

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id **429030-402476**

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

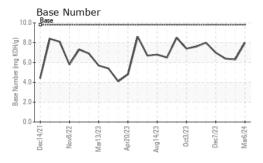
Fluid Condition

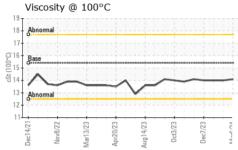
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Cample Date Client Info 12316 12164 12053 12164	N SHP 15W40 (GAL)	ec2021 Nov	2022 Mar2023 Apr202	23 Aug2023 Oct2023 Dec2	023 Mar202	
Cample Date Client Info 12316 12164 12053 12164	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age	Sample Number		Client Info		GFL0115365	GFL0110883	GFL0110894
Dil Age	Sample Date		Client Info		06 Mar 2024	14 Feb 2024	30 Jan 2024
Changed Changed Changed NORMAL NORMAL NORMAL NORMAL	Machine Age	hrs	Client Info		12316	12164	12053
CONTAMINATION method limit/base current history1 history2 history2 cue WC Method So.2 NEG NEG	Oil Age	hrs	Client Info		152	111	203
CONTAMINATION method limit/base current history1 history2	Oil Changed		Client Info		Changed	Changed	Changed
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water	CONTAMINAT	ION	method	limit/base	current	history1	history2
NEG Neg	-uel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS	Nater		WC Method	>0.2	NEG	NEG	NEG
Chromium	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METAL	.S	method	limit/base	current	history1	history2
ASTM D5185m S	ron	ppm	ASTM D5185m	>120	3	8	6
Silver	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>5	<1	0	<1
Aluminum	Γitanium	ppm	ASTM D5185m	>2	0	<1	<1
Lead	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper	Aluminum	ppm	ASTM D5185m	>20	2	7	2
Act	_ead	ppm	ASTM D5185m	>40	<1	<1	1
Azanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 15 2 2 2 Barium ppm ASTM D5185m 0 0 0 0 13 Molybdenum ppm ASTM D5185m 60 64 61 66 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 982 979 956 Calcium ppm ASTM D5185m 1070 1144 1068 1036 Phosphorus ppm ASTM D5185m 1270 1263 1281 1268 Sulfur ppm ASTM D5185m 2060 3481 2961 3043 CONTAMINANTS method	Copper	ppm	ASTM D5185m	>330	<1	1	2
ADDITIVES	Γin	ppm	ASTM D5185m	>15	<1	<1	<1
ADDITIVES	/anadium	ppm	ASTM D5185m		0	0	0
Soron ppm ASTM D5185m 0 15 2 2 2 2 2 2 3 3 3 3	Cadmium	ppm	ASTM D5185m		0	0	<1
Description	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 64 61 66 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 982 979 956 Calcium ppm ASTM D5185m 1070 1144 1068 1036 Phosphorus ppm ASTM D5185m 1150 1107 1053 970 Zinc ppm ASTM D5185m 1270 1263 1281 1268 Sulfur ppm ASTM D5185m 2060 3481 2961 3043 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 14 6 Sodium ppm ASTM D5185m 20 <1 3 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7824 </td <td>Boron</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <td>15</td> <td>2</td> <td>2</td>	Boron	ppm	ASTM D5185m	0	15	2	2
Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 982 979 956 Calcium ppm ASTM D5185m 1070 1144 1068 1036 Phosphorus ppm ASTM D5185m 1150 1107 1053 970 Zinc ppm ASTM D5185m 1270 1263 1281 1268 Sulfur ppm ASTM D5185m 2060 3481 2961 3043 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 14 6 Sodium ppm ASTM D5185m >20 <1	Barium	ppm	ASTM D5185m	0	0	0	13
Magnesium ppm ASTM D5185m 1010 982 979 956 Calcium ppm ASTM D5185m 1070 1144 1068 1036 Phosphorus ppm ASTM D5185m 1150 1107 1053 970 Zinc ppm ASTM D5185m 1270 1263 1281 1268 Sulfur ppm ASTM D5185m 2060 3481 2961 3043 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 14 6 Sodium ppm ASTM D5185m 20 <1	Molybdenum	ppm			64	61	66
Calcium ppm ASTM D5185m 1070 1144 1068 1036 Phosphorus ppm ASTM D5185m 1150 1107 1053 970 Zinc ppm ASTM D5185m 1270 1263 1281 1268 Gulfur ppm ASTM D5185m 2060 3481 2961 3043 CONTAMINANTS method limit/base current history1 history2 Golium ppm ASTM D5185m >25 4 14 6 Goldium ppm ASTM D5185m 2 4 0 Potassium ppm ASTM D5185m >20 <1	Manganese	ppm	ASTM D5185m	0	0	<1	<1
