

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Machine Id 928025-1123 **Diesel Engine**

CHEVRON DELO 400 XLE 15W40 (10 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

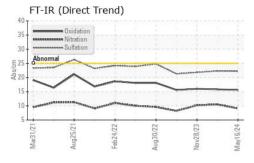
Fluid Condition

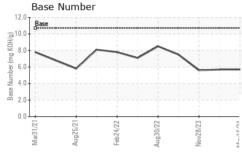
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

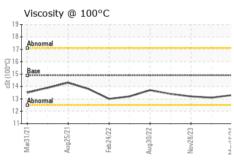
SAMPLE INFORMATION method limit/base current history1 history2	XLL 101140 (10	····,					
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 600 17284 0 Oil Age hrs Client Info 600 17284 0 Oil Changed Client Info Changed Changed Not Changed Sample Status Client Info Changed Changed Not Changed NoRMAL NORMAL NORMAL NORMAL NORMAL CONTAMINATION method Imitibase current history history Fuel WC Method >3.0 <1.0	Sample Number		Client Info		GFL0104667	GFL0096282	GFL0096274
Oil Age hrs Client Info 600 17284 0 Oil Changed Sample Status Client Info Changed Changed Changed Changed Not Change	Sample Date		Client Info		16 May 2024	01 Feb 2024	28 Nov 2023
Oil Changed Sample Status Client Info MoRMAL Changed NORMAL NORMAL Not Changed NoRMAL Not Clanged NoRMAL Not Clanged NEG Not Clanged NEG <t< td=""><td>Machine Age</td><td>hrs</td><td>Client Info</td><td></td><th>-</th><td>17284</td><td>17274</td></t<>	Machine Age	hrs	Client Info		-	17284	17274
Sample Status	Oil Age	hrs	Client Info		600	17284	0
Sample Status	-		Client Info		Changed	Changed	Not Changd
Fuel					_		NORMAL
Water Glycol WC Method Glycol >0.2 NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 75 42 36 Chromium ppm ASTM D5185m >20 1 1 <1	CONTAMINAT	ION	method	limit/base	current	history1	history2
Silycol WC Method Imilibase current history1 history2	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 75 42 36 Chromium ppm ASTM D5185m >20 1 1 <1	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 1 1 <1 Nickel ppm ASTM D5185m >5 0 0 0 Titanium ppm ASTM D5185m >2 5 10 11 Silver ppm ASTM D5185m >2 <1	WEAR METAL	.S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>120	75	42	36
Titanium ppm ASTM D5185m >2 5 10 11 Silver ppm ASTM D5185m >2 <1 0 0 Aluminum ppm ASTM D5185m >20 18 21 18 Lead ppm ASTM D5185m >40 1 <1 0 Copper ppm ASTM D5185m >330 2 1 1 Tin ppm ASTM D5185m >15 1 1 0 Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 2 ADDITIVES method limit/base current history1 history2 Barium	Chromium	ppm	ASTM D5185m	>20	1	1	<1
Silver ppm ASTM D5185m >2 <1 0 0 Aluminum ppm ASTM D5185m >20 18 21 18 Lead ppm ASTM D5185m >40 1 <1 0 Copper ppm ASTM D5185m >330 2 1 1 Tin ppm ASTM D5185m >15 1 1 0 Vanadium ppm ASTM D5185m 0 <1 0 Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Barium <	Nickel	ppm	ASTM D5185m	>5	0	0	0
Aluminum ppm ASTM D5185m >20 18 21 18 Lead ppm ASTM D5185m >40 1 <1	Titanium	ppm	ASTM D5185m	>2	5	10	11
Lead ppm ASTM D5185m >40 1 <1 0 Copper ppm ASTM D5185m >330 2 1 1 Tin ppm ASTM D5185m >15 1 1 0 Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 0 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 2 ADDITIVES method limit/base current history1 history2 Barium ppm ASTM D5185m 221 84 85 Barium ppm ASTM D5185m 69 53 52 Manganese ppm ASTM D5185m 22 <1 0 Magnesium ppm ASTM D5185m 529 702 653 Calcium ppm ASTM	Silver	ppm	ASTM D5185m	>2	<1	0	0
Copper ppm ASTM D5185m >330 2 1 1 Tin ppm ASTM D5185m >15 1 1 0 Vanadium ppm ASTM D5185m 0 <1	Aluminum	ppm	ASTM D5185m	>20	18	21	18
Tin ppm ASTM D5185m >15 1 1 0 Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 221 84 85 Barium ppm ASTM D5185m 0 0 2 Molybdenum ppm ASTM D5185m 69 53 52 Manganese ppm ASTM D5185m 2 <1 0 Magnesium ppm ASTM D5185m 529 702 653 Calcium ppm ASTM D5185m 760 894 710 673 Zinc ppm ASTM D5185m 2770 3431 2931 2954 CONTAMINANTS method limit/base current history1 history2 Sodium ppm ASTM D5185m	Lead	ppm	ASTM D5185m	>40	1	<1	0
Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 221 84 85 Barium ppm ASTM D5185m 0 0 2 Molybdenum ppm ASTM D5185m 69 53 52 Manganese ppm ASTM D5185m 2 <1 0 Magnesium ppm ASTM D5185m 529 702 653 Calcium ppm ASTM D5185m 529 702 653 Calcium ppm ASTM D5185m 760 894 710 673 Zinc ppm ASTM D5185m 270 3431 2931 2954 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 </td <td>Copper</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>330</td> <th>2</th> <td>1</td> <td>1</td>	Copper	ppm	ASTM D5185m	>330	2	1	1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 221 84 85 Barium ppm ASTM D5185m 0 0 2 Molybdenum ppm ASTM D5185m 69 53 52 Manganese ppm ASTM D5185m 2 -1 0 Magnesium ppm ASTM D5185m 529 702 653 Calcium ppm ASTM D5185m 529 702 653 Calcium ppm ASTM D5185m 70 894 710 673 Zinc ppm ASTM D5185m 270 3431 2931 2954 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 10 12 Sodium ppm ASTM D5185m <td>Tin</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>15</td> <th>1</th> <td>1</td> <td>0</td>	Tin	ppm	ASTM D5185m	>15	1	1	0
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	<1	0
Boron ppm ASTM D5185m 221 84 85 Barium ppm ASTM D5185m 0 0 2 Molybdenum ppm ASTM D5185m 69 53 52 Manganese ppm ASTM D5185m 2 <1 0 Magnesium ppm ASTM D5185m 529 702 653 Calcium ppm ASTM D5185m 529 702 653 Calcium ppm ASTM D5185m 760 894 710 673 Zinc ppm ASTM D5185m 270 3431 2931 2954 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 10 12 Sodium ppm ASTM D5185m >20 2 2 4 INFRA-RED method limit/base current history1 history2 Soot % %	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 2 Molybdenum ppm ASTM D5185m 69 53 52 Manganese ppm ASTM D5185m 2 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 69 53 52 Manganese ppm ASTM D5185m 2 <1 0 Magnesium ppm ASTM D5185m 529 702 653 Calcium ppm ASTM D5185m 1467 1460 1436 Phosphorus ppm ASTM D5185m 760 894 710 673 Zinc ppm ASTM D5185m 2770 3431 2931 2954 CONTAMINANTS method limit/base current history1 history2 Solium ppm ASTM D5185m >25 18 10 12 Sodium ppm ASTM D5185m >20 2 2 4 Potassium ppm ASTM D5185m >20 2 2 4 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 >4 0.7 0.5 0.5	Boron	ppm	ASTM D5185m		221	84	85
