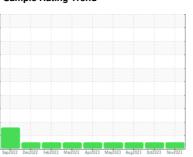


OIL ANALYSIS REPORT

Sample Rating Trend









Machine Id
712021
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

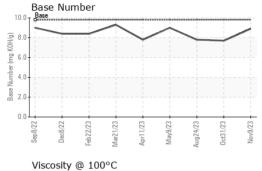
Fluid Condition

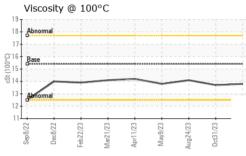
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

				Aprz023 May2023 Aug2023 Oct20		
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0089544	GFL0097338	GFL0089510
Sample Date		Client Info		09 Nov 2023	31 Oct 2023	24 Aug 2023
Machine Age	hrs	Client Info		2629	2629 2629	
Oil Age	hrs	Client Info		2629	2629	588
Oil Changed		Client Info		N/A	N/A	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
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	22	6	41
Chromium	ppm	ASTM D5185m	>20	1	0	2
Nickel	ppm	ASTM D5185m	>5	0	1	<1
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	2	<1	3
Lead	ppm	ASTM D5185m	>40	0	0	<1
Copper	ppm	ASTM D5185m	>330	0	0	2
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
				•		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm		limit/base			3
			0	current	history1	
Boron	ppm	ASTM D5185m	0	current 7	history1	3
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	current 7 0	history1 7 0	3 2
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 7 0 54	history1 7 0 55	3 2 64
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 7 0 54 <1 935 1028	history1 7 0 55 <1 908 1012	3 2 64 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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	current 7 0 54 <1 935 1028 1022	history1 7 0 55 <1 908 1012 995	3 2 64 <1 952 1116 1057
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	current 7 0 54 <1 935 1028 1022 1246	history1 7 0 55 <1 908 1012 995 1217	3 2 64 <1 952 1116 1057 1265
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 ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	current 7 0 54 <1 935 1028 1022	history1 7 0 55 <1 908 1012 995 1217 2855	3 2 64 <1 952 1116 1057 1265 3175
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	current 7 0 54 <1 935 1028 1022 1246 2973 current	history1 7 0 55 <1 908 1012 995 1217 2855 history1	3 2 64 <1 952 1116 1057 1265 3175 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	current 7 0 54 <1 935 1028 1022 1246 2973 current 6	history1 7 0 55 <1 908 1012 995 1217 2855 history1 4	3 2 64 <1 952 1116 1057 1265 3175 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	current 7 0 54 <1 935 1028 1022 1246 2973 current 6 0	history1 7 0 55 <1 908 1012 995 1217 2855 history1 4	3 2 64 <1 952 1116 1057 1265 3175 history2 8 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	current 7 0 54 <1 935 1028 1022 1246 2973 current 6	history1 7 0 55 <1 908 1012 995 1217 2855 history1 4 2 0	3 2 64 <1 952 1116 1057 1265 3175 history2 8 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	current 7 0 54 <1 935 1028 1022 1246 2973 current 6 0	history1 7 0 55 <1 908 1012 995 1217 2855 history1 4 2 0 history1	3 2 64 <1 952 1116 1057 1265 3175 history2 8 0 1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	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	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	current 7 0 54 <1 935 1028 1022 1246 2973 current 6 0 <1 current	history1 7 0 55 <1 908 1012 995 1217 2855 history1 4 2 0 history1 0.4	3 2 64 <1 952 1116 1057 1265 3175 history2 8 0 1 history2 1.3
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	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	current 7 0 54 <1 935 1028 1022 1246 2973 current 6 0 <1	history1 7 0 55 <1 908 1012 995 1217 2855 history1 4 2 0 history1	3 2 64 <1 952 1116 1057 1265 3175 history2 8 0 1 history2
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	ASTM D5185m Method *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 >20 limit/base	current 7 0 54 <1 935 1028 1022 1246 2973 current 6 0 <1 current	history1 7 0 55 <1 908 1012 995 1217 2855 history1 4 2 0 history1 0.4	3 2 64 <1 952 1116 1057 1265 3175 history2 8 0 1 history2 1.3
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 ppm ppm	ASTM D5185m Method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D76145	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	current 7 0 54 <1 935 1028 1022 1246 2973 current 6 0 <1 current 1 8.7	history1 7 0 55 <1 908 1012 995 1217 2855 history1 4 2 0 history1 0.4 8.3	3 2 64 <1 952 1116 1057 1265 3175 history2 8 0 1 history2 1.3 10.0
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	ASTM D5185m Method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D76145	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4 >20 >30	current 7 0 54 <1 935 1028 1022 1246 2973 current 6 0 <1 current 1 8.7 19.5	history1 7 0 55 <1 908 1012 995 1217 2855 history1 4 2 0 history1 0.4 8.3 20.8	3 2 64 <1 952 1116 1057 1265 3175 history2 8 0 1 history2 1.3 10.0 20.9



OIL ANALYSIS REPORT

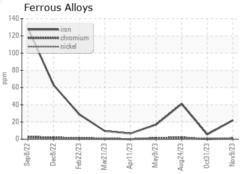


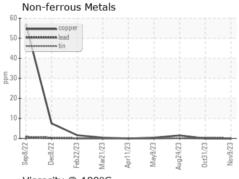


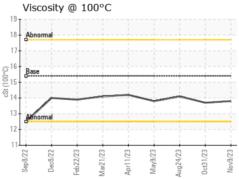
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

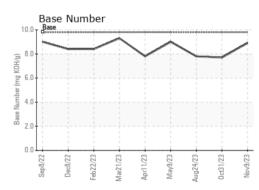
FLUID PROPERTIES		method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.8	13.7	14.1

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10740594

: GFL0089544 : 06006832 Test Package : FLEET

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

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 14 Nov 2023 Diagnosed : 15 Nov 2023

Diagnostician : Wes Davis

GFL Environmental - 654S - Midlothian

12230 Deergrove Road Midlothian, VA US 23112

Contact: Corbin Umphlet cumphlet@gflenv.com

* - 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) T:

F: