

OIL ANALYSIS REPORT

Sample Rating Trend

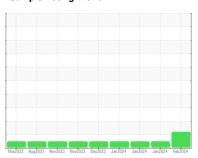
DEGRADATION



Machine Id 4610M Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (36 QTS)





DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. 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.

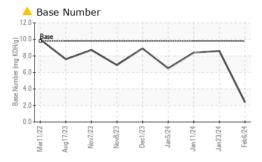
Fluid Condition

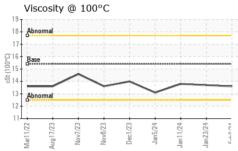
The BN level is low. The condition of the oil is acceptable for the time in service.

Sample Number	ON SHP 15W40 (36 QTS) Mařozz Augžozz Novározz Novározz Decározz Janároz Janároz Janároz Janároz Fractory						
Client Info 06 Feb 2024 23 Jan 2024 11 Jan 20	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 600 600 21783	Sample Number		Client Info		GFL0110093	GFL0109968	GFL0110009
Dil Age	Sample Date		Client Info		06 Feb 2024	23 Jan 2024	11 Jan 2024
Changed Client Info Changed ABNORMAL NORMAL NORMAL NORMAL	Machine Age	hrs	Client Info		22014	21908	21783
CONTAMINATION	Oil Age	hrs	Client Info		600	600	21783
CONTAMINATION method limit/base current history1 historical	Oil Changed		Client Info		Changed	N/A	Changed
Victor V	Sample Status				ABNORMAL	NORMAL	NORMAL
Water WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history1 ron ppm ASTM D5185m >90 72 8 4 Chromium ppm ASTM D5185m >20 2 0 0 Nickel ppm ASTM D5185m >20 2 0 0 Silver ppm ASTM D5185m >2 <1	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	-uel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 history ron ppm ASTM D5185m >90 72 8 4 Chromium ppm ASTM D5185m >20 2 0 0 Silver ppm ASTM D5185m >2 <1	<i>N</i> ater		WC Method	>0.2	NEG	NEG	NEG
Chromium	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METAL	S	method	limit/base	current	history1	history2
Silver	ron	ppm	ASTM D5185m	>90	72	8	4
Description	Chromium	ppm	ASTM D5185m	>20	2	0	0
Silver	Nickel	ppm	ASTM D5185m	>2	6	<1	0
Aluminum	Γitanium	ppm	ASTM D5185m	>2	<1	0	0
Lead	Silver	ppm	ASTM D5185m	>2	<1	0	0
Copper	Aluminum	ppm	ASTM D5185m	>20	1	2	2
Standard	_ead	ppm	ASTM D5185m	>40	1	<1	<1
Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m <1 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 2 2 3 Barium ppm ASTM D5185m 0 <1 <1 0 Molybdenum ppm ASTM D5185m 0 <1 <1 0 Magnesium ppm ASTM D5185m 0 2 <1 <1 Magnesium ppm ASTM D5185m 1070 1134 892 947 Phosphorus ppm ASTM D5185m 1070 1134 892 947 Phosphorus ppm ASTM D5185m 1270 1212 1108 1228 Zinc ppm ASTM D5185m 2060 2176 2624 3108 CONTAMINANTS method limit/base	Copper	ppm	ASTM D5185m	>330	37	0	0
ADDITIVES	Γin	ppm	ASTM D5185m	>15	3	<1	<1
ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 2 2 3 Barium ppm ASTM D5185m 0 <1	Vanadium	ppm	ASTM D5185m		0	0	0
Soron ppm ASTM D5185m 0 2 2 3	Cadmium	ppm	ASTM D5185m		<1	0	0
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 64 53 57 Manganese ppm ASTM D5185m 0 2 <1 <1 Magnesium ppm ASTM D5185m 1010 920 828 922 Calcium ppm ASTM D5185m 1070 1134 892 947 Phosphorus ppm ASTM D5185m 1150 955 927 1095 Zinc ppm ASTM D5185m 1270 1212 1108 1228 Sulfur ppm ASTM D5185m 2060 2176 2624 3108 CONTAMINANTS method limit/base current history1 history1 history1 history1 history1 history1 history1 Potassium Potassium ppm ASTM D5185m >20 3 2 2 2 INFRA-RED method limit/base current history1 history1 history2 Soot % % *AS	Boron	ppm	ASTM D5185m	0	2	2	3
Manganese ppm ASTM D5185m 0 2 <1 <1 Magnesium ppm ASTM D5185m 1010 920 828 922 Calcium ppm ASTM D5185m 1070 1134 892 947 Phosphorus ppm ASTM D5185m 1150 955 927 1095 Zinc ppm ASTM D5185m 1270 1212 1108 1228 Sulfur ppm ASTM D5185m 2060 2176 2624 3108 CONTAMINANTS method limit/base current history1 history1 history1 history2 Silicon ppm ASTM D5185m >25 9 4 3 6 <1	Barium	ppm	ASTM D5185m	0	<1	<1	0
Magnesium ppm ASTM D5185m 1010 920 828 922 Calcium ppm ASTM D5185m 1070 1134 892 947 Phosphorus ppm ASTM D5185m 1150 955 927 1095 Zinc ppm ASTM D5185m 1270 1212 1108 1228 Gulfur ppm ASTM D5185m 2060 2176 2624 3108 CONTAMINANTS method limit/base current history1 history1 history1 Solicon ppm ASTM D5185m >25 9 4 3 Sodium ppm ASTM D5185m 3 6 <1	Molybdenum	ppm	ASTM D5185m	60	64	53	57
Calcium ppm ASTM D5185m 1070 1134 892 947 Phosphorus ppm ASTM D5185m 1150 955 927 1095 Zinc ppm ASTM D5185m 1270 1212 1108 1228 Sulfur ppm ASTM D5185m 2060 2176 2624 3108 CONTAMINANTS method limit/base current history1 history1 history1 history1 history1 history2 500 4 3 6 <1	Manganese	ppm	ASTM D5185m	0	2	<1	<1
Phosphorus ppm ASTM D5185m 1150 955 927 1095 Zinc ppm ASTM D5185m 1270 1212 1108 1228 Sulfur ppm ASTM D5185m 2060 2176 2624 3108 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 9 4 3 Godium ppm ASTM D5185m 3 6 <1	Magnesium	ppm	ASTM D5185m	1010	920	828	922
Zinc ppm ASTM D5185m 1270 1212 1108 1228 Sulfur ppm ASTM D5185m 2060 2176 2624 3108 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 9 4 3 Sodium ppm ASTM D5185m 3 6 <1	Calcium	ppm	ASTM D5185m	1070	1134	892	947
Sulfur ppm ASTM D5185m 2060 2176 2624 3108 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 9 4 3 Sodium ppm ASTM D5185m 3 6 <1	Phosphorus	ppm	ASTM D5185m	1150	955	927	1095
CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 9 4 3 Sodium ppm ASTM D5185m 3 6 <1	Zinc	ppm	ASTM D5185m	1270	1212	1108	1228
Solition ppm ASTM D5185m >25 9 4 3	Sulfur	ppm	ASTM D5185m	2060	2176	2624	3108
Sodium ppm ASTM D5185m 3 6 <1 Potassium ppm ASTM D5185m >20 3 2 2 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >6 1.5 0.3 0.2 Nitration Abs/cm *ASTM D7624 >20 16.6 7.0 5.7 Sulfation Abs/.1mm *ASTM D7415 >30 27.4 19.0 18.4 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 29.8 14.9 14.1	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 3 2 2 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >6 1.5 0.3 0.2 Nitration Abs/cm *ASTM D7624 >20 16.6 7.0 5.7 Sulfation Abs/.1mm *ASTM D7415 >30 27.4 19.0 18.4 FLUID DEGRADATION method limit/base current history1 history Dxidation Abs/.1mm *ASTM D7414 >25 29.8 14.9 14.1	Silicon	ppm	ASTM D5185m	>25	9	4	3
INFRA-RED	Sodium	ppm	ASTM D5185m		3	6	<1
Soot % % *ASTM D7844 >6 1.5 0.3 0.2 Nitration Abs/cm *ASTM D7624 >20 16.6 7.0 5.7 Sulfation Abs/.1mm *ASTM D7415 >30 27.4 19.0 18.4 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 29.8 14.9 14.1	Potassium	ppm	ASTM D5185m	>20	3	2	2
Nitration Abs/cm *ASTM D7624 >20 16.6 7.0 5.7 Sulfation Abs/.1mm *ASTM D7415 >30 27.4 19.0 18.4 FLUID DEGRADATION method limit/base current history1 history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 29.8 14.9 14.1	INFRA-RED		method	limit/base	current	history1	history2
Nitration Abs/cm *ASTM D7624 >20 16.6 7.0 5.7 Sulfation Abs/.1mm *ASTM D7615 >30 27.4 19.0 18.4 FLUID DEGRADATION method limit/base current history1 history1 history Oxidation Abs/.1mm *ASTM D7414 >25 29.8 14.9 14.1	Soot %	%	*ASTM D7844	>6	1.5	0.3	0.2
Sulfation Abs/.1mm *ASTM D7415 >30 27.4 19.0 18.4 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 29.8 14.9 14.1	Vitration	Abs/cm	*ASTM D7624	>20			5.7
Dxidation Abs/.1mm *ASTM D7414 >25 29.8 14.9 14.1	Sulfation						
	FLUID DEGRAD	OATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	29.8	14.9	14.1
Dase Multiper (DIV)	Base Number (BN)	mg KOH/g	ASTM D2896		<u>^</u> 2.4	8.6	8.4



