

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

Machine Id

KENWORTH 523099-SW7309

Diesel Engine Fluid MOBIL DELVAC ELITE 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.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0111301	GFL0111341	GFL0095494
Sample Date		Client Info		15 Apr 2024	08 Feb 2024	07 Dec 2023
Machine Age	hrs	Client Info		4772	4310	3820
Oil Age	hrs	Client Info		4310	0	500
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	13	13	26
Chromium	ppm	ASTM D5185m	>20	0	0	<1
Nickel	ppm		>4	0	0	<1
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	5	4	5
Lead	ppm	ASTM D5185m	>40	<1	0	0
Copper	ppm	ASTM D5185m	>330	2	<1	2
Tin	ppm	ASTM D5185m	>15	<1	0	0
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	<1
				-		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 68	history1 49	
			limit/base			history2
Boron	ppm	ASTM D5185m	limit/base	68	49	history2 65
Boron Barium	ppm ppm	ASTM D5185m ASTM D5185m	limit/base	68 0	49 <1	history2 65 0
Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	68 0 128	49 <1 118	history2 65 0 125
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	68 0 128 <1	49 <1 118 0	history2 65 0 125 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	68 0 128 <1 688	49 <1 118 0 672	history2 65 0 125 <1 647 1195 656
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	68 0 128 <1 688 1274	49 <1 118 0 672 1278	history2 65 0 125 <1 647 1195
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		68 0 128 <1 688 1274 789	49 <1 118 0 672 1278 730 824 3168	history2 65 0 125 <1 647 1195 656 810 3702
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	68 0 128 <1 688 1274 789 864	49 <1 118 0 672 1278 730 824	history2 65 0 125 <1 647 1195 656 810 3702 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		68 0 128 <1 688 1274 789 864 3854 current 8	49 <1 118 0 672 1278 730 824 3168 history1 8	history2 65 0 125 <1 647 1195 656 810 3702 history2 10
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	68 0 128 <1 688 1274 789 864 3854 <u>current</u> 8 2	49 <1 118 0 672 1278 730 824 3168 history1 8 2	history2 65 0 125 <1 647 1195 656 810 3702 history2 10 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	68 0 128 <1 688 1274 789 864 3854 current 8	49 <1 118 0 672 1278 730 824 3168 history1 8	history2 65 0 125 <1 647 1195 656 810 3702 history2 10
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base	68 0 128 <1 688 1274 789 864 3854 current 8 2 4 current	49 <1 118 0 672 1278 730 824 3168 history1 8 2 2 2 history1	history2 65 0 125 <1 647 1195 656 810 3702 history2 10 0 6 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3	68 0 128 <1 688 1274 789 864 3854 <u>current</u> 8 2 4 <u>current</u> 0.3	49 <1 118 0 672 1278 730 824 3168 history1 8 2 2 2 history1 0.3	history2 65 0 125 <1 647 1195 656 810 3702 history2 10 0 6 history2 0.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3 >20	68 0 128 <1 688 1274 789 864 3854 <i>current</i> 8 2 4 <i>current</i> 0.3 10.8	49 <1 118 0 672 1278 730 824 3168 history1 8 2 2 2 history1 0.3 10.8	history2 65 0 125 <1 647 1195 656 810 3702 history2 10 0 6 history2 0 6.3 10.8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3	68 0 128 <1 688 1274 789 864 3854 <u>current</u> 8 2 4 <u>current</u> 0.3	49 <1 118 0 672 1278 730 824 3168 history1 8 2 2 2 history1 0.3	history2 65 0 125 <1 647 1195 656 810 3702 history2 10 0 6 history2 0.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3 >20	68 0 128 <1 688 1274 789 864 3854 <i>current</i> 8 2 4 <i>current</i> 0.3 10.8	49 <1 118 0 672 1278 730 824 3168 history1 8 2 2 2 history1 0.3 10.8	history2 65 0 125 <1 647 1195 656 810 3702 history2 10 0 6 history2 0.3 10.8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	Imit/base >25 >20 Imit/base >3 >20 >30	68 0 128 <1 688 1274 789 864 3854 <u>current</u> 8 2 4 2 4 <u>current</u> 0.3 10.8 18.9	49 <1 118 0 672 1278 730 824 3168 history1 8 2 2 2 history1 0.3 10.8 19.4	history2 65 0 125 <1 647 1195 656 810 3702 history2 10 0 6 history2 0.3 10.8 19.5



31

5²⁵

sqP 20

15

12.0

0.01 (mg KOH/g) 0.6 0.6 4.0 8.0

Base 2.0 0.0

6.0

10

OIL ANALYSIS REPORT

FT-IR (Direct Trend)	VISUAL		method			
Oxidation Nitration	White Metal	scalar	*Visual	NONE	NONE	NONE
Sulfation	Yellow Metal	scalar	*Visual	NONE	NONE	NONE
5 Abnormal	Precipitate	scalar	*Visual	NONE	NONE	NONE
	Silt	scalar	*Visual	NONE	NONE	NONE
5-	Debris	scalar	*Visual	NONE	NONE	NONE
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Chec7/23 - Feb8/24 -		scalar	*Visual	NORML	NORML	NORML
Leb-	Appearance Odor	scalar	*Visual	NORML	NORML	NORML
Daga Number	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG
Base Number	Free Water	scalar	*Visual		NEG	NEG
0 - Base	FLUID PROP	EDTIES	mothod	limit/base	ourropt	history1
0			method		current	history1
0-	Visc @ 100°C	cSt	ASTM D445	15.2	13.7	13.6
.0+	GRAPHS					
o-	Ferrous Alloys					
	30 iron					
Dec7/23 Feb 8/24	25 - chromium					
	20					
Viscosity @ 100°C	<u>۾</u> 15					
9 						
7 Abnormal	10					
6 - Rase	5					
5 Base	0					
4 Abaamad	Dec7/23	Feb 8/24		Apr15/24		
2 + Abnormal				Ap		
	Non-ferrous Met	als				
Dec7/23 Feb 8/24	copper					
	< 8 - 8 - tin					
	6-					
	Edd					
	4					
	2					
	2 2	24		24		
	Dec7/23	Feb 8/24		Apr15/24		
	Viscosity @ 100°	°C				
	¹⁹ T	-		12	Base Number	
	18 Abnormal	· · · · · · · · · · · · · · · · · · ·			Base	
	17-			10 \$.0-	
	016 Base			8 KO	.0	
	016 Base 315 314			Base Number (mg KOHg) 6 09 00	.0	
	³ 14			unv 4	.0	
	13 Abnormal					
	12				.0	
	114	24		24 +-		24 +
	Dec7/23	Feb 8/24		Apr15/24	Dec7/23	Feb 8/24
				4		
				NO 6		
Laborato		01 Madisc Rece			GFL Envi	ironmental - 981
	No. : GFL0111301 Iber : 06231213	Teste		9 Jul 2024) Jul 2024		1000 S
	mber : 11114706) Jul 2024 - V	Ves Davis	
		5				Conta

nental - 981 - Port Arthur Hauling 1000 S Business Park Dr Port Arthur, TX US 77640 Contact: MICHAEL KAY mkay@gflenv.com T: (336)660-9331 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Report Id: GFL981 [WUSCAR] 06231213 (Generated: 07/10/2024 04:34:07) Rev: 1

Certificate L2367

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.

Submitted By: MICHAEL KAY

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Apr15/24

NONE

NONE

NONE

NONE

NONE

NONE

NORML

NORML

NEG

NEG

13.8