Phosphorus ppm ASTM D5185m 1150 1107 1053 970 Zinc ppm ASTM D5185m 1270 1263 1281 1268 Bulfur ppm ASTM D5185m 2060 3481 2961 3043 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 14 6 Sodium ppm ASTM D5185m 2 4 0 Potassium ppm ASTM D5185m >20 <1	Magnesium	ppm	ASTM D5185m	1010	982	979	956
Zinc ppm ASTM D5185m 1270 1263 1281 1268	Calcium	ppm	ASTM D5185m	1070	1144	1068	1036
Sulfur ppm ASTM D5185m 2060 3481 2961 3043 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 14 6 Sodium ppm ASTM D5185m 2 4 0 Potassium ppm ASTM D5185m >20 <1 3 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 6.0 8.5 8.4 Sulfation Abs/.1mm *ASTM D7415 >30 18.3 19.6 19.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.5 15.8 15.7	Phosphorus	ppm	ASTM D5185m	1150	1107	1053	970
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 14 6 Sodium ppm ASTM D5185m 2 4 0 Potassium ppm ASTM D5185m >20 <1	Zinc	ppm	ASTM D5185m	1270	1263	1281	1268
Solition ppm ASTM D5185m >25 4 14 6	Sulfur	ppm	ASTM D5185m	2060	3481	2961	3043
Sodium ppm ASTM D5185m 2 4 0 Potassium ppm ASTM D5185m >20 <1 3 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 6.0 8.5 8.4 Sulfation Abs/.1mm *ASTM D7415 >30 18.3 19.6 19.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.5 15.8 15.7	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 <1 3 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.1 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 6.0 8.5 8.4 Sulfation Abs/.1mm *ASTM D7415 >30 18.3 19.6 19.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.5 15.8 15.7	Silicon	ppm	ASTM D5185m	>25	4	14	6
INFRA-RED	Sodium	ppm	ASTM D5185m		2	4	0
Soot % % *ASTM D7844 >4 0.1 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 6.0 8.5 8.4 Sulfation Abs/.1mm *ASTM D7415 >30 18.3 19.6 19.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.5 15.8 15.7	Potassium	ppm	ASTM D5185m	>20	<1	3	3
Nitration Abs/cm *ASTM D7624 >20 6.0 8.5 8.4 Sulfation Abs/.1mm *ASTM D7415 >30 18.3 19.6 19.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.5 15.8 15.7	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 18.3 19.6 19.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.5 15.8 15.7	Soot %	%	*ASTM D7844	>4	0.1	0.3	0.3
Sulfation Abs/.1mm *ASTM D7415 >30 18.3 19.6 19.3 FLUID DEGRADATION method limit/base current history1 history2 Dxidation Abs/.1mm *ASTM D7414 >25 14.5 15.8 15.7	Nitration	Abs/cm	*ASTM D7624	>20			8.4
Dxidation Abs/.1mm *ASTM D7414 >25 14.5 15.8 15.7	Sulfation	Abs/.1mm	*ASTM D7415	>30			19.3
	FLUID DEGRA	OATION	method	limit/base	current	history1	history2
	 Oxidation	Abs/.1mm	*ASTM D7414	>25	14.5	15.8	15.7
	Base Number (BN)	mg KOH/g			8.0	6.3	



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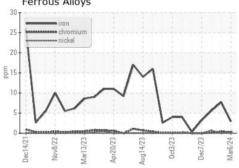


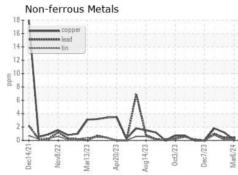
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

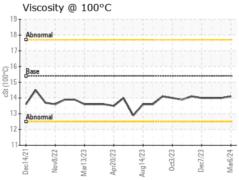
FLUID PROPE	RTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.1	14.0	14.0

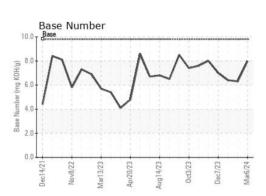
GRAPHS

Ferrous Alloys













Certificate L2367

Laboratory Sample No.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513

: GFL0115365 Lab Number : 06121511 Unique Number : 10930344

Received : 18 Mar 2024 **Tested** Diagnosed

: 19 Mar 2024 : 19 Mar 2024 - Wes Davis

GFL Environmental - 814 - Little Rock Hauling

4005 Hwy 161 N. Little Rock, AR US 72117

Contact: Brad Koenig bkoenig@gflenv.com T:

Test Package : FLEET 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)

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