

# **OIL ANALYSIS REPORT**

Sample Rating Trend





## Component

Diesel Engine Fluid Diesel Engine Oil (--- 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.

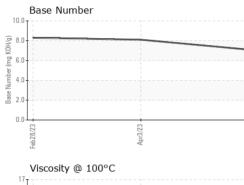
## Fluid Condition

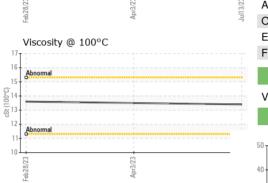
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0083857	GFL0061553	GFL0061495
Sample Date		Client Info		13 Jul 2023	03 Apr 2023	28 Feb 2023
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>110	20	47	18
Chromium	ppm	ASTM D5185m	>4	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	<1	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>25	4	8	7
Lead	ppm	ASTM D5185m	>45	0	<1	0
Copper	ppm	ASTM D5185m	>85	2	4	1
Tin	ppm	ASTM D5185m	>4	_ <1	<1	<1
Vanadium	ppm	ASTM D5185m	21	0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
	PP			•	Ũ	-
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	limit/base	4	12	8
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	4 0	12 0	8
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	4 0 64	12 0 61	8 0 66
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	4 0 64 <1	12 0 61 <1	8 0 66 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	4 0 64 <1 904	12 0 61 <1 773	8 0 66 <1 873
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	4 0 64 <1 904 1146	12 0 61 <1 773 1090	8 0 66 <1 873 1211
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	4 0 64 <1 904 1146 1027	12 0 61 <1 773 1090 937	8 0 66 <1 873 1211 1033
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	4 0 64 <1 904 1146 1027 1227	12 0 61 <1 773 1090 937 1150	8 0 66 <1 873 1211 1033 1262
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	4 0 64 <1 904 1146 1027	12 0 61 <1 773 1090 937	8 0 66 <1 873 1211 1033
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	limit/base	4 0 64 <1 904 1146 1027 1227	12 0 61 <1 773 1090 937 1150	8 0 66 <1 873 1211 1033 1262
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	4 0 64 <1 904 1146 1027 1227 2867	12 0 61 <1 773 1090 937 1150 2707	8 0 66 <1 873 1211 1033 1262 3494
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	limit/base	4 0 64 <1 904 1146 1027 1227 2867 current	12 0 61 <1 773 1090 937 1150 2707 history1	8 0 66 <1 873 1211 1033 1262 3494 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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 <b>method</b>	limit/base	4 0 64 <1 904 1146 1027 1227 2867 current 3	12 0 61 <1 773 1090 937 1150 2707 history1 8	8 0 66 <1 873 1211 1033 1262 3494 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	limit/base	4 0 64 <1 904 1146 1027 1227 2867 current 3 0	12 0 61 <1 773 1090 937 1150 2707 history1 8 2	8 0 66 <1 873 1211 1033 1262 3494 history2 4 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	limit/base >30 >20 limit/base	4 0 64 <1 904 1146 1027 1227 2867 current 3 0 6	12 0 61 <1 773 1090 937 1150 2707 history1 8 2 2 19	8 0 66 <1 873 1211 1033 1262 3494 history2 4 0 9
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 >30 >20 limit/base >3	4 0 64 <1 904 1146 1027 1227 2867 current 3 0 6 current	12 0 61 <1 773 1090 937 1150 2707 history1 8 2 19 history1	8 0 66 <1 873 1211 1033 1262 3494 history2 4 0 9 9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >30 >20 limit/base >3	4 0 64 <1 904 1146 1027 1227 2867 <i>current</i> 3 0 6 <i>current</i>	12 0 61 <1 773 1090 937 1150 2707 history1 8 2 19 history1 0.6	8 0 66 <1 873 1211 1033 1262 3494 history2 4 0 9 history2 0.5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm t ppm ppm pp	ASTM D5185m ASTM D5185m	limit/base >30 >20 limit/base >3 >20	4 0 64 <1 904 1146 1027 1227 2867 <i>current</i> 3 0 6 <i>current</i> 0.4 8.5	12 0 61 <1 773 1090 937 1150 2707 history1 8 2 2 19 history1 0.6 9.1	8 0 66 <1 873 1211 1033 1262 3494 history2 4 0 9 <u>history2</u> 0.5 8.8
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 t ppm ppm pp	ASTM D5185m ASTM D5185m	limit/base >30 >20 limit/base >3 >20 >30 >30 >30 >30	4 0 64 <1 904 1146 1027 1227 2867 <i>current</i> 3 0 6 <i>current</i> 0.4 8.5 20.2	12 0 61 <1 773 1090 937 1150 2707 history1 8 2 19 history1 0.6 9.1 20.5	8 0 66 <1 873 1211 1033 1262 3494 history2 4 0 9 <u>history2</u> 0.5 8.8 18.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAC	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm % Abs/cm Abs/cm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	limit/base >30 >20 limit/base >3 >20 >30 >30 >30 >30	4 0 64 <1 904 1146 1027 1227 2867 <i>current</i> 3 0 6 <i>current</i> 0.4 8.5 20.2 <i>current</i>	12 0 61 <1 773 1090 937 1150 2707 history1 8 2 2 19 history1 0.6 9.1 20.5 history1	8 0 66 <1 873 1211 1033 1262 3494 history2 4 0 9 history2 0.5 8.8 18.3 history2



