

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id **426154** Component **Diesel Engine**

PETRO CANADA DURO

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

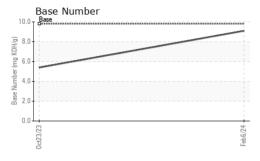
Fluid Condition

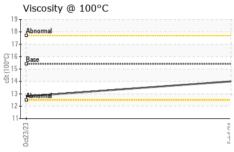
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION method limit/base current history1			Feb 2024	0 ct 2023		- GAL)	N SHP 15W40 (
Sample Date	history2	history1	current	limit/base	method	/ATION	SAMPLE INFORM
Machine Age mls Client Info 0 0 0 0 0 0 0 0 0		GFL0093010	GFL0093063		Client Info		Sample Number
Dil Age		23 Oct 2023	06 Feb 2024		Client Info		Sample Date
Contamped Client Info Changed Changed Changed Contample Status Contample St		331816	336039		Client Info	mls	Machine Age
NORMAL NORMAL CONTAMINATION method limit/base current history1		0	0		Client Info	mls	Oil Age
CONTAMINATION		Changed	Changed		Client Info		Oil Changed
Water		NORMAL	NORMAL				Sample Status
Water WC Method >0.2 NEG NEG Glycol WC Method NEG NEG WEAR METALS method limit/base current history1 Iron ppm ASTM D5185m >120 5 25 Chromium ppm ASTM D5185m >20 0 <1 Nickel ppm ASTM D5185m >2 0 0 Silver ppm ASTM D5185m >2 0 0 Silver ppm ASTM D5185m >2 0 0 Silver ppm ASTM D5185m >2 0 0 Cadead ppm ASTM D5185m >0 <1 <1 Capper ppm ASTM D5185m >15 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0	history2	history1	current	limit/base	method	ON	CONTAMINATI
WEAR METALS		<1.0	<1.0	>3.0	WC Method		Fuel
WEAR METALS method limit/base current history1 Iron ppm ASTM D5185m >120 5 25 Chromium ppm ASTM D5185m >20 0 <1		NEG	NEG	>0.2	WC Method		Water
Comparison		NEG	NEG		WC Method		Glycol
Chromium	history2	history1	current	limit/base	method	S	WEAR METALS
Nickel		25	5	>120	ASTM D5185m	ppm	ron
Titanium		<1	0	>20	ASTM D5185m	ppm	Chromium
Silver		<1	<1	>5	ASTM D5185m	ppm	Nickel
Aluminum		0	0	>2	ASTM D5185m	ppm	Titanium
Post		0	0	>2	ASTM D5185m	ppm	Silver
Description		5	2	>20	ASTM D5185m	ppm	Aluminum
STIM Description Descrip		<1		>40	ASTM D5185m	ppm	_ead
Vanadium ppm ASTM D5185m 0 0 Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 Boron ppm ASTM D5185m 0 8 27 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 0 <1 <1 Magnesium ppm ASTM D5185m 0 <1 <1 Magnesium ppm ASTM D5185m 1070 1038 1547 Phosphorus ppm ASTM D5185m 1150 958 799 Zinc ppm ASTM D5185m 1270 1211 1021 Sulfur ppm ASTM D5185m 2060 3032 2904 CONTAMINANTS method limit/base current history1 Silicon ppm ASTM D5185m 5 7 Potassium ppm ASTM D5185m <t< td=""><td></td><td>14</td><td>2</td><td>>330</td><td>ASTM D5185m</td><td>ppm</td><td>Copper</td></t<>		14	2	>330	ASTM D5185m	ppm	Copper
Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 Boron ppm ASTM D5185m 0 8 27 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 60 58 83 Manganese ppm ASTM D5185m 0 <1				>15		ppm	
ADDITIVES						ppm	
Boron ppm ASTM D5185m 0 0 0 0 0 0 0 0 0		0	0		ASTM D5185m	ppm	
Barium	history2	history1	current	limit/base	method		ADDITIVES
Molybdenum ppm ASTM D5185m 60 58 83 Manganese ppm ASTM D5185m 0 <1		27	8	0	ASTM D5185m	ppm	Boron
Manganese ppm ASTM D5185m 0 <1 <1 Magnesium ppm ASTM D5185m 1010 871 534 Calcium ppm ASTM D5185m 1070 1038 1547 Phosphorus ppm ASTM D5185m 1150 958 799 Zinc ppm ASTM D5185m 1270 1211 1021 Sulfur ppm ASTM D5185m 2060 3032 2904 CONTAMINANTS method limit/base current history1 Silicon ppm ASTM D5185m >25 4 6 Sodium ppm ASTM D5185m 5 7 Potassium ppm ASTM D5185m >20 1 2 INFRA-RED method limit/base current history1 Soot % *ASTM D7844 >4 0.2 0.7 Nitration Abs/cm *ASTM D7624 >20 6.0 11.3		0	0	0	ASTM D5185m	ppm	Barium
Magnesium ppm ASTM D5185m 1010 871 534 Calcium ppm ASTM D5185m 1070 1038 1547 Phosphorus ppm ASTM D5185m 1150 958 799 Zinc ppm ASTM D5185m 1270 1211 1021 Sulfur ppm ASTM D5185m 2060 3032 2904 CONTAMINANTS method limit/base current history1 Silicon ppm ASTM D5185m >25 4 6 Sodium ppm ASTM D5185m 5 7 Potassium ppm ASTM D5185m >20 1 2 INFRA-RED method limit/base current history1 Soot % % *ASTM D7844 >4 0.2 0.7 Nitration Abs/cm *ASTM D7624 >20 6.0 11.3		83	58	60	ASTM D5185m	ppm	Molybdenum
Calcium ppm ASTM D5185m 1070 1038 1547 Phosphorus ppm ASTM D5185m 1150 958 799 Zinc ppm ASTM D5185m 1270 1211 1021 Sulfur ppm ASTM D5185m 2060 3032 2904 CONTAMINANTS method limit/base current history1 Silicon ppm ASTM D5185m >25 4 6 Sodium ppm ASTM D5185m 5 7 Potassium ppm ASTM D5185m >20 1 2 INFRA-RED method limit/base current history1 Soot % % *ASTM D7844 >4 0.2 0.7 Nitration Abs/cm *ASTM D7624 >20 6.0 11.3			<1	0		ppm	-
Phosphorus ppm ASTM D5185m 1150 958 799 Zinc ppm ASTM D5185m 1270 1211 1021 Sulfur ppm ASTM D5185m 2060 3032 2904 CONTAMINANTS method limit/base current history1 Silicon ppm ASTM D5185m >25 4 6 Sodium ppm ASTM D5185m 5 7 Potassium ppm ASTM D5185m >20 1 2 INFRA-RED method limit/base current history1 Soot % % *ASTM D7844 >4 0.2 0.7 Nitration Abs/cm *ASTM D7624 >20 6.0 11.3		534	_	1010	ASTM D5185m	ppm	Magnesium
Zinc ppm ASTM D5185m 1270 1211 1021 Sulfur ppm ASTM D5185m 2060 3032 2904 CONTAMINANTS method limit/base current history1 Silicon ppm ASTM D5185m >25 4 6 Sodium ppm ASTM D5185m 5 7 Potassium ppm ASTM D5185m >20 1 2 INFRA-RED method limit/base current history1 Soot % % *ASTM D7844 >4 0.2 0.7 Nitration Abs/cm *ASTM D7624 >20 6.0 11.3		1547		1070	ASTM D5185m	ppm	
Sulfur ppm ASTM D5185m 2060 3032 2904 CONTAMINANTS method limit/base current history1 Silicon ppm ASTM D5185m >25 4 6 Sodium ppm ASTM D5185m 5 7 Potassium ppm ASTM D5185m >20 1 2 INFRA-RED method limit/base current history1 Soot % % *ASTM D7844 >4 0.2 0.7 Nitration Abs/cm *ASTM D7624 >20 6.0 11.3						ppm	
CONTAMINANTS method limit/base current history1 Silicon ppm ASTM D5185m >25 4 6 Sodium ppm ASTM D5185m 5 7 Potassium ppm ASTM D5185m >20 1 2 INFRA-RED method limit/base current history1 Soot % % *ASTM D7844 >4 0.2 0.7 Nitration Abs/cm *ASTM D7624 >20 6.0 11.3							-
Silicon ppm ASTM D5185m >25 4 6 Sodium ppm ASTM D5185m 5 7 Potassium ppm ASTM D5185m >20 1 2 INFRA-RED method limit/base current history1 Soot % % *ASTM D7844 >4 0.2 0.7 Nitration Abs/cm *ASTM D7624 >20 6.0 11.3		2904	3032	2060	ASTM D5185m		
Sodium ppm ASTM D5185m 5 7 Potassium ppm ASTM D5185m >20 1 2 INFRA-RED method limit/base current history1 Soot % % *ASTM D7844 >4 0.2 0.7 Nitration Abs/cm *ASTM D7624 >20 6.0 11.3	history2	history1	current	limit/base		TS	CONTAMINAN
Potassium ppm ASTM D5185m >20 1 2 INFRA-RED method limit/base current history1 Soot % % *ASTM D7844 >4 0.2 0.7 Nitration Abs/cm *ASTM D7624 >20 6.0 11.3		6	4	>25	ASTM D5185m	ppm	
INFRA-RED method limit/base current history1 Soot % % *ASTM D7844 >4 0.2 0.7 Nitration Abs/cm *ASTM D7624 >20 6.0 11.3			5		ASTM D5185m	ppm	
Soot % % *ASTM D7844 >4 0.2 0.7 Nitration Abs/cm *ASTM D7624 >20 6.0 11.3		2	1	>20	ASTM D5185m	ppm	Potassium
Nitration Abs/cm *ASTM D7624 >20 6.0 11.3	history2	history1	current	limit/base	method		INFRA-RED
		0.7	0.2	>4	*ASTM D7844	%	Soot %
		11.3	6.0	>20	*ASTM D7624	Abs/cm	Vitration
Sulfation		24.3	17.9	>30	*ASTM D7415	Abs/.1mm	Sulfation
FLUID DEGRADATION method limit/base current history1	history2	history1	current	limit/base	method	ATION	FLUID DEGRAD
Oxidation Abs/.1mm *ASTM D7414 >25 13.5 19.5		19.5	13.5	>25	*ASTM D7414	Abs/.1mm	Oxidation
Base Number (BN) mg KOH/g ASTM D2896 9.8 9.1 5.4		5.4	9.1	9.8	ASTM D2896	mg KOH/g	Base Number (BN)