Manganese ppm ASTM D5185m 2 <1 0 Magnesium ppm ASTM D5185m 529 702 653 Calcium ppm ASTM D5185m 1467 1460 1436 Phosphorus ppm ASTM D5185m 760 894 710 673 Zinc ppm ASTM D5185m 830 1035 839 791 Sulfur ppm ASTM D5185m 2770 3431 2931 2954 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 10 12 Sodium ppm ASTM D5185m >25 18 10 12 Sodium ppm ASTM D5185m >20 2 2 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.7 0.5	Barium	ppm	ASTM D5185m		0	0	2
Magnesium ppm ASTM D5185m 529 702 653 Calcium ppm ASTM D5185m 1467 1460 1436 Phosphorus ppm ASTM D5185m 760 894 710 673 Zinc ppm ASTM D5185m 830 1035 839 791 Sulfur ppm ASTM D5185m 2770 3431 2931 2954 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 10 12 Sodium ppm ASTM D5185m >25 18 10 12 Sodium ppm ASTM D5185m >20 2 2 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 9.1 10.5 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 2	Molybdenum	ppm	ASTM D5185m		69	53	52
Calcium ppm ASTM D5185m 1467 1460 1436 Phosphorus ppm ASTM D5185m 760 894 710 673 Zinc ppm ASTM D5185m 830 1035 839 791 Sulfur ppm ASTM D5185m 2770 3431 2931 2954 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 10 12 Sodium ppm ASTM D5185m >20 2 2 4 Potassium ppm ASTM D5185m >20 2 2 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.7 0.5 0.5 Nitration Abs/.1mm *ASTM D7415 >30 22.2 22.3 21.8 FLUID DEGRADATION method limit/b	Manganese	ppm	ASTM D5185m		2	<1	0
Phosphorus ppm ASTM D5185m 760 894 710 673 Zinc ppm ASTM D5185m 830 1035 839 791 Sulfur ppm ASTM D5185m 2770 3431 2931 2954 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 10 12 Sodium ppm ASTM D5185m >20 2 2 4 Potassium ppm ASTM D5185m >20 2 2 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 9.1 10.5 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 22.2 22.3 21.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm	Magnesium	ppm	ASTM D5185m		529	702	653
Zinc ppm ASTM D5185m 830 1035 839 791 Sulfur ppm ASTM D5185m 2770 3431 2931 2954 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 10 12 Sodium ppm ASTM D5185m 7 7 4 Potassium ppm ASTM D5185m >20 2 2 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.7 0.5 0.5 Nitration Abs/.mm *ASTM D7624 >20 9.1 10.5 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 22.2 22.3 21.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM	Calcium	ppm	ASTM D5185m		1467	1460	1436
Sulfur ppm ASTM D5185m 2770 3431 2931 2954 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 10 12 Sodium ppm ASTM D5185m >20 7 7 4 Potassium ppm ASTM D5185m >20 2 2 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.7 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 9.1 10.5 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 22.2 22.3 21.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.6 15.8 16.0	Phosphorus	ppm	ASTM D5185m	760	894	710	673
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 10 12 Sodium ppm ASTM D5185m 7 7 4 Potassium ppm ASTM D5185m >20 2 2 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.7 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 9.1 10.5 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 22.2 22.3 21.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.6 15.8 16.0	Zinc	ppm	ASTM D5185m	830	1035	839	791
Silicon ppm ASTM D5185m >25 18 10 12 Sodium ppm ASTM D5185m 7 7 4 Potassium ppm ASTM D5185m >20 2 2 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.7 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 9.1 10.5 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 22.2 22.3 21.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.6 15.8 16.0			ASTM D5185m	2770	3431	2931	2954
Sodium ppm ASTM D5185m 7 7 4 Potassium ppm ASTM D5185m >20 2 2 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.7 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 9.1 10.5 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 22.2 22.3 21.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.6 15.8 16.0	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 2 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.7 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 9.1 10.5 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 22.2 22.3 21.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.6 15.8 16.0	Silicon	ppm	ASTM D5185m	>25			
INFRA-RED	Sodium	ppm	ASTM D5185m		7	7	4
Soot % % *ASTM D7844 >4 0.7 0.5 0.5 Nitration Abs/cm *ASTM D7624 >20 9.1 10.5 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 22.2 22.3 21.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.6 15.8 16.0	Potassium	ppm	ASTM D5185m	>20	2	2	4
Nitration Abs/cm *ASTM D7624 >20 9.1 10.5 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 22.2 22.3 21.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.6 15.8 16.0	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 22.2 22.3 21.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.6 15.8 16.0	Soot %	%	*ASTM D7844	>4	0.7	0.5	0.5
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.6 15.8 16.0	Nitration	Abs/cm	*ASTM D7624	>20	9.1	10.5	10.2
Oxidation Abs/.1mm *ASTM D7414 >25 15.6 15.8 16.0	Sulfation	Abs/.1mm	*ASTM D7415	>30	22.2	22.3	21.8
	FLUID DEGRAI	DATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 10.7 5.7 5.7 5.6	Oxidation	Abs/.1mm	*ASTM D7414	>25	15.6	15.8	16.0
	Base Number (BN)	mg KOH/g	ASTM D2896	10.7	5.7	5.7	5.6



