

OIL ANALYSIS REPORT

Sample Rating Trend NORMAL



Machine Id 920010 Component **Diesel Engine**

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

Fluid Condition

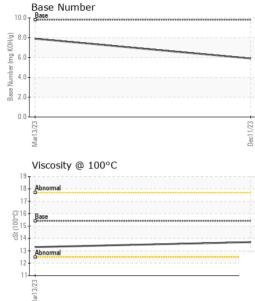
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Machine Age	N SHP 15W40 (- GAL)		Mar2023	Dec2023		
Sample Date	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Date	Sample Number		Client Info		GFL0066976	GFL0066956	
Oil Age	Sample Date		Client Info		11 Dec 2023	13 Mar 2023	
Oil Age	•	hrs	Client Info		11490	9596	
Contained Client Info Normal Normal Normal Normal Contained Normal Normal Normal Contained Normal Norma	•	hrs	Client Info		0	9596	
CONTAMINATION method militibase current history1 history2	-		Client Info		Changed	Changed	
Fuel	Sample Status				_		
Water WC Method So.2 NEG N	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	
Chromium	Glycol		WC Method		NEG	NEG	
Chromium	WEAR METAL	S	method	limit/base	current	history1	history2
Strickel	ron	ppm	ASTM D5185m	>120	13	7	
Description	Chromium	ppm	ASTM D5185m	>20	<1	<1	
Description	Nickel	ppm	ASTM D5185m	>5	<1	0	
Aluminum	Titanium	ppm	ASTM D5185m	>2	0	0	
Lead	Silver	ppm	ASTM D5185m	>2	<1	0	
Copper	Aluminum	ppm	ASTM D5185m	>20	2	<1	
Tin	_ead	ppm	ASTM D5185m	>40	3	<1	
Vanadium ppm ASTM D5185m 0 0 Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 9 14 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 Manganese ppm ASTM D5185m 0 <1 <1 Magnesium ppm ASTM D5185m 1010 904 808 Calcium ppm ASTM D5185m 1070 1041 1109 Phosphorus ppm ASTM D5185m 1270 1234 1096 Zinc ppm ASTM D5185m 2060 2458 2728 CONTAMINANTS method limit/base current history1	Copper	ppm	ASTM D5185m	>330	<1	<1	
ADDITIVES	Γin	ppm	ASTM D5185m	>15	<1	<1	
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	0	
Barium	Cadmium	ppm	ASTM D5185m		0	0	
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 58 61 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m	0	9	14	
Manganese ppm ASTM D5185m 0 <1 <1 Magnesium ppm ASTM D5185m 1010 904 808 Calcium ppm ASTM D5185m 1070 1041 1109 Phosphorus ppm ASTM D5185m 1150 958 879 Zinc ppm ASTM D5185m 1270 1234 1096 Sulfur ppm ASTM D5185m 2060 2458 2728 CONTAMINANTS method limit/base current history1 history2 Soliticon ppm ASTM D5185m >25 3 3 Soliticon ppm ASTM D5185m >20 1 1 Potassium ppm ASTM D5185m >20 1 1 INFRA-RED method limit/base current history1 history2 Soot % % <	Barium	ppm	ASTM D5185m	0	0	0	
Magnesium ppm ASTM D5185m 1010 904 808 Calcium ppm ASTM D5185m 1070 1041 1109 Phosphorus ppm ASTM D5185m 1150 958 879 Zinc ppm ASTM D5185m 1270 1234 1096 Sulfur ppm ASTM D5185m 2060 2458 2728 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 3 Sodium ppm ASTM D5185m >20 1 1 Potassium ppm ASTM D5185m >20 1 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 9.0 6.9 Sulfation Abs/.1mm *ASTM D7414	Molybdenum	ppm	ASTM D5185m	60	58	61	
Calcium ppm ASTM D5185m 1070 1041 1109 Phosphorus ppm ASTM D5185m 1150 958 879 Zinc ppm ASTM D5185m 1270 1234 1096 Sulfur ppm ASTM D5185m 2060 2458 2728 CONTAMINANTS method limit/base current history1 history2 Soliticon ppm ASTM D5185m >25 3 3 Soliticon ppm ASTM D5185m >20 1 1 Potassium ppm ASTM D5185m >20 1 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.7 0.4 Sulfation Abs/.1mm *ASTM D7415 >30 22.2 19.5 FLUID DEGRADATION	Manganese	ppm	ASTM D5185m	0	<1	<1	
Phosphorus ppm ASTM D5185m 1150 958 879 Zinc ppm ASTM D5185m 1270 1234 1096 Sulfur ppm ASTM D5185m 2060 2458 2728 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 3 Sodium ppm ASTM D5185m 8 3 Potassium ppm ASTM D5185m >20 1 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.7 0.4 Sulfation Abs/.1mm *ASTM D7624 >20 9.0 6.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25<	Magnesium	ppm	ASTM D5185m	1010	904	808	
Zinc ppm ASTM D5185m 1270 1234 1096 Sulfur ppm ASTM D5185m 2060 2458 2728 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 3 Sodium ppm ASTM D5185m 8 3 Potassium ppm ASTM D5185m >20 1 1 1 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 >4 0.7 0.4 Nitration Abs/cm *ASTM D7624 >20 9.0 6.9 Sulfation Abs/.1mm *ASTM D7415 >30 22.2 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.2 14.4	Calcium	ppm	ASTM D5185m	1070	1041	1109	
Sulfur ppm ASTM D5185m 2060 2458 2728 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 3 Sodium ppm ASTM D5185m 8 3 Potassium ppm ASTM D5185m >20 1 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.7 0.4 Soot % % *ASTM D7624 >20 9.0 6.9 Sulfation Abs/.1mm *ASTM D7415 >30 22.2 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.2 14.4	Phosphorus	ppm	ASTM D5185m	1150	958	879	
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 3 Sodium ppm ASTM D5185m 8 3 Potassium ppm ASTM D5185m >20 1 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.7 0.4 Nitration Abs/cm *ASTM D7624 >20 9.0 6.9 Sulfation Abs/.1mm *ASTM D7415 >30 22.2 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.2 14.4	Zinc	ppm	ASTM D5185m	1270	1234	1096	
Solition ppm ASTM D5185m >25 3 3	Sulfur	ppm	ASTM D5185m	2060	2458	2728	
Sodium	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 1 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.7 0.4 Nitration Abs/cm *ASTM D7624 >20 9.0 6.9 Sulfation Abs/.1mm *ASTM D7415 >30 22.2 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.2 14.4	Silicon	ppm	ASTM D5185m	>25	3	3	
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.7 0.4 Nitration Abs/cm *ASTM D7624 >20 9.0 6.9 Sulfation Abs/.1mm *ASTM D7415 >30 22.2 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.2 14.4	Sodium	ppm	ASTM D5185m		8	3	
Soot % % *ASTM D7844 >4 0.7 0.4 Nitration Abs/cm *ASTM D7624 >20 9.0 6.9 Sulfation Abs/.1mm *ASTM D7415 >30 22.2 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.2 14.4	Potassium	ppm	ASTM D5185m	>20	1	1	
Nitration Abs/cm *ASTM D7624 >20 9.0 6.9 Sulfation Abs/.1mm *ASTM D7415 >30 22.2 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.2 14.4	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 22.2 19.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.2 14.4	Soot %	%	*ASTM D7844	>4	0.7	0.4	
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.2 14.4	Nitration	Abs/cm	*ASTM D7624	>20	9.0	6.9	
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	22.2	19.5	
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	19.2	14.4	
	Base Number (BN)				5.9		