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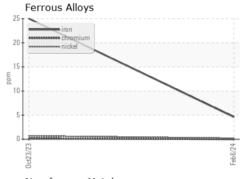


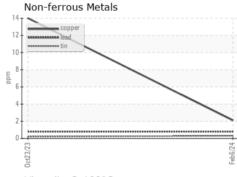


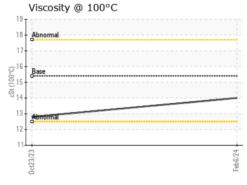
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Precipitate	scalar	*Visual	NONE	NONE	NONE	
Silt	scalar	*Visual	NONE	NONE	NONE	
Debris	scalar	*Visual	NONE	NONE	NONE	
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Appearance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

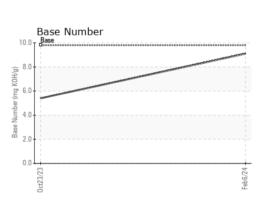
FLUID PROP	ERHES	method			history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.0	12.8	

GRAPHS













Laboratory Sample No. Lab Number : 06091507 Unique Number : 10884360

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0093063

Received **Tested** Diagnosed

: 16 Feb 2024 : 17 Feb 2024 : 17 Feb 2024 - Wes Davis

GFL Environmental - 413 - Whiteland Hauling

2959 S EMERSON AVE WHITELAND, IN US 46184

Contact: Christyan Trent-Proctor ctrentproctor@gflenv.com

Test Package : FLEET Certificate L2367 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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