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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
Apr3/23 Juil 3/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Ϋ́Υ Ϋ́Υ	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	PERTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445		13.4	13.5	13.6
	GRAPHS						
1	Ferrous Alloys						
	50 iron						
Apr3/23	40 - chromium						
<							
	30 Ed						
	ä 20						
	10-						
	0						
	Feb28/23 -	Apr3/23 -		Jul13/23 -			
	Feb 2	Apı		Jull			
	Non-ferrous Me	etals					
	10 copper						
	neeseeeeeeeeeeeeeeeeeeeeeeeee						
	8						
	neeseeeeeeeeeeeeeeeeeeeeeeeee						
	8		_				
	8	<u> </u>		/			
	8	<u> </u>		/			
	ead tin 2	23		23			
	ead tin 2	Api3/23		Juli 3/23			
	B a b a b a b a b a b a b a b a b a b a	Apr3/23		Jul13/23			
	ead tin 2			Juli323	Base Numbe	r	
	Viscosity @ 100					r	
	ead tin ead tin Viscosity @ 100			9.0		r	
	Viscosity @ 100			9.0		r	
	Viscosity @ 100			9.0		r	
	8 Isad   6 Index   0 ECC   ECC			9.0		Γ	
	Viscosity @ 100			9.0		r	
	8 6 4 2 0 EC EC EC EC EC EC EC EC EC EC			9.0		r	
	Viscosity @ 100	0°C		9.0 8.0 (b)HOX VOX 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1			
	Viscosity @ 100			9.0 8.0 (b)HOX VOX 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1		r	
	Viscosity @ 100	0°℃		9.0 8.0 (9)(4)(0)(5.0 9)(4)(0)(5.0 9)(4,0) 90 90 90 90 90 90 90 90 90 90 90 90 90	Feb 28/23	Api3/23	
Laboratory	Viscosity @ 100 Viscosity @ 100 Viscos	D°C		9.0 8.0 (97.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9	Feb 28/23	EZEPT Tronmental - 652 - Fre	
Laboratory Sample No.	Viscosity @ 100 Viscosity @ 10	c - 501 Madia	d :17.	9.0 8.0 (97.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9	Feb 28/23	rionmental - 652 - Fre	54 Houser Dri
Laboratory Sample No. Lab Number	Viscosity @ 100 Viscosity @ 100 Viscos	C C C C C C C C C C C C C C C C C C C	d :17. ed :19.	9.0 8.0 (97.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9	EZU82 OFL Env	rionmental - 652 - Fre	
Laboratory Sample No.	Uiscosity @ 100 Viscosity @ 100 Viscosity @ 100	A - 501 Madia Received Diagnos	d : 17 . ed : 19 . tician : Jon	9.0 8.0 1000 bit 5.0 9.0 1000 bit 5.0 9.0 1000 bit 5.0 9.0 9.0 1000 bit 5.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9	EZU82 OFL Env	ironmental - 652 - Fre 1095 Fred Contact:	54 Houser Dr dericksburg, '

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Submitted By: TECHNICIAN ACCOUNT

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