Submitted By: SHEILA IPSEN



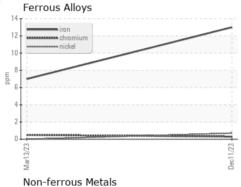
OIL ANALYSIS REPORT

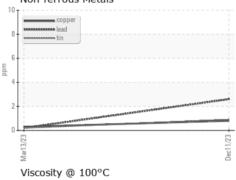


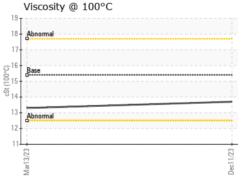
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Precipitate	scalar	*Visual	NONE	NONE	NONE	
Silt	scalar	*Visual	NONE	NONE	NONE	
Debris	scalar	*Visual	NONE	NONE	NONE	
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Appearance	scalar	*Visual	NORML	NORML	NORML	
Odor	scalar	*Visual	NORML	NORML	NORML	
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
Free Water	scalar	*Visual		NEG	NEG	
ELLIID DRODE	DTIES	method	limit/hase	current	history1	history2

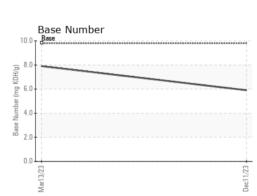
Visc @ 100°C	cSt	ASTM D445	15.4	13.7	13.3

GRAPHS











Certificate L2367

Laboratory Sample No. Lab Number

Unique Number : 10810350 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0066976 : 06049742

Recieved

Diagnosed

: 03 Jan 2024 : 04 Jan 2024 Diagnostician : Wes Davis

GFL Environmental - 916 - Greenbay HC

1799 County Trunk PP DePere, WI US 54115

Contact: Travis Runge travis.runge@gflenv.com T: (920)351-2341

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)