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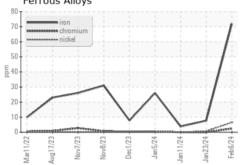


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

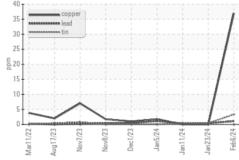
FLUID PROP	EHIIES	method	iiiiii/base	current	riistory i	HIStory
Visc @ 100°C	cSt	ASTM D445	15.4	13.6	13.7	13.8

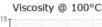
GRAPHS

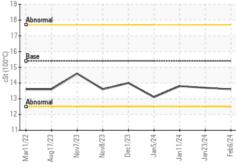
Ferrous Alloys

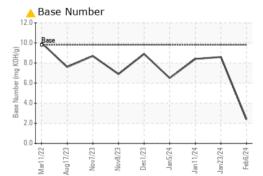
















Laboratory Sample No.

: GFL0110093 Lab Number : 06083389 Unique Number : 10870834

Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 08 Feb 2024 **Tested** : 08 Feb 2024

Diagnosed : 09 Feb 2024 - Don Baldridge

GFL Environmental - 410 - Michigan West 39000 Van Born Rd

Wayne, MI US 48184

Contact: Belal Dgheish bdgheish@gflenv.com T: (734)714-2340

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)