OIL ANALYSIS REPORT



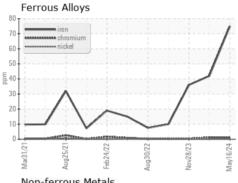


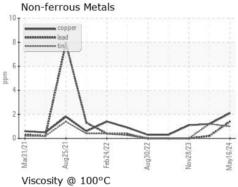


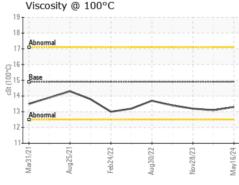
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

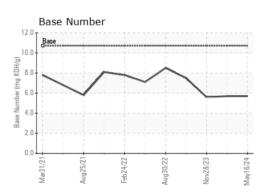
FLUID PROPI	ERIIES	method				history2
Visc @ 100°C	cSt	ASTM D445	14.9	13.3	13.1	13.2

GRAPHS













Certificate 12367

Laboratory Sample No.

Lab Number : 06187133 Unique Number : 11043885 Test Package : FLEET

: GFL0104667

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

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 21 May 2024 **Tested** : 23 May 2024

Diagnosed : 23 May 2024 - Wes Davis

GFL Environmental - 624 - Elmira Hauling 10164 M-32 Elmira, MI

US 49730 Contact: ANDY GROBASKI andyg@americanwaste.org T: (989)370-2941

* - 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)