 3272 history2
Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	1070 1150 1270 2060 limit/base	975 836 1111 2898 current	1067 981 1237 3003 history1	1033 972 1235 3272 history2
Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m	1070 1150 1270 2060 limit/base >25	975 836 1111 2898 current 9	1067 981 1237 3003 history1 6 7	1033 972 1235 3272 history2 6
Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m	1070 1150 1270 2060 limit/base >25 >20	975 836 1111 2898 current 9 0	1067 981 1237 3003 history1 6 7 3	1033 972 1235 3272 history2 6 8 7
Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D5185m	1070 1150 1270 2060 limit/base >25 >20 limit/base	975 836 1111 2898 current 9 0 1 current 0.1	1067 981 1237 3003 history1 6 7 3 history1	1033 972 1235 3272 history2 6 8 7 history2 3.1
Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1070 1150 1270 2060 limit/base >25 >20 limit/base	975 836 1111 2898 current 9 0 1	1067 981 1237 3003 history1 6 7 3	1033 972 1235 3272 history2 6 8 7 history2
Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm Abs/cm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7415	1070 1150 1270 2060 limit/base >25 >20 limit/base >6 >20	975 836 1111 2898 current 9 0 1 current 0.1 4.4	1067 981 1237 3003 history1 6 7 3 history1 1.7 11.1	1033 972 1235 3272 history2 6 8 7 history2 3.1 15.2
Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844 *ASTM D7624 *ASTM D7415 method	1070 1150 1270 2060 limit/base >25 >20 limit/base >6 >20 >30 limit/base	975 836 1111 2898	1067 981 1237 3003 history1 6 7 3 history1 1.7 11.1 23.5 history1	1033 972 1235 3272 history2 6 8 7 history2 3.1 15.2 29.0 history2
Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm Abs/cm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7415	1070 1150 1270 2060 limit/base >25 >20 limit/base >6 >20 >30	975 836 1111 2898 current 9 0 1 current 0.1 4.4 17.7	1067 981 1237 3003 history1 6 7 3 history1 1.7 11.1 23.5	1033 972 1235 3272 history2 6 8 7 history2 3.1 15.2 29.0



OIL ANALYSIS REPORT





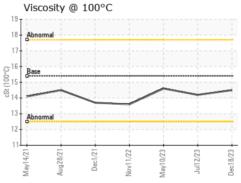
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

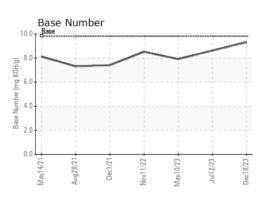
FLUID PROPE	RTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.5	14.2	14.6

GRAPHS Ferrous Alloys

E 30

Non-ferrous Metals ppm









Laboratory Sample No. Lab Number **Unique Number**

: GFL0105780 : 06040230 : 10795459

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Recieved : 20 Dec 2023

Diagnosed : 21 Dec 2023 Diagnostician : Sean Felton

Test Package : FLEET (Additional Tests: FT-IR(Diff)) 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.

GFL Environmental - 415 - Michigan East

6200 Elmridge Sterling Heights, MI US 48313 Contact: Frank Wolak fwolak@gflenv.com T: (586)825-9514

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)